19-21
GIUGNO
ROMA
UNIVERSITÀ CATTOLICA
DEL SACRO CUORE
CENTRO CONGRESSI
EUROPA

16° CONGRESSO NAZIONALE

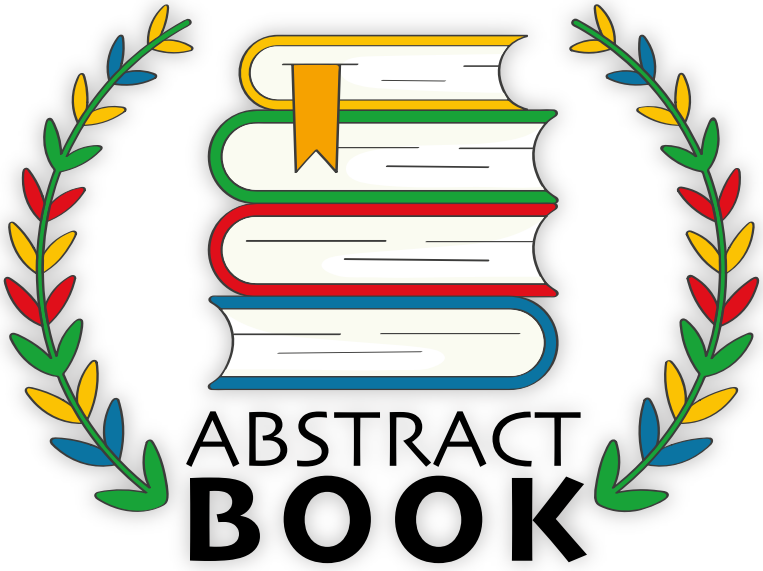
ICAR

Italian Conference on AIDS and Antiviral Research

2024

Presidenza del Congresso
A. Cingolani, *Roma*
A. Di Biagio, *Genova*
M. Farinella, *Roma*
G. C. Marchetti, *Milano*

RESEARCH and CARE: FROM BENCH, TO BEDSIDE, TO COMMUNITY



Promosso da

SIMIT Società Italiana di Malattie Infettive e Tropicali

e da

INMI, Istituto Nazionale per le Malattie Infettive
ISS, Istituto Superiore di Sanità
AMCLI, Associazione Microbiologi Clinici Italiani
SIICA, Società Italiana di Immunologia, Immunologia Clinica e Allergologia
SIMaST, Società Interdisciplinare per lo Studio delle Malattie Sessualmente Trasmissibili
SITA, Società italiana per la Terapia Antinfettiva Antibatterica Antivirale Antifungina
SIV-ISV, Società Italiana di Virologia - Italian Society for Virology
ANLAIDS, Associazione Nazionale per la Lotta contro l'Aids ETS
ARCIGAY Associazione LGBTQIA+ Italiana APS
ARCOBALENO Aids ODV
ASA, Associazione Solidarietà AIDS-ODV
C.I.C.A., Coordinamento Italiano delle case alloggio per persone con HIV/AIDS ETS
EpaC ETS, Associazione EpaC – ETS
LILA, Lega Italiana per la Lotta contro l'AIDS Onlus
Mario Mieli, Circolo Cultura Omosessuale Mario Mieli APS
Milano Checkpoint, Associazione Milano Check Point
NADIR, Associazione Nadir ETS
NPS Italia, Network Persone Sieropositive APS
PLUS, Rete persone LGBT+ sieropositive Aps

www.icar2024.it

Index of Presenting Author

Index of Presenting Author

Index of Presenting Author

Index of Presenting Author

Index of Presenting Author

HIV epidemiology and testing promotion

OC 1 MEASURING HIV KNOWLEDGE AND ATTITUDES IN THE HEALTHCARE SETTING: ITALIAN RESULTS FROM AN ECDC/EACS SURVEY

M. Mazzitelli[1], M. Trunfio[2], A. Mendez Lopez[3], E. Martinez[4], T. Noori[5]

[1]Infectious and Tropical Diseases Unit, Padua University Hospital, Italy, [2]Infectious Disease Unit, Amedeo di Savoia hospital, Department of Medical Science, University of Turin, Turin, Italy, [3]Department of Preventive Medicine, Public Health and Microbiology, Autonomous University of Madrid, Spain, [4]Hospital Clínic, University of Barcelona, Barcelona, Spain; and CIBER de Enfermedades Infecciosas (CIBERINFEC), Instituto de Salud Carlos III, Madrid, Spain, [5]European Center for Disease Prevention and Control

Background: ECDC and the EACS promoted an online survey (August-November 2023) translated in 38 languages for 58 countries to investigate knowledge in HIV prevention/control, behaviours, and discrimination towards people living with HIV (PLWH) among health-care providers in Europe and Central Asia. Herein, the data for Italy are presented.
Methods: Answers from the Italian respondents were anonymously collected and analysed for descriptive statistics and comparisons by healthcare-related characteristics.
Results: 438 people completed the survey (Table 1 for main features). Education in “Consenting, privacy, confidentiality” and “Infection control” was reported by 77.6% and 73.5% of respondents, while <50% received training on “Equity, diversity, inclusion” and “HIV stigma/discrimination”. 17.4% of respondents disagree with “undetectable=untransmittable” (U=U) message. The 23.4% and the 39.8% of respondents were not aware of the possibility of preventing HIV acquisition through post-exposure and pre-exposure prophylaxis (PEP and PrEP), respectively. Awareness about these 3 pillars of HIV prevention was significantly lower among non-HIV care providers and in professionals employed from less than 5 years ($p<0.001$ for all, Fig.1A). The perceived risk of potentially acquiring HIV through touching patient’s clothes, dressing wounds, collecting blood, and measuring temperature was significantly more common among specialties other than infectious diseases, in respondents working in institutions not providing HIV care and in those working for less than 5 years ($p<0.05$ for all): e.g., 60.0% of doctors from other specialties vs 26.6% of HIV care providers ($p<0.001$) had from minimal to high concerns of acquiring HIV by drawing blood. Similarly, improper preventive measures (Fig.1B) were more common in physicians with other specialties than HIV/infectious diseases ($p<0.001$ for all), amongst physicians working in institutions not providing HIV care ($p<0.001$ for all), and among respondents with less than 5 years of work ($p<0.05$ for all). More than 20% of respondents were not aware of the existence of standardized procedures/protocols aimed at reducing HIV acquisition and regulating PEP access at their workplace. The 21.9%, 27.9%, 17.6%, and 12.5% of respondents reported at least one episode of unwillingness to care for PWH, discriminatory remarks about PLWH, poorer quality of care provided to PWH compared to persons without HIV, and of disclosure of a person's HIV status without their consent at their workplace.
Conclusions: The survey suggests that in Italy mainstream concepts of HIV prevention (PrEP, PEP, U=U) are still limited in the setting of HIV/infectious disease care. Training on HIV control measures and education on HIV stigma/discrimination is still poor, leading to improper practices, misconduct, and discrimination towards PWH. Therefore, persistent information and cultural promotion initiatives must be implemented. Broader non-specialized education for healthcare providers and at earlier career stages in each professional path must be implemented.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_210.jpg

HIV epidemiology and testing promotion

OC 2 MODENA AND EMILIA ROMAGNA HIV SURVEILLANCE: THE APPLICATION OF ECDC HIV MODELLING TOOL

M. Menozzi[1], A. Cervo[1], G. Cuomo[1], M. Digaetano[1], B. Fontana[2], A. Soffritti[2], E. Massimiliani[3], V. Borghi[2], G. Guaraldi[2], C. Mussini[2]

[1]Infectious Diseases Unit, University Hospital Policlinico of Modena, Italy, [2]Infectious Disease Unit, University of Modena and Reggio Emilia, Italy, [3]Public health department, Emilia Romagna Region, Italy

Background: The HIV Modelling Platform is an online instrument offered by ECDC to facilitate the process of analysing the HIV surveillance data to obtain modelling estimates of HIV prevalence and incidence, undiagnosed infections and average time between infection and diagnosis in a given population.
The aim of this study was to evaluate and interpret the available HIV surveillance data from Modena and Emilia Romagna Regional Observatories using the HIV Modelling Platform tool.
Material and methods: The HIV Modelling Platform Tool by ECDC was used in the online free version; the London Method was applied to analyse the HIV surveillance data collected in Modena provincial and Emilia Romagna regional Observatories since 1985 and 2006, respectively. Populations were defined according to ECDC guidelines for aggregated uploaded data: total number of HIV and/or AIDS diagnosis per year, stratification according to CD4 cell count at diagnosis (CD >=500 cells/mmc, CD4 350-499 cells/mmc, CD4 200-349 cells/mmc, CD4 <200 cells/mmc) and number of deaths per year. Data on AIDS incidence and mortality were available only in Modena Observatory.
Results: Trends and estimates of HIV epidemic in the province of Modena are depicted in Figure 1. Expected data on the number of HIV and AIDS diagnosis over time were aligned with those observed, as shown in Figure 1 a-b. The number of HIV diagnoses decreased with time, together with the estimate of undiagnosed HIV infections (Figure 1 c-d). The trends of HIV diagnosis stratified according to CD4 cell count at diagnosis are shown in Figures 2 a-d and the observed data were aligned to the estimates; the number of HIV diagnosis with CD4>350 cells/mmc decreased over time, while an increase in the proportion of people diagnosed with CD4 count between 200 and 350 cells/mmc was observed in last two years. The trends in terms of progressive reduction over time in number of new HIV and AIDS diagnosis were confirmed at regional level, applying Emilia Romagna HIV surveillance data that, although with a relatively shorter follow up duration, were more powerful in terms of event number; the increase of diagnosis with CD4<350 cells/mmc was confirmed with regional data, as well (data not shown).
Conclusions: The incidence of new HIV infection and AIDS diagnosis decreased during the follow-up time in Modena and Emilia Romagna, in alignment with the estimates modelled by the ECDC HIV Modelling Platform Tool. Although the estimate of undiagnosed individuals and the average time between infection and diagnosis both improved over time, there is still a significant proportion of people with late diagnosis. This trend could reflect lower HIV transmission levels due to prevention campaigns, changes in the transmission route over the years, effective antiretroviral therapy and pre-exposure prophylaxis introduction in the last years, but more effort should be necessary to reduce time to diagnosis.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_353.png

HIV epidemiology and testing promotion

OC 3 HIV TESTING IN ITALIAN COMMUNITY AND OUTREACH SITES: COBATEST NETWORK, 2020-2023

P. Meli[1], I. Mercurio[1], L. Cosmaro[2], M. Cernuschi[3], D. Calzavara[4], N. Frattini[4], R. Repossi[4]

[1]Bergamo Fast-track City, Bergamo, Italy, [2]Fondazione LILA, Milano, Italy, [3]ASA Milano, Milan, Italy, [4]Milano Checkpoint, Milan, Italy

Background: Testing as many people as possible is one of the pillars for achieving the 95-95-95 UNAIDS target, as undiagnosed people living with HIV contribute to spreading the infection. Since vulnerable groups have difficulties in approaching healthcare facilities, Community-Based Voluntary Counseling and Testing (CBVCT) services represent a fundamental alternative. Standardized data collection can inform interventions and outreach projects.
Methods: In this retrospective study, two specific aspects of Italian CBVCT services that are members of the COBATEST network were analyzed: 1. characteristics of clients referring to different CBVCT centers; 2. number of clients needed to observe 1 reactive test. The COBATEST network links organizations across Europe and Central Asia that offer community-based voluntary counselling and STI/HIV testing services, and promotes testing, early diagnosis and linkage to care in at-risk populations. COBATEST offers a common instrument to gather information on clients and offers a comprehensive database from which data for this study were extracted.
Results: For the first aspect (clients' characteristics), 2023 data were analyzed and marked differences were found (figure 1). As an example, MSM counted for 62% of clients referring to the Milano Checkpoint, but were only 18% of those tested at Bergamo and Ancona Checkpoints, that are part of two Fast-Track cities. Bergamo was also the setting with the highest proportion of female clients, while tests performed by LILA Milano included the highest proportion of migrants as compared to the lowest, observed at Arcigay Palermo (figure 1). For the second aspect (# of clients needed to observe a reactive test), a comparison between 2020 and 2023 data was made. Overall, this risk indicator significantly raised from 189 in 2020 to 617 in 2023. Similarly, considering clients over the age of 25, the respective numbers increased from 168 to 405. The differences in the two years were consistent across the different clients' characteristics (figure 2), but older clients showed a higher risk (lower number needed) irrespective of the grouping variable.
Conclusions: Our results indicate the heterogeneity of clients according to the type of organizations running CBVCT services. This may be viewed as an enrichment of the national testing offer other than healthcare facilities. The fact that the number of patients needed to observe 1 reactive test was higher in 2023 than in 2020 may depend on several aspects. More testing opportunities may be a possible explanation as people with a lower risk profile could have accessed HIV tests. It could also represent a positive progress, reflecting greater attention to own sexual health. A second, more optimistic explanation, would indicate that overall prevalence of undiagnosed infections is reducing little by little, paving the path towards the 95-95-95 UNAIDS goal.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_149.jpg

HIV epidemiology and testing promotion

OC 4

ESTIMATING THE POTENTIAL HEALTH ECONOMIC VALUE OF UNIVERSAL OPT-OUT HIV TESTING IN EMERGENCY DEPARTMENTS IN ITALY: A MODELLING STUDY

A. d'Arminio Monforte[1], G. d'Ettorre[2], G. Galardo[3], A. van Doornewaard[4], E. Lani[4], E. Kagenaar[4], S. Huntington[4], J. Jarret[5], M. Ruf[5], W. Ricciardi[6]

[1]University of Milan, Milan, Italy, [2]Sapienza University of Rome, Rome, Italy, [3]Hospital Policlinico Umberto I, Rome, Italy, [4]Aquarius Population Health, London, United Kingdom, [5]Gilead Sciences, London, United Kingdom, [6]Università Cattolica del Sacro Cuore, Rome, Italy

Background: In Italy, an estimated 13,000-15,000 people live with undiagnosed HIV infection. Italy also has one of the highest late diagnosis (CD4< 350) rates in Europe. Alternative testing strategies are urgently needed to progress towards achieving UNAIDS targets. Recently, several studies demonstrated the clinical effectiveness of opt-out emergency department (ED) testing in high-prevalence areas in Europe. In Italy, HIV testing is provided on an opt-in basis (except for antenatal care) and, in hospitals, primarily only for HIV indicator conditions. Our exploratory study assessed the potential health economic value of universal opt-out ED testing in Italy to stimulate discussion.
Material and methods: We developed a closed-cohort hybrid decision-tree Markov model to assess diagnostic and treatment outcomes. Using published European evidence, intervention was based on integration in the ED electronic patient record system which triggers an HIV test request on an opt-out basis for all adult ED attendees requiring routine blood tests. Pragmatically, linkage to care (LTC) was assumed to be required for only new diagnoses, all prior diagnoses were assumed to be already engaged. The standard of care (SoC) comparator was indicator testing for the proportion of patients presenting with opportunistic infections. So far, no studies have evaluated opt-out testing in Italy, and there is no data on ED HIV prevalence. As such, ED population and diagnostic outcome profiles were primarily based on the largest, high-quality European real-world study (Table 1). Treatment- and disease- outcome and cost profiles (2022 prices) were from published literature, including clinical trial reporting and Italian costing studies and databases. A lifetime horizon was assumed, and analyses were from the National Health Service perspective. Primary outcomes were discounted (3% p.a.) life years, quality-adjusted life years (QALYs), and costs.
Results: For a cohort of 10,000 people presenting to the ED, out of 18.0 undiagnosed individuals, opt-out testing resulted in 15.8 additional new diagnoses and 14.5 more individuals LTC compared with SoC indicator condition testing. Universal opt-out testing is associated with improved health outcomes at higher total costs. At an HIV point prevalence of 0.52%, the ICER for the intervention was 24,680€ / QALY. ED prevalence scenario analyses demonstrated that testing was cost-effective above a prevalence of 0.25% (Figure 1), assuming a willingness-to-pay threshold of 30,000 €/QALY. Findings were robust across a range of scenarios and one-way sensitivity analyses.
Conclusions: Universal opt-out ED testing could be a cost-effective strategy to increase the number of new HIV diagnoses and to improve HIV health outcomes in Italy. We likely underestimate the true benefit as our model did not consider prior-disengaged diagnoses or averted transmissions. Future research with Italian real-world data is needed to verify our findings.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_83.jpg

Immune responses to vaccination and emerging infections

OC 5 HUMORAL AND CELLULAR IMMUNE RESPONSE AFTER ONE YEAR FROM MPOX VIRUS INFECTION

V. Mazzotta[1], G. Matusali[2], E. Cimini[3], F. Colavita[2], R. Casetti[3], C. Pinnetti[1], A. Mondi[1], A. Bettini[2], V. Bordoni[4], G. Grassi[3], G. Prota[5], S. Vita[6], N. Nicastri[6], E. Girardi[7], C. Agrati[4], F. Maggi[2], A. Antinori[1]

[1]Clinical Department, INMI-IRCCS Lazzaro Spallanzani, Rome, Italy, [2]Laboratory of Virology, INMI-IRCCS Lazzaro Spallanzani, Rome, Italy, [3]Laboratory of Cellular Immunology and Pharmacology, INMI-IRCCS Lazzaro Spallanzani, Rome, Italy, [4]Unit of Pathogen Specific Immunity, IRCCS Ospedale Pediatrico Bambino Gesù, Rome, Italy, [5]Biological Bank,INMI-IRCCS Lazzaro Spallanzani, Rome, Italy, [6]Scientific Direction, INMI-IRCCS Lazzaro Spallanzani, Rome, Italy

Background: Data on the persistence of immune response after mpox infection are few but crucial for establishing mechanisms of reinfection and the eventual need for vaccination in previously mpox-infected patients (Mpts). We described the kinetics of humoral and cellular immune response from symptoms onset (FSO) up to 12 months after infection.

Methods: Blood samples from Mpts, collected during the first 3 weeks and 3-4, 6-8- and 12-months(M) after infection, were analysed for a cross-sectional study. Mpox-specific IgM, IgA, IgG, and neutralizing antibodies (nAb) titers were measured by immunofluorescence assay and by 50% plaque reduction neutralization test. Interferon-γ producing specific T-cells to MVA peptides was assessed by ELISpot assay. CD4+ and CD8+ T-cells expression of activation/exhaustion markers (CD38/CD57/PD-1) were performed by flow cytometry. Kinetics of the immunological markers were compared with ten healthy donors matched by sex and age. Kruskal-Wallis, Dunn's, Mann-Whitney, and Wilcoxon tests were used for statistics.

Results: All 69 MPts were MSM, with a median age of 39 years (IQR 34-47). 36 (52%) were PLWH, all receiving ART with undetectable viremia and a median CD4 count of 675/mmc (500-887). Only 2 (2.9%) received smallpox vaccine during childhood.

All the humoral markers were detected as early as 4 days FSO and peaked at week 2 (IgG) or 3 (IgM, IgA, nAbs) FSO. At 3-4 months FSO (n=26) the antibody levels decreased and IgM were detected in only 1 pt; IgA in 50%, IgG and nAbs in 92% of MPs. Despite a further significant decrease in IgG at 6-8M (n=48), IgA, IgG, and nAbs were detected at 12M (n=47) in 48, 93 and 78% of M pts, respectively (Fig1A).

Regarding CD4+ and CD8+ T cells activation/exhaustion markers expression, CD38 and PD-1 rising in the early stage, decreased over time (Fig.1B). CD57+ in CD8+ T cells persisted higher than HD until 12M FSO (Fig.1B). MVA-specific T-cells response peaked at 3-4M (Fig1C) and decreased overtime.

Conclusions: One year after mpox infection, IgG and nAbs were still detectable in the majority of pts, and decreased over time as the CD38 and PD-1 markers expression, while the MVA-specific responding T-cells persisted and retained functionality, suggesting the maintenance of immune protection.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_246.png

Immune responses to vaccination and emerging infections

OC 6 ANTI-MPXV HUMORAL AND CELLULAR IMMUNE RESPONSE ONE YEAR AFTER MPOX INFECTION OR MVA-BN VACCINATION

V. Mazzotta[1], E. Cimini[1], G. Matusali[1], A. Oliva[1], F. Colavita[1], R. Casetti[1], A. Mondi[1], S. Meschi[1], D. Goletti[1], C. Agrati[2], E. Girardi[1], A. Sette[3], A. Grifoni[3], F. Maggi[1], A. Antinori[1]

[1]National Institute for Infectious Diseases Lazzaro Spallanzani IRCCS, Rome, Italy, [2]Bambino Gesù Children's Hospital, Rome, Italy, [3]La Jolla Institute for Allergy and Immunology, La Jolla, CA, USA

Background: Episodes of mpox-virus (MPXV) reinfection in convalescents (CONV) or breakthrough infection in fully MVA-BN vaccinated people (VAC) open questions regarding the efficacy and durability of protection following infection or vaccination. The aim was to compare the anti-MPXV humoral and cellular immune responses in mpox CONV versus VAC one year after exposure.

Methods: Blood samples from CONV and VAC were collected one year after infection or MVA-BN vaccination (single-dose course in previously primed with historical smallpox vaccination (hSV), two-dose course in non-primed). MPXV-specific IgG and neutralizing antibodies (NAb) titers were measured by immunofluorescence and 50% plaque reduction neutralization test. Interferon-γ producing Orthopox (OP)-specific T-cells were assessed by ELISpot assay. Age and sex-matched healthy donors (HD; n=10) were used as a control. Mann-Whitney test was fitted for the comparison between CONV and VAC. Intragroup comparisons, according to HIV status and hSV, were analysed by Kruskal-Wallis, Dunn's, and Mann-Whitney tests, as appropriate.

Results: All 111 participants (65 VAC and 46 CONV) were male. Overall, the median age was 44 years (IQR36-53), 39 (34-45) for CONV, and 48 (41-55) for VAC (p=0.0001). Thirty-two (49.2%) VAC and 4 (8.7%) CONV received smallpox vaccination during childhood. Fifty-three (48%) were PLWH, all receiving effective ART. CD4 count was > 500 cells/mm3 in 39 PLWH (73.6%). Anti-MPXV IgG and Nabs titers were lower in VAC than in CONV (Fig1A), with the lowest levels in VAC non-primed (CONV vs non-primed p<0.0001 for IgG and p=0.0005 for Nabs). Higher OP-specific T-cell response was detected in VAC versus CONV (Fig1B). Evidence for a difference was found either between hSV primed and CONV (0.0016) and non-primed and CONV (p=0.0097). No evidence for a difference was found according to HIV status for both humoral and cellular responses.

Conclusions: One year after immune stimulation, convalescents retained higher antibody titers than vaccinated, especially when compared to those who were non-primed. By contrast, T-cell response was higher in vaccinated than in convalescents regardless of the hSV. HIV infection did not influence humoral and cellular responses. These results could be useful in targeting future vaccination strategies either as a booster in individuals already vaccinated with MVA-BN or as a new administration in mpox convalescents.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_223.png

Immune responses to vaccination and emerging infections

OC 7 SARS-COV-2 SPIKE PROTEIN AND PLASMA FROM COVID-19 PATIENTS INDUCE EXTRACELLULAR TRAPS BY MYELOID-DERIVED SUPPRESSOR CELLS

G. Grassi[1], S. Gili[1], R. Casetti[1], Z. Percario[2], N. Tumino[3], P. Vacca[3], S. Notari[1], V. Bordoni[4], E. Cimini[1], F. Cristofanelli[1], D. Rubino[5], F. Nonini[5], E. Affabris[2], L. Marchioni[5], C. Agrati[4], A. Sacchi[2]

[1]Cellular Immunology and Pharmacology Laboratory, National Institute for Infectious Diseases Lazzaro Spallanzani, IRCCS, Rome, Italy, [2]Molecular Virology and Antimicrobial Immunity Laboratory, Department of Science, Roma Tre University, Rome, Italy, [3]Immunology Research Area, Innate Lymphoid Cells Unit, IRCCS, Bambino Gesù Children's Hospital, Rome, Italy, [4]Oncoematologia e Officina Farmaceutica, IRCCS, Bambino Gesù Children's Hospital, Rome, Italy, [5]Clinical Division, National Institute for Infectious Diseases Lazzaro Spallanzani, IRCCS, Rome, Italy

Background: Polymorphonuclear Myeloid-derived suppressor cells (PMN-MDSC) have been described to be highly increased during COVID-19, they are involved in the inhibition of SARS-CoV-2 specific T-cell response, and platelet activation, and have been proposed as an early marker of COVID-19 fatal outcome. In this work, we evaluated the role of PMN-MDSC from COVID-19 patients in the formation of extracellular traps (ET).

Methods: Severe COVID-19 patients were enrolled at the "Lazzaro Spallanzani" Institute. The frequency of MDSC among PMBC was analyzed by flow cytometry. Purified PMN-MDSC were stimulated with 10% of autologous platelets enriched (PRP) and platelet depleted (PDP) plasma, and the release of ET was analyzed after three hours by confocal microscopy and quantified by pico488 fluorescence. Primary endothelial cell apoptosis was evaluated by flow cytometry.

Results: Most of the enrolled patients had co-infections, thus we evaluated their impact on MDSC frequency. PMN-MDSC percentage was comparable between COVID-19 patients with and without bacterial co-infections. Moreover, among co-infected patients, we did not find any difference in the PMN-MDSC frequency between patients with and without bacteraemia.

We then evaluated the capacity of PMN-MDSC to produce ET. We found that PMN-MDSC from COVID-19 patients able to extrude ET upon PRP and PDP stimulation. ET production was not a feature of PMN-MDSC from SARSCoV -2 infected patients, indeed, the PMN-MDSC from HD were able to extrude ET when stimulated with PRP of infected patients. Moreover, PMN-MDSC ET release was not mediated by TLR4 engagment.

We also found that SarsCoV-2 spike protein was able to induce ET by PMN-MDSC, and the neutralizing anti-TLR4 antibody was able to inhibit ET release, indicating a TLR4-dependent mechanism.

To test the effect of ET from PMN-MDSC on endothelial cell viability, primary human microvascular endothelial cells (EC) were cultured with PMN-MDSC from COVID-19 patients and treated with Spike protein to induce ET formation. PMN-MDSC alone were able to induce EC apoptosis, and the stimulation with the Spike protein did not affect EC viability compared with PMN-MDSC alone, suggesting that ET extrusion was not involved in the PMN-MDSC-induced EC death. The treatment with DNAse did not affect the capacity of PMN-MDSC to induce EC death, confirming that PMN-MDSC-induced EC apoptosis was not mediated by ET release.

Conclusion: Our data demonstrate that PMN-MDSC can produce ET under stimulation with PRP from COVID-19 patients or Spike protein in a TLR4-independent and -dependent mechanism respectively, highlighting a new role of PMN-MDSC that might directly participate in thrombotic events during SARSCoV-2 infection.

Immune responses to vaccination and emerging infections

OC 8 ANTIRETROVIRAL THERAPY RESTORES NAÏVE T CELL FREQUENCIES AND FUNCTIONALITY IN PLWH

B. Dallan[1], M. Campagnaro[1], E. Gallerani[1], D. Proietto[1], R. Cultrera[3], M. Libanore[4], L. Sighinolfi[4], S. Ghisellini[5], S. Llewellyn-Lacey[6], V. Appay[7], D. A. Price[6,8], F. Nicoli[1], A. Caputo[1], D. Segala[2]

[1]Laboratory of Biochemistry, Immunology and Microbiology (BIM), Department of Chemical, Pharmaceutical and Agricultural Sciences, University of Ferrara, Ferrara, Italy, [2]Department of Translational Medicine, University of Ferrara, Italy; Infectious Diseases Unit, Azienda Ospedaliero-Universitaria di Ferrara, Italy,[3]Department of Translational Medicine, University of Ferrara, Italy; Infectious Diseases-Primary and Community Health Care Dept, Azienda Unità Sanitaria Locale di Ferrara, Italy, [4]Infectious Diseases Unit, Azienda Ospedaliero-Universitaria di Ferrara, Italy, [5]Laboratory of Clinical Pathology, University Hospital St. Anna, Ferrara, Italy, [6]Division of Infection and Immunity, Cardiff University School of Medicine, Cardiff, UK, [7]Université de Bordeaux, CNRS UMR 5164, INSERM ERL 1303, ImmunoConcEpT, Bordeaux, France, [8]Systems Immunity Research Institute, Cardiff University School of Medicine, Cardiff, UK

Background: The induction of a cellular immune response toward neo-antigens relies on the activation of naïve T cells, and this de novo immunity is critical against newly acquired pathogens and nascent tumors. Impairment in the production and functionality of naïve CD4+ and CD8+ T cells has been reported in people living with HIV (PLWH), leading to immune failure. These features are often associated with chronic inflammation and are an hallmark of HIV-associated premature senescence.

The widespread use of combination antiretroviral therapy (ART) has substantially decreased the morbidity and mortality of HIV infection and some immunological defects can be restored to some extent after the initiation of ART. We propose to characterize, quantitatively and qualitatively, the naïve T cell compartment in PWLH, to unravel the effects of ART on the generation of robust CD4+ and CD8+ T cell responses and thus monitor the capacity to mount primary adaptive immunity.

Materials and Methods: Distribution within the T cell compartment was assessed in phenotypically defined CD4+ and CD8+ T cell subsets, and their activation profile was characterized. To assess the induction of primary response, we exploited an in vitro system to prime naïve CD8+ T cells for a HLA-A2 restricted melanoma epitope. Moreover, primary responses were characterized ex vivo, quantitatively and qualitatively, analysing SARS-CoV-2-specific cellular and humoral responses induced by 2 or 3 doses of a mRNA COVID-19 vaccine in previously unexposed donors.

All analyses were conducted on three different groups, enrolled 6 months after the last SARS-CoV-2 vaccination: ART-treated HIV-infected adults on therapy for less than 5 years and more than 10 years and healthy adults matched for age and sex.

Results: We observed a restored proportion and activation profile of both naïve CD4+ and CD8+ T cells in ART-treated PLWH compared to the healthy adults. This was consistent with an intact primary response mediated by naïve CD8+ T cells and induced in vitro against melanoma. In agreement with that, both humoral and cellular responses towards the spike protein of SARS-CoV-2 were comparable among groups after two and three vaccine doses. Moreover, the killing capacity of SARS-CoV-2-specif CD8+ T cells was similar between PLWH and the healthy counterpart.

Conclusions: ART preserves primary responses suggesting that PLWH undergoing antiretroviral therapy could develop fully competent immune responses toward neo-antigens. Therapeutic suppression of viral replication could therefore restore and preserve the functionality of naive T cells.

Long Acting injectables: the Italian experience

OC 9 ONE-YEAR OF LONG-ACTING CABOTEGRAVIR AND RILPIVIRINE IN PEOPLE WITH HIV AND A LONG EXPOSURE TO ANTIRETROVIRAL THERAPY: DATA FROM THE SCOHOLART STUDY

C. Muccini[1], N. Gianotti[1], S. Diotallevi[1], R. Lolatto[1], V. Spagnuolo[1], D. Canetti[1], S. Bagaglio[1], V. Gordo Perez[1], T. Clemente[2], M. Bottanelli[2], C. Candela[2], S. Nozza[1,2], A. Castagna[1,2]

[1]Department of Infectious Diseases, IRCCS San Raffaele Scientific Institute, Milan, Italy, [2]Vita-Salute San Raffaele University, Milan, Italy

Background: Aim of the study was to evaluate the one-year cumulative probability of treatment discontinuation (TD) in people with HIV (PWH) and a long exposure to antiretroviral therapy (ART) switching to long-acting cabotegravir (CAB) and rilpivirine (RPV).

Methods: SCohoLART (NCT05663580) is a single-center, prospective, cohort study designed to collect both samples and clinical data of PWH on virological suppression who switched to bimonthly long-acting CAB+RPV, followed at the Department of Infectious Diseases of IRCCS San Raffaele Scientific Institute (Milan, Italy). After initiation of CAB+RPV, HIV RNA testing was monitored at month 1, 3 and 6 and then every 6 months.

TD occurred at switch to another regimen for any reason including virological failure (VF); VF was defined as HIV RNA ≥50 copies/mL at two consecutive measurements or a single HIV RNA ≥1000 copies/mL. Viral blip was defined as an isolated HIV RNA value ≥50 and <1000 copies/mL with adjacent values <50 copies/mL. Participants' characteristics were reported as median (interquartile range, IQR) or frequency (%). Cumulative probabilities of TD were estimated by Kaplan-Meier curve.

Results: We evaluated 514 participants: 467 (90.9%) were male and median age was 49 (40-56). At the time of switching, median years from HIV diagnosis and of ART were 14.0 (8.8-20.5) and 11.4 (7.9-17.4), respectively; before starting CAB+RPV, median number of ART regimens were 3 (2-4).

At baseline, median CD4+ cell count was 794 (602-994) cells/μL and median CD4+/CD8+ ratio 0.97 (0.69-1.28), while median nadir CD4+ was 334 (214-512) cells/μL. Main participants' characteristics are reported in Table 1.

During the SCohoLART study, 3438 injections were administered. Excluding 514 first injections, 2924 injections were performed through the follow-up, and 2870 (98.2%) of the scheduled injections were administered within the dosing window of ±7 days; in addition, 2 (0.01%) were received more than 7 days before the scheduled injection date and 52 (1.8%) more than 7 days after the scheduled injection date. During a median study follow-up of 13.1 (9.1-15.5) months, 52 PWH experienced TD (10.1%), including 4 (0.8%) for VF; detailed characteristics of participants with VF are summarized in Table 2. The cumulative probabilities of TD were 3% (95%CI: 2%-5%) at month 3, 6% (95%CI: 4%-8%) at month 6, and 11% (95%CI: 8%-14%) at month 12. The main cause of TD was injection site reaction (ISR) in 15 participants (28.8%), followed by toxicity (excluding gastrointestinal and central nervous system toxicity) in 10 (19.2%).

The proportion of PWH with viral blips throughout the study was 4.5% (23/514); no participants with viral blips developed VF.

Conclusions: The one-year cumulative probability of TD with long-acting CAB+RPV was quite low in this cohort of people with a median exposure to ART of 10 years, where injection site reaction was the leading cause of TD. VFs were extremely rare during the study follow-up.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_205.jpg

Long Acting injectables: the Italian experience

OC 10 EFFECTIVENESS OF LONG-ACTING ART WITH CABOTEGRAVIR/RILPIVIRINE IN THE ICONA COHORT

R. Gagliardini[1], S. De Benedittis[2], A. Tavelli[2], G. Lapadula[3], V. Mazzotta[1], E. Bruzzesi[4], A. Cervo[5], G. Carrozzo[6], A. Saracino[7], S. Rusconi[8], G. Marchetti[9], F. Ceccherini-Silberstein[10], A. Antinori[1], A. d'Arminio Monforte[2], C. Muccini[4] on behalf of Icona Foundation Study Group

[1]National Institute for Infectious Diseases Lazzaro Spallanzani, IRCCS, Roma, Italy, [2]ICONA Foundation, Milan, Italy, [3]IRCCS Fondazione San Gerardo dei Tintori, University of Milano Bicocca, Monza, Italy, [4]Vita-Salute San Raffaele University, IRCCS Ospedale San Raffaele, Milan, Italy, [5]University Hospital of Modena, Infectious Diseases Clinic, Modena, Italy, [6]Department of Infectious Diseases, ASST Fatebenefratelli Sacco, Luigi Sacco Department of Biomedical and Clinical Sciences, University of Milan, Milan, Italy, [7]Clinic of Infectious Diseases, Department of Precision and Regenerative Medicine and Ionian Area, Polyclinic of Bari, University Hospital Polyclinic, University of Bari, Bari, Italy, [8]Infectious Diseases Unit, Ospedale Civile di Legnano, ASST Ovest Milanese, and DIBIC, Università degli Studi di Milano, Milan, Italy, [9]Clinic of Infectious Diseases, ASST Santi Paolo e Carlo, Department of Health Sciences, University of Milan, Milan, Italy, [10]Department of Experimental Medicine, University of Rome "Tor Vergata", Rome, Italy

Background: Cabotegravir (CAB) + Rilpivirine (RPV) Long Acting (LA) has shown its efficacy and tolerability in Phase 3 studies and has been commercialized since 2022 in Italy for virally suppressed people with HIV-1 (PWH). Real life clinical data on the effectiveness and discontinuation of CAB+RPV LA is scarce.

Methods: All PWH enrolled in the Icona Cohort who started CAB+RPV LA as maintenance therapy with viral load (VL) < 50 cp/ml at start and with at least one follow-up (FU) were included. Baseline of the analysis was the first CAB-RPV injection. Incidence and time to treatment discontinuation (TD) and to virological failure (VF, 2 consecutive VLs > 50 cp/ml or 1 VL>1000 cp/mL followed by ART-change) were estimated using the Kaplan-Meier method. Moreover, Cox regression models, adjusted for age, sex and mode of HIV transmission were employed. Fine-Gray models were fitted to investigate predictors of TD for toxicity.

Results: Overall, 470 virologically suppressed PWH started CAB+RPV LA, with a median FU of 8.1 months (interquartile range, IQR, 4.7-10.5). Main characteristics are presented in Table 1. Notably, 11.1% of subjects were females, 33.2% >50 years and 7.4% had BMI > 30 kg/m2. Oral lead-in was prescribed in 16% of cases.

44 treatment discontinuations were observed, with an incidence rate of 13.9 x 100 person year follow up (PYFU) (95% confidence interval, CI, 10.3-18.7%). One-year estimated cumulative probability of TD was 14.2% (95% CI 10.1 -19.7%). Causes of TD were toxicity/adverse events (6.6%), PWH's choice (2.1%), virological failure (0.2%), pregnancy (0.2%), drug-drug interactions (0.2%) (Table 2). Incidence rate of TD for toxicity/adverse events was 9.8 x 100 PYFU (95%CI 6.9-13.9%) and 1-year cumulative probability of TD for toxicity/adverse events was 10.9% (95% CI 7.1-16.4%).

Factors associated to TD overall at multivariable Cox regression models were heterosexual sexual intercourses (aHR 2.76, 95% CI 1.33-5.70) and IDU as risk factor (aHR, 6.65, 95% CI 1.91-23.16) (Table 3). Heterosexual had also a higher risk of discontinuation due to toxicity (aSHR 3.64, 95% CI 1.58-9.37)

Two VFs were observed, with 1-year cumulative probability of VF of 0.63% (95% CI 0.15-2.62%). One VF was in a subject with HIV subtype B/F1, no previous resistance associated mutations (RAM) to NNRTI or INSTI, BMI 29.7 kg/m2, who failed with VL of 55 cp/ml and then 69 cp/ml and resuppressed without ART change. The other was in a subject with subtype B, no previous RAM to NNRTI (INSTI not tested), BMI 24.9 kg/m2, who failed with 636 cp/ml and 66,500 cp/ml; resistance test showed K101K/E, E138E/A and E157Q at failure and ART was changed firstly in FTC/TAF/BIC and then in DRV/c/TAF/FTC.

Conclusions: This analysis shows good short-term effectiveness of CAB-RPV LA, with a low rate of virological failure. A 14% probability of discontinuation overall and 10% for toxicity/adverse events emerged, higher than in phase 3 studies but similar to other real-life data.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_185.jpeg

Long Acting injectables: the Italian experience

OC 11 CABOTEGRAVIR-RILPIVIRINE LONG-ACTING INJECTABLE REGIMEN: AN ANALYSIS OF THE CAUSES OF INTERRUPTION AND IMPACT OF GENOTYPIC DRUG RESISTANCE IN A MULTICENTRIC COHORT

G. Canavesi[1], M. Mena[1], E. Zaninetta[2], L. Gazzola[2], T. Bini[2], G. Bo[3], D. Arrue Diaz[3], G. Orofino[3], A. De Vito[4], G. Madeddu[4], C. Grillo[5], C. Bartalucci[6], F. Centorrino[6], N. Squillace[7], P. Bonfanti[7], S. Rapino[8], G. Tiecco[8], E. Focà[8], M. Menozzi[9], F. Caldara Bonaura[9], G. Guaraldi[9], S. Lo Caputo[5], A. Di Biagio[6], S. Rusconi[1]

[1]Infectious Diseases Unit, ASST Ovest Milanese, Legnano General Hospital and DIBIC, University of Milan, Italy, [2]Infectious Diseases Unit, ASST Santi Paolo e Carlo, San Paolo Hospital and Dipartimento di Scienze della Salute, University of Milan, Italy, [3]Infectious Diseases Unit, Amedeo di Savoia Hospital and University of Turin, Italy, [4]Infectious Diseases Unit, Azienda Ospedaliera Universitaria di Sassari and University of Sassari, Italy, [5]Infectious Diseases Unit, Azienda Ospedaliero-Universitaria "Ospedali Riuniti" di Foggia and University of Foggia, Italy, [6]Infectious Diseases Unit, Ospedale Policlinico San Martino and University of Genoa, Italy, [7]Infectious Diseases Unit, IRCCS San Gerardo dei Tintori and University of Milan-Bicocca, Monza, Italy, [8]Infectious Diseases Unit, Spedali Civili di Brescia and University of Brescia, Italy, [9]Infectious Diseases Unit, Azienda Ospedaliera-Universitaria di Modena and University of Modena and Reggio Emilia, Italy

Background: The use of combination regimens is paramount in the treatment of HIV infection. Virologically suppressed patients, may benefit to change their treatment in a two-drug regimen (2DR). Long acting (L-A) injectable 2DR may be a good option in selected patients (preference for a nondaily dosing, toxicity to oral therapy, prevention of long-term toxicity, adherence issues, dysphagia). The aim of this cohort study is to define the medical reasons (viral failure vs. others) and the changes in GRT in interruption of cabotegravir-rilpivirine (CAB-RPV) regimen in an Italian cohort of PWH who were subjected to a L-A injectable regimen according to prescriptive indications.
Methods: We analyzed the data supplied by 9 infectious diseases units, where CAB-RPV regimen is available and administered, to make a descriptive analysis of the causes of interruption and the impact of genotyping drug resistance, when available.
Results: The total of patients receiving CAB-RPV was 574; 51 interrupted the treatment. The average age of the patients of this cohort was 54 years and average BMI was 24,8 kg/m2 (BMI max 44.28 kg/m2). Before starting the injectables, 28 patients took a triple oral therapy (regimen mostly used: TAF/FTC/RPV), while 22 assumed a 2DR regimen (regimens mostly used: DTG/3TC-DTG/RPV); as a whole, 32 took an INSTI-based regimen. Only one PWH received a mono therapy. 13 had an oral lead in. As far as the genotypic resistance pattern, 33 patients had a GRT before starting CAB-RPV; 1 patient had documented resistance to NNRTI (138A, which is an important risk factor of viral failure of RPV), while none had INSTI resistance. We collected 11 documented viral failures. All of them carried out a GRT post VF; the results are shown in Table 1. The other 40 patients interrupted L-A therapy for other reasons (local pain, adverse events, toxicity, patient's choice, drugs interactions). The mean time of duration of L-A regimen was 5.3 months: 5.8 (+/- 4.73 SD) months for patients with VF and 5.25 (+/- 4.13 SD) for patients who interrupted for other reasons, without statistical significance.
Conclusions: One.seven% of our cohort experienced a VF; this result is coherent with the main studies evaluating a low failure rate of CAB-RPV. NNRTI and INSTI mutations that arose during L-A treatment were all associated with a documented VF. CAB-RPV L-A regimen was well-tolerated in our cohort. Respect of eligibility criteria and awareness of risk factors for VF plus strict monitoring of viro-immunological parameters are fundamental in reducing the risk of VF and the possible onset of new NNRTI/INSTI resistance mutations.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_388.jpg

Long Acting injectables: the Italian experience

OC 12 PITTSBURGH SLEEP QUALITY INDEX (PSQI) CHANGES IN VIROLOGICALLY SUPPRESSED PEOPLE LIVING WITH HIV SWITCHING TO LONG ACTING CABOTEGRAVIR AND RILPIVIRINE

A. Dargenio[1], N. De Gennaro[1], M. Poliseno[1], F. Balena[1], D. Fiordelisi[1], V. Spada[1], G. Romita[1], G. Guido[1], F. Di Gennaro[1], G. Bruno[2], M.A. Purgatorio[2], G.B. Buccoliero[2], A. Saracino[1]

[1]Clinic of Infectious Diseases, Department of Precision and Regenerative Medicine and Ionian Area (DiMePRe-J), University of Bari "Aldo Moro", Bari, Italy, [2]Infectious Diseases Unit, San Giuseppe Moscati Hospital, Azienda Sanitaria Locale Taranto, Taranto, Italy

Background: Neuropsychiatric effects are associated with the use of second generation-Integrase Strand Transfer Inhibitors (INSTIs) such as dolutegravir (DTG) and bictegravir (BIC). However, it is unknown if cabotegravir is burdened by the same disturbances in real life clinical practice. The aim of the study is to assess sleep quality changes in People Living With HIV (PLWH) switching to long acting (LA) cabotegravir (CAB) and rilpivirine (RPV).
Material and methods: The study includes all antiretroviral treatment (ART) experienced and virologically suppressed PLWH, switching to LA CAB+RPV from any ART-regimen according to eligibility criteria, consecutively evaluated in two different Clinical Centre of Infectious Disease from February 2023, 1st to February 2024, 15th. Demographic, clinical, biochemical and immunovirological data were retrieved at baseline and described. A PSQI questionnaire was performed at baseline (M0) and at month 7 (M7).
PSQI is a questionnaire screening tool including 7 different items, each with a relative score. The PSQI global score ranges from 0 to 21; a cut-off >5 is used to define a "poor sleeper" subject.
PSQI global score and relative sub-scores for each item were compared between the two time points using paired samples T-test (significant p value < 0.05).
Results: Overall, 84 PLWH were considered for the enrollment; a total of 40 reached M7 and were included in this preliminary analysis. The main characteristics of the study population are summarized in Table 1. Five were females at birth (13%), with median age of 45 (36-52) years; median nadir CD4 of 384 (283-561) cell/uL and baseline AIDS diagnosis in 10%; 6 patients (15%) had at least two comorbidities; one had HIV-HCV-coinfection. Overall, 29/40 (72.5%) switched from an INSTI-based regimen, of which 20 from a DTG-based dual therapy. The main reason for switching was simplification (pill burden reduction) in 32%. The median duration of viral suppression before the switch was 6 years (IQR 5-9). The 52% of the population underwent a one month of oral led-in induction.
A significant reduction was outlined between the PSQI global score at M7 compared to M0 (3.8 vs 4.6, p=0.03). Moreover, a greater even if not statistically significant decrease in PSQI global score was observed in patients switching from INSTI-based regimens compared to others (3.55 vs 4.55, p=0.07). Additionally, at the analysis of relative sub-scores, a significant change was reported in item 5 (which investigates disturbances during ongoing sleep) at M7 vs M0 (1.00 vs 1.19; p=0.04), Figure 1.
Conclusions: Our study shows an interesting decrease of PSQI global score after switch to LA CAB+RPV, the main reduction occurring in patients coming from an INSTI-based regimen. The most significant improvement of sleep quality mainly concerns factors interfering with ongoing sleep (item 5).

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_179.jpg

Real-world experiences with TAF-based regimens

OC 13 EFFICACY OF SWITCHING TO BICTEGRAVIR/EMTRICITABINE/TENOFOVIR ALAFENAMIDE IN PEOPLE LIVING WITH HIV WITH PRE-EXISTING NRTI RESISTANCES: A REAL-LIFE EXPERIENCE

L. Mezzogori[1], B. Bruzzone[2], F. Stefanelli[2], M. Zazzi[3], L. Taramasso[1], R. Schiavoni[1], C. Bartalucci[1], L. Labate[1], N. Randazzo[2], F. Maggiolo[4], M. Bassetti[1,5], A. Di Biagio[1,5]

[1]Department of Specialist Medicine, Infectious Disease Clinic, IRCCS Ospedale Policlinico San Martino, Genoa, Italy, [2]Hygiene Unit, IRCCS Ospedale Policlinico San Martino for Oncology and Neurosciences, Genoa, Italy, [3]Department of Medical Biotechnologies, University of Siena, Siena, Italy, [4]Independent Contractor, Italy, [5]Department of Health Sciences (DISSAL), University of Genoa, Genoa, Italy

Background: We investigated the impact of pre-existing resistance associated mutations (RAMs) to nucleotide reverse transcriptase inhibitors (NRTI) on treatment outcomes among people living with HIV (PWH) receiving bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) therapy in real-world clinical practice.
Material and methods: Single centre, retrospective review of all treatment-experienced adult PWH with pre-existing NRTI resistance, who switched to B/F/TAF since February 24, 2020. Demographics, clinical and laboratory history was extracted from our database, medical records and ARCA (Table 1). Pre-existing RAMs (M184V, M41L, D67N, K65R, L210W, and T215Y/F) were determined through historical genotyping by Sanger sequencing. We assessed the virological and immunovirological response in PWH who completed 24 months of follow-up (M24).
Results: 52 PWH with pre-existing RAMs to NRTI were screened; 41/52 were included in the study (Figure 1): 11 cases were excluded due to various reasons such as suspension of therapy before reaching 24 months (2/11), loss to follow-up (5/11), death before 24 months (2/11) or absence of required examinations at the time of the switch to B/F/TAF and/or at M24 (2/11). Among the 41 individuals, 28 had the M184V mutation, of whom 16 exhibiting only the M184V mutation (OM) and 11 showing the M184V mutation along with thymidine analog mutations (TAMs) (MT), while the remaining 11 had only TAMs (OT). Three individuals had the K65R mutation with one also having the M184V mutation. Pre-existing RAMs to NRTI did not influence treatment outcomes across the four groups (Table 2). At M24, virological success (defined as HIV-RNA viral load < 50 copies/ml) was observed in 100% of cases in all groups (OM, MT and OT) and in the 3 individuals with K65R mutation. CD4+ cell count increased in 6 (37.5%), 9 (81.8%), and 6 (54.5%) individuals in the OM, MT and OT groups, respectively. Moreover, 32 out of 41 individuals (78.0%) achieved an increased CD4+/CD8+ ratio, with increases observed in 11 (68.8%) OM cases, 9 (81.8%) MT cases, 9 (81.8%) OT cases and in the 3 individuals with the K65R mutation.
Conclusions: B/F/TAF is an effective treatment option for virologically suppressed PWH even in those with the M184V mutation, as well as in individuals with other mutations linked to M184V, such as K65R or TAMs. These results underscore the efficacy of B/F/TAF in overcoming RAMs, thereby demonstrating its robust antiviral activity.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_166.png

Real-world experiences with TAF-based regimens

OC 14 ADHERENCE OF SINGLE TABLET ANTIRETROVIRAL REGIMENS IN THE CLINICAL SETTING: FORGIVENESS DOES MATTER

V. Maccario, M. Ferrara, M. Maunero, G. Trevisan, G. Accardo, F. Barrera, E. Clemente, M. Tettoni, L. Trentini, G. Di Perri, A. Calcagno, S. Bonora

Unit of Infectious Diseases, Department of Medical Sciences, University of Torino, Torino, Italy

Background: Medication adherence plays an important role for people living with HIV (PLWH) to achieve and maintain viral suppression. A rate of adherence of 90% has been previously recognized as a cut-off to reach the undetectability during time, however, studies from real life setting have demonstrated that lower rates of adherence may still lead to high rates of viral suppression.
Aim of our study was to evaluate the rate of adherence (PDC) to antiretroviral (ARV) medication and different levels of virological suppression in PLWH on both triple and dual antiretroviral therapy (ART) as single tablet regimens (STRs).
Methods: Participants administered with 3DRs as Bictegravir (BIC/F/TAF), Darunavir (DRV/c/F/TAF) and Rilpivirine (RPV/F/TAF) and 2DRs as Dolutegravir/lamivudine (DTG/3TC) and Dolutegravir/rilpivirine (DTG/RPV) were included. Pharmacy refills were used to calculate PDC as cumulative adherence during all the period of follow-up with at least 2 occurrences of dispensed ARVs from 2018 to 2023. Two different thresholds of HIV-RNA were decided to define virologic response to ART: viral load (VL) <20 cp/mL and <200 cp/mL. Forgiveness was defined as the maintenance of virosuppression despite a lower rate of adherence. Participants characteristics were compared by Mann-Whitney and Spearman's test. ROC curve was calculated to evaluate a significative adherence cut-off to maintain virosuppression.
Results: 540 participants were included with a mean FU time of 1166 (1136,5-1195,4) days: 18,3% on BIC/F/TAF, 19,4% on DRV/c/F/TAF, 20,9% on RPV/F/TAF, 20,9% on DTG/3TC, 20,4% on DTG/RPV. Demographic and clinical characteristics of study population are reported in Table1. Cumulative adherence was significantly different among ARV regimens in VL<200 cp/mL (p=0.004) and VL<20 cp/mL (p=0.002). Participants on DRV/c/F/TAF reported a significantly lower adherence maintaining virosuppression, compared to other ARVs, in both the different thresholds considered. In 175 participants with a reported adherence <90% and a VL<200 cp/mL or VL<20 cp/mL, 18%, 31,5%, 20,2%, 11,2%, 19,1% and 16,1%, or 37,1%, 8,1%, 14,5% and 24,2% were on BIC/F/TAF, DRV/c/F/TAF, RPV/F/TAF, DTG/3TC, DTG/RPV, respectively.
Cut-offs of 80%, 85% and 93% in adherence to maintain a VL<200 cp/mL were calculated by ROC in participants on BIC/F/TAF, DRV/c/F/TAF and RPV/F/TAF, respectively.
Conclusions: In our setting, STRs showed different pattern of forgiveness. TAF-containing regimens were associated with higher proportions of efficacy with adherence below 90%, being the higher values associated with DRV/c/F/TAF. Among 2DRs, DTG/RPV showed higher forgiveness as compared to DTG/3TC. BIC/F/TAF had the lower adherence cut off value by ROC analysis for maintaining VL<200cp/mL (80%), followed by DRV/c/F/TAF (85%).

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_228.jpeg

Real-world experiences with TAF-based regimens

OC 15 CHANGES IN BODY MASS INDEX AND LIPID PROFILE IN PWH SWITCHING TO A REGIMEN WITHOUT TAF VS PWH CONTINUING TAF. DATA FROM A REAL-LIFE SETTING

N. Squillace[1], L. Taramasso[2], E. Ricci[3], B. Menzaghi[4], G. De Socio[5], G. Orofino[6], B.M. Celesia[7], E. Sarchi[8], S. Piconi[9], G. Pellicano'[10], L. Attala[11], A. Di Biagio[2], P. Bonfanti[1], for the CISAI Study Group

[1]Infectious Diseases Unit Fondazione IRCCS, San Gerardo dei Tintori-University of Milano-Bicocca, Monza, Italy, [2]Infectious Diseases, San Martino Hospital Genoa, University of Genoa, Genoa, Italy, [3]Fondazione ASIA Onlus, Buccinasco, Milano, Italy, [4]Unit of Infectious Diseases, ASST della Valle Olona – Busto Arsizio, Varese, Italy, [5]Unit of Infectious Diseases, Santa Maria Hospital, Perugia, Italy, [6]Division I of Infectious and Tropical Diseases, ASL Città di Torino, Italy, [7]Unit of Infectious Diseases, Garibaldi Hospital, Catania, Italy, [8]Infectious Diseases Unit, S. Antonio e Biagio e Cesare Arrigo Hospital, Alessandria, Italy, [9]Unit of Infectious Diseases, A. Manzoni Hospital, Lecco, Italy, [10]Infectious Diseases, G. Martino Hospital -University of Messina, Messina, Italy, [11]Unit of Infectious Diseases, Santa Maria Annunziata Hospital, Florence, Italy

Background: Our aim was to investigate the role of switching from Emtricitabine/Tenofovir Alafenamide (FTC/TAF) based regimen to a dolutegravir (DTG) containing two-drug regimen (2DR) vs continuing FTC/TAF on metabolic parameters.

Material and methods: Consecutive people living with HIV infection (PWH) enrolled in a multicenter observational cohort (SCOLTA) project, on a stable FTC/TAF based regimen with a HIV-RNA<50 copies/ml were included. Changes from baseline (T0) to follow-up (T1, week 24) were analyzed.

Results: Four hundred and eighty-seven PWH met the inclusion criteria, 375 (77.0%) were males, 32 (6.6%) diabetics.

At T0 main characteristics were (mean ± standard deviation [SD]): age 49.4 ± 12.0 years, body mass index (BMI) 25.5 ± 4.2 kg/m2, total cholesterol (TC) 196 ± 40 mg/dL, HDL cholesterol (HDL-c) 52 ± 16 mg/dL, LDL-cholesterol (LDL-c) 116 ± 35 mg/dL, glucose 96 ± 28 mg/dL (92 ± 15 in non-diabetic patients). CD4+ cell count median value was 680 cell/μL (interquartile range [IQR] 500-892), triglycerides (TGL) 116 mg/dL (IQR 83-159). 343 PWH were on FTC/TAF/bictegravir (BIC), 15 on FTC/TAF/DTG, 101 on DTG/lamivudine (3TC) and 28 on DTG/rilpivirine (RPV).

PWH switching to 2DR or continuing FTC/TAF had similar characteristics, except for HCV coinfection (8.7% vs 24.0%, p=0.0002), baseline CD4 (median 744 and 646, p=0.0002) and CDC stage C (8.5% vs 19.5%, p=0.004). Weight, BMI and blood lipids were similar in the two groups. The previous regimen included cobicistat (COBI) in 268 PWH (36.4% in 2DR vs 61.7% in TAF, p<0.0001): PWH with previous COBI entered the study with higher levels of TC (201 vs 188 mg/dL, p=0.0007) and LDL-c (120 vs 110 mg/dL, p=0.002).

Evaluating 2DR vs continuing FTC/TAF, in strata of switch from a regimen with or without COBI, we observed no difference in lipid profile and weight (table 1).

Previous regimens were INSTI-based in 74.1%, NNRTI-based in 13.6%, and PI-based in 12.3% of the sample. We found that the more marked TC decline was observed in PWH from PI-including regimens (-22.9 mg/dL, 95% confidence interval -33.2 to -12.6), whereas those from INSTI-including showed a limited decrease (-5.1 mg/dL, 95% CI -7.4 to -1.7) and those from NNRTI a not statistically significant increase (+7.4 mg/dL, 95% CI -1.8 to 16.5). The same trend emerged for LDL-c: -14.0 mg/dL (95% CI -23.1 to -4.9), -3.7 mg/dL (-6.8 to -0.6), and +6.8 mg/dL (95% CI -1.1 to 14.7) and this association was confirmed at multivariate model (MM).

In a MM including sex, age, previous COBI and drug class, and 2DR vs FTC/TAF, no significant difference was found in term of weight and blood lipid change between continuing FTC/TAF and switching to a 2DR.

Conclusions: No difference was found in TC, HDL-c, LDL-c and blood glucose in PWH continuing an FTC/TAF regimen vs those switching to 2DR. Switching from PI-based regimen was independently associated with a significant reduction of LDL.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_141.jpg

Virology and pharmacology across the spectrum of HIV treatment

OC 16 DO LOW-FREQUENCY DRUG-RESISTANT HIV-1 VARIANTS HAVE A ROLE ON FIRST-LINE INSTI-CONTAINING REGIMENS? A CASE-CONTROL STUDY FROM THE ICONA COHORT

D. Armenia[1], G. Marchegiani[2], D. Spalletta[2], L. Carioti[2], A. Tavelli[3], M.C. Bellocchi[2], V. Spagnuolo[4], V. Mazzotta[5], E. Quiros-Roldan[6], V. Bono[7], S. Carrrara[5], S. Lo Caputo[8], A. Cozzi-Lepri[9], A. d'Arminio Monforte[3], F. Ceccherini-Silberstein[2], S. Rusconi[10], M.M. Santoro[2], on behalf of the ICONA Foundation Study Group

[1]Saint Camillus International University of Health Sciences, Rome, Italy, [2]University of Rome "Tor Vergata", Rome, Italy, [3]Icona Foundation, Milan, Italy, [4]Infectious Diseases, IRCCS San Raffaele Scientific Institute, Milan, Italy, [5]National Institute of Infectious Diseases Lazzaro Spallanzani IRCCS, Rome, Italy, [6]University of Brescia and ASST Spedali Civili di Brescia, Brescia, Italy, [7]ASST Santi Paolo e Carlo, University of Milan, Milan, Italy, [8]Clinic of Infectious Diseases, Department of Clinical and Surgical Sciences, University of Foggia, Foggia, Italy, [9]Centre for Clinical Research, Epidemiology, Modelling and Evaluation (CREME), Institute for Global Health, University College London, London, UK, [10]Infectious Diseases Unit, Ospedale Civile di Legnano, ASST Ovest Milanese, and DIBIC, Università degli Studi di Milano, Milan, Italy

Background: Little is still known about the impact of INSTI minority resistant variants detected through next generation sequencing (NGS) on virological response to first-line regimens based on second-generation INSTI.
Material and methods: This is a case-control study involving ART-naïve individuals from the ICONA cohort with an available plasma HIV-1 RNA before ART start (baseline, BL), who received a second-generation INSTI-containing regimen. Cases were individuals who experienced virological failure (VF: two consecutive HIV-1 RNA >50 copies/mL or one >1000 copies/mL after achieving HIV-1 RNA ≤50 copies/mL) after first-line regimen start. They were matched with controls who never experienced VF according to type of INSTI-containing regimen. NGS data obtained through the HIV-1 Solution v2 kit (Arrow Diagnostics, Illumina MiSeq platform) were evaluated by HIVdb algorithm (version 9.5.1). INSTI resistance associated mutations listed as Major (MRM), Accessory (AMR) and Other (ORM) were analysed setting NGS at 5%, 10%, 20% cut-offs. The impact of pre-existing INSTI resistance and Genotypic Susceptibility Score (GSS) of the regimen on VF was evaluated by conditional logistic regression analysis (CLR).
Results: The study included 254 individuals (89 cases; 165 controls; Table1). Cases experienced VF with a median (IQR) viremia of 300 (93-5,884) copies/mL in a median (IQR) time of 14 (8-28) months after ART start. At BL, most of individuals harboured a fully susceptible viral strain, regardless NGS setting (Figure 1A).
Concerning resistance, the presence of ≥1 MRM (G140R, S147G, Q146P/R) was detected in 2%, 0.8% and 0.4% of individuals at NGS set at 5%, 10% or 20%, respectively. Regardless the NGS setting used, prevalence of ARM (L74M, T97A, S153A, E157Q, G163K,) was moderate (cut-off 5%, 10% and 20%: 7.5%, 7.1%, 6.3%) and of ORM (M50I, L74I, S119R, E138D, V151I, S230N) was considerably high (50.8%, 45.3%, and 42.5%).
The presence of ≥1 MRM, ARM or ORM was not significantly different among cases and controls (Figure 1B). When NGS was set at 5%, the proportion of individuals harbouring ≥2 ORM (mostly L74I plus M50I or S230N polymorphisms) was significantly higher among cases compared to controls (P=0.008, Figure 1B). These results were independent from subtype (cases with ≥2 ORM in B vs. non-B subtypes: 5, 11.9% vs. 7, 14.9%, P=0.680). By CLR multivariate model, ≥2 ORM detected as minority variants (NGS set at 5% or 10%) were an independent predictor of experiencing VF (Table 2).
Conclusions: This case control study shows that pre-existing INSTI resistance is rare and does not relate to virological failures to first-line regimens based on second generation INSTI, often observed only as low-level viremia rebound events. The combination of polymorphic mutations associated to INSTI detected as minority variants through NGS seems to identify individuals more prone to lose virological control.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_192.JPG

Virology and pharmacology across the spectrum of HIV treatment

OC 17 LONG ACTING CABOTEGRAVIR AND RILPIVIRINE PLASMA AND INTRACELLULAR PHARMACOKINETICS IN THE CLINICAL SETTING

M. Ferrara[1], V. Maccario[1], F. Barrera[1], L. Ponzetta[1], L. Di Girolamo[1], D. Arrue Diaz[1], M. Tettoni[1], L. Trentini[1], G. Orofino[2], S. Soloperto[3], D. Maiese[3], A. De Nicolò[3], A. D'Avolio[3], A. Calcagno[1], S. Bonora[1]

[1]Unit of Infectious Diseases, Department of Medical Sciences, University of Torino, Torino, Italy, [2]Unit of Infectious Diseases, Amedeo di Savoia Hospital, ASL Città di Torino, Italy, [3]Laboratory of Clinical Pharmacology and Pharmacogenetics, Department of Medical Sciences, University of Torino, Torino, Italy

Background: Scarce data on plasma exposure and no data on intracellular (IC, intra-PBMC) accumulation of long-acting Cabotegravir and Rilpivirine (CAB/RPV LA) as intramuscular (IM) administration, are reported in literature. Therefore, our aim was to evaluate CAB and RPV plasma and IC pharmacokinetics (PK), exploring the potential role of PK parameters on virological efficacy.

Methods: Participants administered with CAB/RPV every 2-month were included, after informed consent given. Plasma and IC CAB and RPV concentrations as Ctrough were measured by means of UHPLC-MSMS validated method at the end of dosing interval (24+/-4 hours after intake) every 2 months concomitantly with the IM ARVs administration during 48 weeks of follow-up (FU), month 1 to month 11 (M1-M11). A plasma exposure cut-off of 50 mg/mL and 664 ng/mL were reported for RPV and CAB respectively as protein-adjusted inhibitory concentration 90% (PA-IC90). Virological assessment was collected at every timepoint. Non-compartmental PK parameters were expressed as geometric mean (CI95%). Participants characteristics were compared by Mann-Whitney and Spearman's test, as appropriate.

Results: 176 participants were included in the study. 85% of them were male, age and BMI were 51 years (49-52) and 24.5 Kg/m2 (23.9-25.0), 93,8% was virologically suppressed at baseline (BL, viral load, VL <20 cp/mL). CAB and RPV plasma and IC Ctrough and the significative modification of exposure during the time of FU are reported in Tab and Fig. 1. Linear and significative correlations were reported between CAB and RPV plasma, IC Ctrough and IC/plasma ratio as well as CAB plasma and IC Ctrough, and RPV plasma and IC Ctrough at every timepoint. CAB plasma and IC Ctrough was found to be higher in the female participants from M3 during all FU. No correlation with BMI and renal function was reported with PK parameters. No impact on virosuppression was found at any time-point based on PA-IC90 for both drugs. 96% of participants presented virological suppression at the end of FU (p=0.317).

Conclusions: Our study Is the first to explore IC penetration of LA RPV and CAB, showing an opposite trend: CAB IC accumulation in proportion of 15% than plasma and a higher RPV accumulation 8-times more than plasma. Both RPV and CAB plasma concentration and the concomitant IC penetration were observed to increase during the first year. In our population we confirmed the higher CAB plasma and IC exposure in female participants during follow-up ranging respectively from 22% to 30% and from 25% to 123%. No association between lower exposures and virological failure was found. More data are needed to understand more deeply the interindividual variability of PK parameters in the long term.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_54.jpg

Virology and pharmacology across the spectrum of HIV treatment

OC 18 NETWORK ANALYSIS OF PROVIRAL DNA MUTATIONS IN PEOPLE WITH 4-CLASS-RESISTANT HIV-1: DATA FROM THE PRESTIGIO REGISTRY

S. Diotallevi[1], D. Armenia[2], T. Clemente[3], F. Saladini[4], S. Rusconi[5], L. Calza[6], A. Cervo[7], M. Zazzi[4], R. Lolatto[1], M.C. Bellocchi[8], G. Marchegiani[8], L. Carioti[8], E. Fronti[9], M. Fiscon[10], V. Spagnuolo[1], A. Castagna[3], M.M. Santoro[11], L. Farina[12] for the PRESTIGIO Registry GROUP

[1]Infectious Diseases, IRCCS San Raffaele Scientific Institute, Milan, Italy, [2]Saint Camillus International University of Health Sciences, Rome, Italy, [3]Vita-Salute San Raffaele University, Milan, Italy, [4]University of Siena, Siena, Italy, [5]Ospedale Civile di Legnano, DIBIC University of Milan, Legnano, Italy, [6]Policlinico Sant'Orsola-Malpighi, Bologna, Italy, [7]Azienda Ospedaliera Universitaria Policlinico di Modena, Modena, Italy, [8]Department of Experimental Medicine, University of Rome "Tor Vergata", Rome, Italy, [9]Azienda Ospedaliero Universitaria di Parma, Parma, Italy, [10]Azienda ULSS 9 Scaligera, Verona, Italy, [11]University of Rome Tor Vergata, Rome, Italy, [12]Department of Computer, Control and Management Engineering, Sapienza University of Rome, Rome, Italy

Background: In highly treatment-experienced people with HIV (PWH) mutations interact within a complex system. To date, network-based approach has not been used to study HIV mutations. This study aims to identify communities of mutations archived in proviral DNA in PWH with 4-class drug resistance (PWH-4DR) under virological suppression.

Methods: HIV-1 DNA next-generation sequencing (Illumina MiSeq) was performed with a 5% cutoff; we included major mutations (based on Stanford HIV Drug Resistance Database) detected in suppressed individuals from the PRESTIGIO Registry. A correlation network was constructed by calculating Spearman coefficients between each pair of mutations (nodes). Weighted edges represent significant correlations (adjusted Benjamini-Hochberg $p<0.001$) with thresholds set at the 5th and 95th percentiles for negative and positive values, respectively. The analysis was repeated including other mutations (accessory and polymorphisms non-resistance related) detected in ≥10% of study population.

Results: Overall 91 PWH-4DR, maintaining HIV-RNA<50 cps/mL for a median of 3.2 (IQR=1.7-5.0) years, included: at sampling 70 (77%) males, median (IQR) age 54 (50-59) years, on ART for 23 (21-25) years, on the current ART regimen for 2.6 (1.5-3.6) years and CD4+ 655 (484-890) cells/mm3. Out of 1226 mutations detected, 71 majors [25 for protease inhibitors (PI), 13 for nucleoside reverse transcriptase inhibitors (NRTI), 18 for non-nucleoside reverse transcriptase inhibitors (NNRTI), 15 for integrase strand transfer inhibitors (INSTI)] were selected for the above criteria. Network analysis revealed 3 connected components that are biologically relevant (Figure 1). The largest one (Figure 1, A-component) is characterized by 2 distinct communities, connected by a negative correlation among thymidine analog mutations (TAMs), indicating mutually exclusive mutation patterns; type 2 TAMs are associated with a cluster of PI major mutations, while type 1 are linked to L90M for PIs and Y188L for NNRTIs. The B-component in Figure 1 is characterized by a pattern of INSTI major mutations, where Q148K is the connector node between 3 groups, composed of NNRTI and major mutations from other drug classes. The second analysis including all mutations (71 majors, 125 minors, 6 stop codons) confirms the structure of these components (Figure 2: A-, B-, C-component), suggesting that not only major mutations may play a role in generating the network. Regarding potentially defective reservoir in proviral DNA, the C-component in Figure 2 presents a cluster of stop codons associated with APOBEC-related context drug resistance mutations.

Conclusions: In PWH-4DR network analysis allows the identification of distinct clusters of major mutations across different drug classes; it also highlights the direction and strength of the association between them. This innovative approach may outline the complex system of relations between proviral DNA mutations.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_177.png

Virology and pharmacology across the spectrum of HIV treatment

OC 19 THE IN VITRO GENETIC BARRIER TO RESISTANCE OF LENACAPAVIR IS NOT AFFECTED BY VIRAL SUBTYPE OR HEAVY TREATMENT EXPOSURE

C. Paletti[1], N. Bartolini[1], F. Giammarino[1,2], F. Saladini[1], I. Vicenti[1], L. Fiaschi[1], C. Biba[1], I. Varasi[1], F. Garcia[3], A.G. Marcelin[4], M. Zazzi[1], V. Spagnuolo[5], E. Focà[6], S. Rusconi[7]

[1]Department of Medical Biotechnologies, University of Siena, Siena, Italy, [2]Division of Infectious Diseases, Department of Medicine Huddinge, Karolinska Institutet, Stockholm, Sweden, [3]Hospital Universitario Clinico San Cecilio, Clinical Microbiology, Granada, Spain; Instituto de Investigación Ibs. Granada, Spain - Ciber de Enfermedades Infecciosas, Ciberinfec, Madrid, Spain, [4]Sorbonne Université, INSERM, Institut Pierre Louis d'Epidémiologie et de Santé Publique, AP-HP, Hôpital Pitié-Salpêtrière, Laboratoire de virologie, Paris, France, [5]Infectious Diseases, IRCCS San Raffaele Scientific Institute, Milan, Italy, [6]Unit of Infectious and Tropical Diseases, Department of Clinical and Experimental Sciences, University of Brescia and ASST Spedali Civili di Brescia, Brescia, Italy, [7]Infectious Diseases Unit, ASST Ovest Milanese, Legnano General Hospital and DIBIC, University of Milan, Milan

Background: Lenacapavir (LEN) is a HIV-1 capsid inhibitor currently approved for the use in heavily-treatment experienced (HTE) people with HIV (PWH). Mutations associated with resistance to LEN were identified at positions 56, 66, 67, 70, 74, 105 and 107 of the p24 coding region. To further characterize the mechanisms of resistance to LEN, this in vitro study aimed to evaluate LEN susceptibility and genetic barrier in B and non-B subtypes derived from therapy naïve (TN) and HTE PWH.

Materials and Methods: Twenty-six NL4-3 based recombinant viruses harbouring clinically derived GAG-PR region were generated from plasma samples collected from TN (n=15) and HTE PWH enrolled in the Italian PRESTIGIO registry (n=11). LEN half maximal inhibiting concentration (IC50) was measured through a TZM-bl cell line-based assay and fold-change (FC) susceptibility values were calculated with respect to the IC50 value of the NL4-3 wild type strain. In vitro resistance selection (IVRS) experiments were performed by exposing MT-2 cells infected with recombinant viruses and the NL4-3 control to increasing concentrations of LEN. Cultures were stopped when viral breakthrough was observed at approximately 100X LEN IC50 (2.56 nM) or after 105 days from the start of IVRS experiments. Sanger sequencing of the p24 coding region was performed at each viral breakthrough to detect emerging mutations. Statistical analyses were performed with GraphPad Prism version 9.0.0.

Results: None of the viruses harboured known LEN resistance mutations. Baseline susceptibility to LEN was comparable between HTE vs. TN (median FC 0.9 [IQR 0.3-1.6] vs. 1.6 [0.6-3.0], p=0.253, Mann-Whitney test) and between B (n=12) vs. non-B (n=14; 3 CRF02_AG, 3 F1, 1 each A1, C, D, G, CRF01_AE, CRF06_cpx, CRF40_BF, URF D/B) subtypes (median FC 0.7 [0.2-2.2] vs. 1.6 [0.7-2.5], p=0.141). By Kaplan-Meier survival analysis, the time to viral breakthrough was comparable among both B vs. non-B subtypes and HTE vs. TN PWH at approximately 10X (p=0.112 and p=0.551, respectively, log-rank test) and 100X LEN IC50 (p=0.226 and p=0.382, respectively). Known LEN resistance mutations emerged in 25/27 cultures including N74D (n=7), Q67H/R/K+N74D (n=6), Q67H/K +T107N/S (n=6), , N74D+T107N/D (n=3), Q67H+K70R+T107N (n=2), Q67H+K70R (n=2), and Q67H (n=1), while in two cases no emergent mutations were identified when the cultures were stopped after 105 days at 10x LEN IC50. In addition, the non-polymorphic aminoacid substitutions F169L (with Q67H+T107TN), V86M (with Q67H+K70R) and E213D (with Q67H+T107N) were detected in three distinct cases each. The patterns of emerging mutations were equally distributed among B and non-B subtypes.

Conclusions: In this study, the genetic barrier to resistance to LEN was not affected by viral subtype, previous failures to other ARV classes or long-time exposure to antiretroviral therapy. The frequent detection of emerging mutations in IVRS experiments indicates a low genetic barrier to resistance.

Covid-19 and post-Covid conditions in 2024: data from the EuCARE project

OC 20 INTERPLAY BETWEEN GUT-BARRIER DYSFUNCTION, MICROBIAL TRANSLOCATION, MICROBIOMA AND SARS-COV-2 RNAEMIA IN ACUTELY ILL UNVACCINATED COVID-19 INDIVIDUALS DEVELOPING LONG-COVID

R. Rovito, M. Augello, S. Marozin, V. Bono, A. Santoro, C. Tincati, F. Bai, G. Marchetti, for the EUCARE Study Group

Clinic of Infectious Diseases and Tropical Medicine, San Paolo Hospital, ASST Santi Paolo e Carlo, Department of Health Sciences, University of Milan, Milan, Italy

Background: The pathogenesis of long-COVID (i.e. LC) is influenced by heterogeneity of clinical manifestations, study populations, time of follow-up, and viro-immunological parameters. The role of gut-barrier dysfunction, microbial translocation (MT), and SARS-CoV-2 RNAemia have not shown conclusive results. We aimed to evaluate their interplay in LC development.

Methods: We consecutively enrolled unvaccinated, hospitalized COVID-19 patients during acute-COVID-19 (T0) who either developed LC (LC+) at a follow-up visit 2 months from viral clearance (T1) or did not (LC-). All virologic and microbial parameters were assessed at both time points: SARS-CoV-2 RNAemia (RT-qPCR, log10(copies/mL), eCAD and IFABP for gut-barrier dysfunction (ELISA), LBP for MT (ELISA) on plasma, as well as microbiome on whole blood (NGS of the 16S bacterial gene).

Results: A total of 21 LC+ and 19 LC- matched for age, gender, co-morbidities and COVID-19 severity were enrolled in the study. Median age in both groups was 55 years (45-69 IQR LC+, 56-67 IQR LC-), 70% in LC+ and 85% LC- group were male. The most frequent symptoms at follow-up in the LC+ were: fatigue (71%), mnestic disorders (33%), dyspnea (19%), pain (19%), and anosmia/dysgeusia (14%).

At baseline, individuals who developed LC showed higher LBP compared to LC- (Fig. 1A); in contrast, gut-barrier dysfunction and amount of bacterial 16S rRNA gene copies were similar in LC+ and LC- (Fig. 1A-B). At the same time-point, blood microbiome analysis revealed a non-significant trend towards lower richness within individuals developing LC, as measured by α-diversity. The blood microbiome of all individuals was dominated by Pseudomonadaceae and Sphingomonadacea families (Fig. 1C).

At viral clearance, LBP decreased in LC+ to the levels observed in LC-, whereas gut damage was similar. SARS-CoV -2 RNAemia did not associate with LC development 2 months from viral clearance (LC-: 0 log10(copies/mL) median T0, 0-3.5 IQR, and 0 log10(copies/mL) median T1, 0-3.5 IQR; LC+: 3 log10(copies/mL) median T0, 0-3.4 IQR, and 3.1 median T1, 0-3.5 IQR; p-values longitudinal analyses: 0.8 LC- and 0.5 LC+; p-values transversal analyses: 0.8 T0 and 0.3 T1), nor with gut-barrier dysfunction and MT. Finally, enrichment of the Oxalobacteraceae family was shown in the LC+ group at T1 (Fig. 1D).

Conclusions: Acutely ill, unvaccinated and hospitalized COVID-19 individuals developing LC feature increased MT and a less rich microbiome in the blood. At viral clearance, despite similar MT and gut barrier dysfunction markers, predominance of blood Oxalobacteraceae was found in LC+ individuals alone. These results, together with the consistent finding of comparable levels of SARS-CoV-2 RNAemia in the two groups at both time-points, suggest that translocation of Gram-negative bacterial families in the peripheral blood, rather than viral RNA, may play a role in the pathogenesis of long-COVID, that merits further investigation.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_292.jpg

Covid-19 and post-Covid conditions in 2024: data from the EuCARE project

OC 21 TRAJECTORIES OF THE POST COVID-19 CONDITION

F. Bai, A. Santoro, M.F. Greco, M. Sala, R. Castoldi, R. Rovito, G. Marchetti, on behalf of the EuCARE project

Clinic of Infectious Diseases, San Paolo Hospital, ASST Santi Paolo e Carlo, University of Milan, Italy

Background: Post COVID-19 condition (PCC) is diagnosed in 10-30% of patients and is characterized by persisting symptoms at ≥ 4 weeks after acute SARS CoV-2 infection. Ongoing symptoms can last 7 or even more months. How long this condition persists and any changes in its clinical phenotypes over time remain to be further elucidated.
We aimed to study PCC trajectories and factors associated with PCC persistence over time in a cohort of hospitalized patients.
Material and methods: We included patients hospitalized for COVID-19 from February 2020 to June 2023 and with at least one follow up visit after acute infection at San Paolo Hospital, University of Milan; follow up visit have been performed at the post COVID-19 clinic or by telemedicine. At each follow up examination patients filled in a short version of WHO CRF for ongoing symptoms, Hospital Anxiety and Depression Scale (HADS) and a screening tool for Post-Traumatic Stress Disorder (PTSD). Chi-square, Kruskal-Wallis test and logistic regression analysis were used for statistics.
Results: 853 patients were included (median age 62, IQR 52-73; 41% females): 551/853 (64.6%), 152/418 (36.4%) and 21/69 (30.4%) presented PCC at median follow up of 3 (IQR 2-3), 7 (IQR 6-10) and 26 (IQR 20-33) months, respectively ($p<0.001$). Fatigue, respiratory sequelae, brain fog and chronic pain were the main persistent clinical phenotypes of PCC, while anosmia/dysgeusia tended to decrease over time (Table 1).
Female sex, hospitalization in 2020, a longer hospital stay during the acute phase and no COVID-19 vaccination were associated with persistence and resolution of PCC, in comparison with never having had PCC. Furthermore, symptoms of anxiety and depression and PTSD were more common in patients with PCC (table 2). By fitting a logistic regression analysis, hospitalization in 2020 remained independently associated with persistent PCC, adjusting for age, sex, preexisting comorbidities and severity of acute disease (AOR 0.479 for 2021 vs 2020, 95%CI 0.253-0.908, p=0.024; AOR 0.771 for 2022 vs 2020, 95%CI 0.259-2.297, p=0.641; AOR 0.086 for 2023 vs 2020, 95%CI 0.086-3.830, p=0.565).
Conclusions: While our data demonstrate a reduction of the PCC burden after 7 months from the acute phase, still one third of patients presented enduring PCC. The main clinical presentations of PCC remain fatigue, respiratory symptoms, brain fog and chronic pain. Hospitalization during the first phases of COVID-19 pandemic seems associated with persisting PCC over time.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_225.jpg

Modern challenges in sexual health

OC 22 FEMALE SEXUAL DYSFUNCTION: PREVALENCE AND RISK FACTORS IN A COHORT OF WOMEN LIVING WITH HIV

M. Salvi[1], G. Tiecco[1], M. Alberti[1], A. Delbarba[2], F. Castelli[1], E. Quiros-Roldan[1]

[1]Department of Clinical and Experimental Sciences, Unit of Infectious and Tropical Diseases, University of Brescia and ASST Spedali Civili di Brescia, Brescia, Italy, [2]Department of Clinical and Experimental Sciences, Unit of Endocrinology and Metabolism, ASST Spedali Civili di Brescia, Brescia, Italy

Background: Sexual health is an important aspect for an individual's quality of life. Female sexual dysfunction has an impact on the lives of many women, and it is inadequately investigated by medical professionals in women living with Human Immunodeficiency Virus (WLWH), who are especially affected by this issue. In the present study, the aim is to investigate the prevalence of sexual dysfunction in a cohort of WLWH using the Female Sexual Function Index (FSFI) questionnaire.
Material and methods: The FSFI questionnaire was offered to all consecutive adult women with HIV who presented to our unit of Infectious Disease from April to August 2023. It is a validated 19-item sexual function assessment tool that is widely regarded as the gold standard for assessing sexual function and it is suggested from EACS Guidelines. It encompasses six key domains: desire, arousal, lubrication, orgasm, satisfaction, and pain. Participants were divided into two groups based on total FSFI score (the cut-off for sexual dysfunction is 26.55) and into two groups for each domain based on their median scores (individuals with a score above or equal to the median versus those with a score lower than the median). The groups were compared analysing demographic characteristics, menopausal status and comorbidities using Student's T-test, Fisher's exact test and Yates's correction.
Results: The questionnaire was offered to 371 women, but only 179 (48.2%) completed it. Of the 192 (51,8%) not analysed there were 129 women who refused to reply and 63 who were unable to do so due to a linguistic issue. Only 117 of the 179 individuals declared sexual intercourse in the previous month and were considered, except for questions about 'desire', where we considered even those who denied having engaged in sexual activity during the previous 30 days.
Women mean age was 53.1 years, and 116/179 women (64.8%) were in menopause. Most women had a steady partner (73.2%). Findings from the analysis of the FSFI questionnaire indicate that 35.9% of the individuals received a score of less than 26.55, indicating a diagnosis of female sexual dysfunction. Women who have female sexual dysfunction tend to be older than women who do not, in fact the average age of females with sexual dysfunction is 54 years, which is greater than the average age of women without sexual dysfunction (48.9 years), with a statistically significant p-value (0.008). Furthermore, it seems that being in menopause also plays an important role in the development of sexual dysfunction (p-value 0.0004). Examining the results across individual domains, it is apparent that menopause is associated with lower scores.
Conclusion: Sexual dysfunction in women living with HIV is underrecognized by health care professionals despite its high prevalence (36%). In conclusion, the primary factors influencing sexual dysfunction are age and menopause. Furthermore, around 50% of women refused to investigate and deal with sexual issue.
(Figure 1)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_439.jpg

Modern challenges in sexual health

OC 23 KNOWLEDGE, USE AND MISUSE OF SELF-PRESCRIBED DOXYPEP IN A COMMUNITY-BASED PREP SERVICE

R. Rossotti[1,2], E. Caruso[2], D. Calzavara[2], P. Vinti[2], A. Bianchi[2], A. Tavelli[2,3], D. Moschese[2,4], G. Lapadula[2,5], C. Muccini[2,6], A. Soria[2,5], A. De Bona[2,7], M. Cernuschi[2,6], A. d'Arminio Monforte[2,3]

[1]Department of Infectious Diseases, ASST Grande Ospedale Metropolitano Niguarda, Milan, Italy, [2]Milano Checkpoint ETS, Milan, Italy, [3]ICONA Foundation, Milan, Italy, [4]I Division of Infectious Diseases, ASST Fatebenefratelli Sacco, Milan, Italy, [5]Department of Infectious Diseases, IRCCS San Gerardo dei Tintori, Monza, Italy, [6]Unit of Infectious Diseases, IRCCS San Raffaele Scientific Institute, Milan, Italy, [7]Department of Infectious Diseases, ASST Santi Paolo e Carlo, Milan, Italy

Background: The lack of national Guidelines on DoxyPEP leaves a gap in STI prevention where individuals with perceived high risk of exposure are informally self-administering doxycycline as PEP. This study aims to describe knowledge, use, temporal trends, and impact of doxyPEP in a cohort of PrEP-clients attending a community-based service.

Methods: Milano Checkpoint provides sexual health assistance to the largest cohort of PrEP-users in Italy. At each visit, clients are tested for STIs and fill self-administered behavioral questionnaires, including a survey on doxyPEP. Descriptive statistics and nonparametric tests were used to describe survey participants from September to December 2023. Temporal trends were assessed with Cochran-Armitage test. Incidence rate (IR) was calculated for syphilis and chlamydia (separately and considered together, S/C), and for gonorrhea. Incidence rate ratios (IRR) were compared using adjusted Poisson models.

Results: The analysis included 686 respondents: 188 (27.5%) were aware of doxyPEP but only 52 (7.6%) reported using it. Users of DoxyPEP were significantly younger (36 versus 38 years), with higher number of overall (20 versus 13) and condomless (12 versus 7) sexual intercourses in the previous 3 months. Table 1 shows main features of study population. DoxyPEP information was received mainly from friends (41.0%) and the internet (36.7%), but users discussed doxyPEP with PrEP providers more often than non-users (32.7% versus 14.0%, p=0.006). DoxyPEP was used mostly in case of self-perceived high-risk STI exposure (42.1%), but only 51.7% used the recommended dosing. DoxyPEP awareness and use decreased significantly over time (p=0.023 and 0.022, respectively), while the knowledge of the right dosing remained stable over time (p=0.287).

Historical STIs IRs between groups were similar, but doxyPEP users showed a significant increase in chlamydia (IRR 3.07, 95%CI 1.27-8.51, p=0.006), S/C (IRR 1.95, 95%CI 0.91-4.46, p=0.067), and gonorrhea (IRR 3.91, 95%CI 1.56 -11.68, p=0.001) incidences compared to the previous visit recorded. Adjusted Poisson models suggest that increasing frequency of doxyPEP use is protective against chlamydia (IRR 0.94) and S/C (IRR 0.92) at the limit of significance.

Conclusions: DoxyPEP was known by a limited number of PrEP users; a small number of clients reported to use it and often with inadequate dosing. Users had increased STIs incidence probably for risk compensation issues, but higher doxyPEP frequency suggests protection against chlamydia and S/C. DoxyPEP needs to be implemented within appropriate national guidelines to reduce STIs circulation.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_34.png

Modern challenges in sexual health

OC 24 EFFECTIVENESS OF MENB VACCINATION AGAINST GONORRHOEAE AMONG PREP USERS AND PWH

L. Labate[1,2], C. Marelli[1], E. Guarise[2], P.M. Postma[2], G. Massobrio[1,2], L. Taramasso[1], I. Schiavetti[3], S. Blanchi[1], F. Centorrino[1], L. Mezzogori[1,2], C. Bartalucci[1,2], R. Schiavoni[1,2], L. Sticchi[2], M. Bassetti[1,2], A. Di Biagio[1,2]

[1]IRCCS Ospedale Policlinico San Martino, Genoa, Italy, [2]Department of Health Sciences, University of Genoa, Italy, [3]Department of Health Sciences, Section of Biostatistics, University of Genova, Genova, Italy

Background: The Meningococcal group B(4CMenB) is a broad-spectrum vaccine that was recently shown to be effective for 33-47% protection against N. gonorrhoeae(NG), due to genetic similarity between Neisseria meningitidis and NG.This study aimed to assess the impact of vaccination with 4CMenB on NG incidence among two key populations at high risk for STDs.

Material and methods: This was a retrospective, case-control study including PrEP users and PWH who received at least one dose of 4CMenB vaccination and who had at least one STDs test before and after the vaccination between 2016 to 2023.Cases were defined as people with almost one episode of NG and controls people tested for STDs with a negative result for NG.We fitted Poisson regression model to compare the incidence rate of NG and other STDs before and after the vaccination.

Results: Fifty-one out of 1300 PWH were included. Characteristics are shown in Table 1. The mean number of STDs tests made before and after vaccination was 1.41(SD 1.25) and 2.25(SD 1.83) per person respectively. The median follow-up time before vaccination was 79 days (IQR:42-393), while the median follow-up time after vaccination was 3.8 years (IQR 1.8-5.4). The incidence rate of NG and other STDs before vaccination was 65*100000 (95% CI:33 -122) and 181*100000 (95%CI: 120-264) person-days, respectively. The incidence rate of NG and other STDs after vaccination was 13*100000 (95%CI:7-24) and 32*100000 (95%CI:21-48) person-days, respectively. The Poisson regression showed a relative reduction of 72% (IRR: 0.28;95% CI:0.11-0.71; p=0.0073) in the incidence of NG in the post-vaccination period compared to the pre-vaccination one. Furthermore a relative reduction for others STDs in the post-vaccination period was seen(p=0.0001). At the time of vaccination no differences in CD4+ T cell count and HIV-RNA were found in people who experienced at least one episode of NG than people with NG negative result (p=0.6852 and p=0.4487 respectively).Only 7 out of 185 PrEP users were included. Median age was 41 years, all were males. The mean(SD) number of STDs tests made before and after vaccination was 5.3(3.5) and 3.0(2.3), per person respectively. The median follow-up time before and after vaccination was 1.7(IQR:0.3-3.0) and 0.6(0.2-4.0) years, respectively. The incidence rate of NG and other STDs before vaccination was 87*100000 (95%CI:30-128) and 130*100000 (95%CI:57-282) person-days, respectively. The incidence rate of NG and other STDs after vaccination was 54*100000 (95%CI:11-190) and 54*100000 (95%CI:11-190) person-days, respectively.

Conclusions: 4CMenB vaccine could have a significant effect on the reduction of incidence of NG, that could be influenced also by a change in sexual behavior. PrEP users were more frequently tested for STDs than PWH. Vaccine uptake still remain insufficient in the two populations. It is crucial to identify the key population to be actively offered 4CMenB, waiting for a specific vaccination against NG.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_274.jpg

Modern challenges in sexual health

OC 25 HPV TEST IN ANAL SPECIMENS: A PRELIMINARY EVALUATION ON SAMPLING QUALITY

A. Rizzo[1], D. Moschese[2], F. Salari[1], A. Giacomelli[2], M.V. Cossu[2], C. Fusetti[2], S. Reato[2], G. Carrozzo[2], V. Micheli[1], A. Gori[2], A. Lombardi[1], M.R. Gismondo[1]

[1]Laboratory of Clinical Microbiology, Virology and Bioemergencies, ASST Fatebenefratelli Sacco, Milan, Italy, [2]Department of Infectious Disease, ASST Fatebenefratelli Sacco, Milan, Italy

Background: An adequate cellularity is a key factor in the detection of HPV DNA in both anal and cervical samples, ensuring accuracy and reliability. Internal cellular control in commercial diagnostic assays might help prevent false negative. Many studies evaluated the quality and clinical validity of cervical samples. Aim of this study was to evaluate the predictive power of cellular control for anal samples quality as compared to those collected from cervix, through the analysis of specimens' cellularity, and the relationship with HPV-specific Real-Time PCR (RT-PCR) Cycle threshold (Ct) values.

Material and methods: A total of 158 samples were collected from February to March 2024. Specifically, 53 anal and 105 cervical specimens were collected using the ThinPrep™ Pap Test PreservCyt™ and tested with the Allplex HPV 28 Detection kit, that includes as internal control a human housekeeping gene (β-globin). We collected β-globin Ct values for all samples and HPV Ct values for HPV-positive cases. In case of a patient with multiple HPV types infection, we calculated the mean Ct value.

Results: Anal samples were collected in 94% (50/53) of cases from individuals biologically males, mostly men who have sex with men. The mean (Standard Deviation) age of individuals tested for anal and cervical HPV was 46 (SD=12) and 43 (SD=11), respectively. β-globin-related Ct values significantly differed between anal and cervical samples ($p<.05$): mean values were equal to 31 (SD=4) for anal and 29 (SD=3) for cervical specimens.

HPV positive samples were 83% (44/53), with mean Ct values of 34 (SD=34) for HPV and 30 (SD=3) for β-globin targets. On the other hand, 50% (53/105) of cervical samples resulted HPV+, with mean Ct values of 32 (SD=5) for HPV) and 29 (SD=2) for β-globin. A significant difference was thus observed for β-globin ($p<.05$) but not for HPV-related ($p>.05$) Ct values. The same was observed in positive samples to the most frequent genotype, HPV16: there was a significant difference between anal and cervical β-globin ($p<.05$) but not in HPV16-related Ct values ($p>.05$).

Conclusions: These results show that, while significant differences were observed for cellularity control β-globin Ct values between anal and cervical samples, HPV-related Ct values showed no differences, demonstrating a sufficient good quality of sampling even in anal samples with lower cellularity. Further studies on larger sample size, possibly including cytological data, are needed to confirm our experience and exclude potential biases.

The complexities of HIV infection

OC 26 ALL-CAUSE MORTALITY IN PEOPLE DIAGNOSED WITH HIV IN ITALY IN 1995-2019: DATA FROM THE ICONA COHORT

A. Giacomelli[1], S. Lanini[2,10], S. De Benedittis[3], A. De Vito[4], M. Mazzitelli[5], M. Ceccarelli[6], R. Gagliardini[2], G. Madeddu[4], E. Quiros-Roldan[7], D. Checchi[8], G. Lapadula[9], C. Tascini[10], A. Tavelli[3], A. Antinori[2], E. Girardi[11], A. d'Arminio Monforte[3] on behalf of Icona Foundation Study Group

[1]III Infectious Diseases Unit, Department of Biomedical and Clinical Sciences, Università degli Studi di Milano, Milan, Italy, [2]Clinical Infectious Diseases Department, National Institute for Infectious Diseases Lazzaro Spallanzani IRCCS, Rome, Italy, [3]ICONA Foundation, Milan, Italy, [4]Unit of Infectious Disease, Department of Medicine, Surgery and Pharmacy, University of Sassari, Sassari, Italy, [5]Infectious and Tropical Diseases Unit, Padua University Hospital, Padua, Italy, [6]Department of Clinical and Experimental Medicine, University of Messina, Messina, Italy, [7]Department of Clinical and Experimental Sciences, Unit of Infectious and Tropical Diseases, University of Brescia and ASST Spedali Civili di Brescia, Brescia, Italy, [8]Department of System Medicine, Tor Vergata University, Rome, Italy, [9]Department of Infectious Diseases, IRCCS San Gerardo dei Tintori, Univresity of Milano Bicocca, Monza, Italy, [10]Dipartimento di Medicina dell'Università di Udine, U.O. Malattie Infettive, Università di Udine e Azienda Sanitaria Universitaria Integrata di Udine, Udine, Italy, [11]Scientific Direction, National Institute for Infectious Diseases, Lazzaro Spallanzani IRCCS, Rome, Italy

Background: Understanding the evolution and dynamics of deaths in people with HIV (PWH) is crucial to tailor interventions aiming at improving PWH long term wellbeing. Therefore, we assessed all-cause mortality in the multicentre ICONA cohort.

Material and methods: We included all people enrolled in the ICONA cohort who were diagnosed with HIV in 1995 -2019 recruited from centres with a loss to follow-up (LTFU) rate <20%. PWH have been followed up until death, administrative censoring (participation discontinuation from ICONA cohort either by PWH or recruiting centre), or 31rst December 2023. Crude yearly all-cause mortality was reported as incidence rate per 1000 person years of follow up (PYFU) according to clustered sampling design at clinical centre level. According to date of HIV diagnosis, study periods have been further stratified in five-years calendar periods (1995-1999, 2000-2004, 2005-2009, 2010 -2014 and 2014-2019). Association between calendar period of HIV diagnosis and death were assessed by a mixed-effect multivariable Poisson regression model with random intercept at patient level adjusting for current age, time of diagnosis, sex, risk factor for HIV acquisition, nationality, HCV and HBV coinfection, AIDS, and comorbidities. Average CD4 level according to time of diagnosis was calculated according to mixed-effect linear regression level with random intercept at clinical centre.

Results: Out of 21,066 PWH enrolled in ICONA, 14,025 PWH were included in the analysis: 768 (5.5%) were LTFU, 1,391 (9.9%) administratively censored, 1,068 (7.6%) died, and 10,798 (77%) were alive at 31rst December 2023 (Figure 1). They were mostly males (79.9%), men who have sex with men in 45.7%, with a mean age at enrolment of 38 years. The mean age at HIV diagnosis significantly increased overtime from 35 years in 1995-1999 to 40 years in 2015-2019. The mean CD4+ T cell count at enrolment significantly reduced from 447 cell/mm3 in 1995-1999 to 364 cell/mm3 in 2015-2019. The crude all-cause mortality per 1000 PYFU is reported in Figure 2. A significant reduction in mortality was observed according to different period of diagnosis: 27 (95% CI 11-42) per 1000 PYFU in 1995-1999 vs 12 (95% CI 4-19) in 2000-2004 vs 10 (95% CI 4-17) in 2005-2009 vs 6 (95% CI 2-9) in 2010-2014 vs 5 (95% CI 2 -9) in 2015-2019 (Figure 3). In the multivariable model when compared to the 1995-1999 period a lower adjusted hazard of death was observed in each subsequent calendar period [aHR 0.44 (0.31-0.63) in 2000-2004 vs 0.39 (0.28 -0.55) in 2005-2009 vs 0.21 (0.15-0.29) in 2010-2014 vs 0.20 (0.14-0.28) in 2015-2019].

Conclusions: All-cause mortality in PWH enrolled in the ICONA cohort significantly reduced overtime. This reduction seems to reach a plateau for people diagnosed with HIV after 2010.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_184.jpg

The complexities of HIV infection

OC 27 BURDEN OF ADVANCED HIV DISEASE (AHD) AMONG ANTIRETROVIRAL THERAPY (ART)-EXPERIENCED PERSONS WITH HIV (PWH) IN ITALY OVER THE PAST 20 YEARS

A. Mondi[1], A. Cozzi-Lepri[2], V. Mazzotta[1], S. Nozza[3], A. Cingolani[4], L. Taramasso[5], A. Giacomelli[6], F. Bai[7], S. Lanini[8], V. Bono[7], A. Ianniello[9], L. Comi[10], C. Papalini[11], C. Mussini[12], E. Girardi[13], A. Antinori[1], on behalf of Icona Foundation Study Group

[1]Clinical and Research Infectious Diseases Department, National Institute for Infectious Diseases Lazzaro Spallanzani IRCCS, Rome, Italy, [2]Centre for Clinical Research, Epidemiology, Modelling and Evaluation (CREME), Institute for Global Health, University College London, London, UK, [3]Infectious Diseases Unit, Vita Salute San Raffaele University, Milan, Italy, [4]Section of Infectious Diseases, Department of Safety and Bioethics, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy, [5]Infectious Disease Clinic, IRCCS Policlinico San Martino Hospital, Genoa, Italy, [6]III Infectious Disease Unit, ASST Fatebenefratelli Sacco, Milan, Italy, [7]Department of Health Sciences, ASST Santi Paolo e Carlo, Clinic of Infectious Diseases, University of Milan, Milan, Italy, [8]Department of Medicine, University of Udine, Udine, Italy, [9]Division I of Infectious and Tropical Diseases, ASL Città di Torino, Torino, Italy, [10]Infectious Disease Unit, ASST Papa Giovanni XXIII, Bergamo, Italy, [11]Infectious Diseases Clinic, Santa Maria della Misericordia Hospital, Università degli Studi di Perugia, Perugia, Italy, [12]Infectious Diseases Unit, Azienda Ospedaliero-Universitaria Policlinico of Modena, Modena, Italy, [13]Scientific Direction, National Institute for Infectious Diseases, Lazzaro Spallanzani IRCCS, Rome, Italy

Introduction: Recent data from low- and middle-income countries indicates that AHD has become increasingly common among PWH already enrolled in care, raising an emerging issue in the HIV continuum of care. Estimates of the incidence of AHD after ART initiation in high-income countries are sparse, and risk factors for AHD are poorly investigated.

Methods: All PWH enrolled in the Icona Cohort who started ART with CD4≥200 cells/mm3 and without history of AIDS-defining-event (ADE) between January 1st, 2004, and December 31st, 2023, were included. The cumulative probability of developing for the first time AHD (CD4<200 cells/mm3 or an ADE) >3 months after ART initiation was estimated using Kaplan-Meier curves. A case–control study nested in the Icona cohort was conducted after matching PWH with incident AHD (cases) with 2 AHD-free controls by CD4 count nadir, age and time from ART start. The total effect of pre-specified potential predictors of AHD was estimated by fitting separate conditional logistic regression models.

Results: Among the 9,433 PWH free from AHD who started ART over the observation, 405 (4.3%) had a diagnosis of AHD >3 months after treatment initiation, of which 107 were due to an ADE. The probability of developing AHD was higher in the first few years after starting ART (4.2% 95% CI: 3.7-4.7 by 5 years) and flattened over time (6.6% 95% CI: 5.9-7.3 by 10 years, Figure 1). In the case-control study, 401 PWH with AHD were matched to 801 PWH without AHD (4 cases did not match). Compared to controls, cases were more likely to be female (25% vs 20%, p=0.026), to have acquired HIV through injecting drug use (IDU, 17% vs 9%, p<0.001), and to have a lower educational level (university 8% vs 14%, p<0.001). Additionally, at the time of AHD diagnosis, cases had higher HIV-RNA (median 1.60 vs 1.48 log10cp/mL, p<0.001, 6 months before AHD, p<0.001) and were more likely to have a history of discharge from care (DFC) for >18 months (11% vs 2%, p<0.001) and virological failure (12% vs 3%, p<0.001). After blocking potential confounding pathways, subjects with previous DFC but also those in care with HIV-RNA>1,000 cp/mL showed a significantly higher risk of AHD compared to PWH in care and virologically suppressed. Similarly, female sex, IDU as the modality for HIV infection, a lower educational level, being unemployed, and having started ART in less recent years (2004-2013) were all associated with a higher risk of developing AHD (Table 1).

Conclusions: Our data suggests that the actual risk of developing AHD among ART-experienced PWH in Italy is not negligible, although it appears to have decreased over the last decade. Prevention of AHD after charge in care is crucial and should focus on women and individuals with signs of social deprivation (low education, unemployment or use of injecting drugs). Discharge from care should be carefully monitored to ensure rapid re-engagement, as long gaps can significantly increase the risk of incident AHD.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_273.jpg

The complexities of HIV infection

OC 28 KIDNEY TRANSPLANTATION IN PEOPLE LIVING WITH HIV: TEN-YEAR EXPERIENCE IN MODENA

A. Cervo[1], M. Albertini[2], I. Baldisserotto[2], F. Casari[2], E. Ghidoni[2], F. Romani[2], V. Todisco[2], G. Mori[3], E. Franceschini[1,2], G. Donati[2,3], C. Mussini[1,2], G. Guaraldi[1,2]

[1]Infectious Diseases Unit, University Hospital of Modena, Modena, Italy, [2]University of Modena and Reggio Emilia, Modena, Italy, [3]Nephrology, Dialysis and Transplant Unit, University Hospital of Modena, Modena, Italy

Background: The objective of the study was to compare long term graft and clinical outcomes in people living with HIV (PWH) undergoing kidney transplantation (KT), in comparison to non HIV KT recipients (KTR).
Methods: Inclusion criteria were consecutive patients undergoing KT from Jan 2007 to Jan 2024 in Modena. Graft outcomes were failure and rejection (from the KT to the end of follow-up). Clinical outcomes were survival (at the end of follow-up) and post-transplant infections (within 2 years after KT). Study outcomes in KTR were evaluated after Jan 2013 only. Kaplan-Meier (KM) curves were used to assess both graft and clinical outcomes. Cox regression model was used to explore risk factors for graft rejection and post-transplant infections.
Results: 36 PWH (67% males, mean age 56.9 [± SD 9.6] years) received KT, 23% reaching 10-year follow-up. At transplant, mean time from HIV detection was 19 (± SD 7.0) years; 69% had prior opportunistic infections and/or CD4 cell count < 200 cells/mmc. Most common antiretroviral regimen was INSTI-based (76%) and 28 (85%) switched ART after KT at a median time of 5 days. HIV RNA was undetectable in all PWH at 754 person-year-follow-up(PYFU). Non HIV KTR were 184: 67% males, mean age 55.8 years [±12.3], 5.4% reaching 8-year follow-up. Table 1 compares relevant transplant data in the two groups. During a 630 PYFU period, graft outcomes were evaluated (Figure 1 a-b): no difference in the incidence rate (IR) of graft failure was found between HIV and non HIV KTR [IR 4.54 (95% CI 1.46-14.1) vs. 3.55 (95% CI 2.29-5.50) per 100 PYFU (p=0.746)]; the graft rejection IR was 10.2 (95% CI 4.41-8.66) and 5.70 (95% CI 3.93-8.25) per 100 PYFU in HIV and non HIV KTR, respectively (p=0.245). The main risk factor for rejection was CMV infection after KT (Hazard Ratio [HR] 4.24, 95% CI 1.96-9.16, p<0.001), while the use of Thymoglobulin resulted protective (HR 0.26, 95% CI 0.09-0.78, p=0.016). Concerning the clinical outcomes shown in Figure 2, the IR of deceased KTR was 6.06 (95% CI 2.27-16.10) and 3.37 (95% CI 2.15-5.28) per 100 PYFU, respectively (p=0.360). There was no difference in the occurrence of all-type post-transplant infections between HIV and non HIV KTR [IR 3.97 (95%CI 2.50-6.30) vs. IR 3.55 (95% CI 3.00-4.19) per 1000 PYFU, (p=0.608)], except for CMV reactivation/first infection according to CMV serostatus at transplant (p=0.017) (Figure 2b). Risk factors for infections were the use of organs from deceased donors (HR 1.69, 95%CI 1.02-2.78, p=0.040) and graft rejection (HR 1.60, 95%CI 1.03-2.49, p=0.037).
Conclusion: The long term patient and graft survivals were similar in PWH undergoing kidney transplant compared to non HIV recipients. PWH did not show a higher risk of post-transplant infections and apparently displayed lower risk of CMV reactivation/first infection due to a higher prevalence of CMV positive serology and lower exposure to thymoglobulin at transplant.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_284.png

The complexities of HIV infection

OC 29 HIV ADVANCED NAIVE: THE FORGOTTEN TEST

A. Narducci[1], R. Simac[1], I.F. Bottalico[1], S. Ferrara[1], T. Santantonio[1], C. Santoro[2], A. Saracino[2], A. Dargenio[2], R. Schiavoni[3], L. Mezzogori[3], A. Di Biagio[3], A. Santoro[4], G.C. Marchetti[4], C. Tincati[4], S. Lo Caputo[1]

[1]Infectious Diseases Unit, A.O.U. Policlinico Foggia, University of Foggia, Foggia, Italy, [2]Infectious Diseases Unit, A.O.U Consorziale Policlinico Bari, University of Bari, Bari, Italy, [3]Infectious Diseases Unit, IRCCS San Martino, University of Genova, Genova, Italy, [4]Infectious Diseases Unit, ASST Santi Paolo e Carlo, University of Milano, Milano, Italy

Background: The new HIV infections in our country has been decreasing in the last 5 years while the number of new infections in PLWH with low CD4 count has not decreased and affects approximately 50% of all new diagnoses. Aim of the study is to evaluate the viroimmunological features and outcome of a cohort of PLWH with advanced HIV infection and to investigate symptoms and hospitalizations before the diagnosis.
Material and methods: All PLWH diagnosed with advanced HIV infection since 1 January 2019 to 31 December 2023 from four Italian infectious diseases units were enrolled. Were collected demographic, clinical, therapeutical and viroimmunological data at baseline, viroimmunological and therapeutical data one year from the start of antiretroviral treatment (cART) and at the last follow-up and clinical data. All patients were interviewed about medical histories, symptoms, medical examinations, hospitalizations and surgery in the last two years prior to diagnosis and about HIV testing. Chi square test was performed for categorical data.
Results: 199 (35%) of 575 new HIV diagnosis from 2019 to 2023 were advanced treatment-naïve HIV- infected patients, 54% of whom had AIDS-defining conditions. Baseline data are shown in Table 1. The CD4+ T cell median count at baseline was 52/mm3 and in our cohort 69% had < 100 cell/mm 3, resulting in a CD4+ T cell count > 200/mm3 in 102 patients (68%) one year after the start of cART. As recommended by guidelines, 145 (75%) advanced naïve started with an INSTI based regimen, nevertheless 16% switched therapy one year after the start of cART. During follow-up a viroimmunological response was achieved: 80% of our cohort had stable CD4+ T cell count > 200/mm3 and 86% undetectable viral load, but still the rate of dropout was 26% and 14 (7%) PLWH died. A statistical association between being dropout and AIDS-condition at baseline was reported (p=<.05), moreover being diagnosed with HIV in 2020 and 2021 was related with dropout (p= <.005) (Table 2).
Fatigue, weight loss and lymphadenopathy were experienced one year before the diagnosis by 54 people, 67% of whom had medical evaluation by general practitioner, in medical or surgical departments, but nobody got tested for HIV: only 12% of our cohort got tested for HIV in life. Even if cART reduces the risk of AIDS-related illness, 34 PLWH (17%) were admitted for AIDS-opportunistic infections one year after diagnosis.
Conclusions: Many advanced PLWH in our cohort reported HIV-related symptoms that required medical evaluation or hospitalization without HIV testing ever being offered. Early initiation of cART allows viroimmunological success even in advanced naïve. However, these patients have a higher risk of developing AIDS-related pathologies with consequent increase in mortality. A wider use of HIV testing at an outpatient and hospital level is essential for an earlier diagnosis leading to a reduction in the risk of mortality and a lower hospitalization rate.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_364.png

Immunological features in people living with HIV

OC 30 SCANT EFFECT OF CART ON MUCOSAL IMMUNE CELLS DURING ACUTE HIV INFECTION

C. Tincati[1], V. Bono[1], M. Augello[1], R. Rovito[1], S. Marozin[1], A. Santoro[1], F. Bai[1], A. Muscatello[2], A. Bandera[2], A. Calcagno[3], A. Gori[4], S. Rusconi[5], S. Nozza[6], G. Marchetti[1]

[1]Clinic of Infectious Diseases and Tropical Medicine, San Paolo Hospital, ASST Santi Paolo e Carlo, Department of Health Sciences, University of Milan, Milan, Italy, [2]Infectious Diseases Unit, Foundation IRCCS Ca' Granda Ospedale Maggiore Policlinico, Department of Pathophysiology and Transplantation, University of Milan, Milan, Italy, [3]Unit of Infectious Diseases, Department of Medical Sciences at Amedeo di Savoia Hospital, University of Turin, Turin, Italy, [4]Department of Clinical Sciences, Infectious Diseases and Immunopathology, L. Sacco Hospital, Università di Milano, Milan, Italy, [5]Infectious Diseases Unit, ASST Ovest Milanese Ospedale di Legnano, Department of Biomedical and Clinical Sciences, University Milan, Legnano, Italy, [6]Infectious Diseases Unit, Vita-Salute San Raffaele University, Milan, Italy

Background: The gut is a site of HIV pathogenesis as it harbors the majority of CD4+ T-cells in the body. Aside from CD4+ cells, also Th17 and γδ T cells are depleted in early and late stages of HIV. Of note, their loss is linked to dysbiosis and microbial translocation which may contribute to disease progression in people living with HIV (PLWH) on viro-suppressive combination Antretroviral Therapy (cART). Whether the introduction of cART in acute HIV is able to arrest, if not revert, the immune abnormalities within the gut is unknown.

Methods: Eleven PLWH with primary/acute HIV infection (PHI/AHI) enrolled in the Inaction trial, were treated with cART. Prior to (PHI-T0) and following 12 weeks of treatment (PHI-T12), total/activated CD4+ and γδ T-cells (flow cytometry) as well as the frequencies of Th17 cells were measured in the gut (colon, ileum) and blood. Ten, untreated, PLWH with chronic HIV (CHI) were enrolled as controls.

Results: In AHI, cART induced viral suppression [T0: 5.58 log10 cp/mL (IQR 5.16-5.92); T12: 1.6 log10 cp/mL (1.55 -1.91); p=0.001] and CD4+ immune-reconstitution in the blood [T0: 538/uL (IQR 49-609); T12: 756/uL (590-940); p=0.004].

In contrast, cART had a minor impact on mucosal CD4+ T-cells. Indeed, despite significantly higher colonic total and activated CD4+ T-cells in AHI at T0 compared to CHI (respectively, total CD4+ 42.7% [24-48.6] vs 22.3% [20.7-25.4]; p= 0.04 ; CD4+CD38+, 46.7% [26.7-62.4] vs 21.7% [13.5-31.7]; p= 0.04; (Figure 1A-B)], a contraction of both subsets was observed at T12 (respectively, 24.3% [18.9-45.8]; p= 0.07; 25% [16.8-20.4]; p= 0.03), reaching comparable levels to those observed in CHI. In the ileum, activated (51.5% [41-69.5] vs 22.9% [8.9-33.3]; p= 0.03; Figure 1D), yet not total, CD4+ were higher in AHI than CHI at T0 and displayed non-significant changes at T12 (Figure 1C).

In terms of γδ T-cells, peripheral total and activated γδ T-cells were comparable in AHI and CHI at T0 (Figure 1 E, F). cART was able to reduce circulating CD38+ γδ T-cells in AHI leading to lower levels compared to CHI (14% [7.2 -15.8] vs 31.1% [19.5-79.4]; p= 0.02; Figure 1F). Their kinetics in the gut resembled those in the periphery with similar levels in the two patient groups with the exception of higher CD38+ γδ T-cells in the ileum of AHI than CHI at T0 (62% [50-83.1] vs 21.4% [18.5-48]; p= 0.01) which did not decrease following cART (Figure 1H).

Finally, also Th17 cells were similar in the blood and gut of AHI and CHI prior to cART introduction (Figure 1I-K) which led to a scant increase of peripheral frequencies alone (Figure 1I).

Conclusions: Acute HIV accounts for alterations of mucosal immune cells, featuring partial preservation of gut total CD4+ vis-à-vis high levels of CD4+ and γδ T-cell activation as well as loss of γδ T and Th17 cells. While early cART appears to dampen, at least in part, the establishment of immune activation in the gut of AHI, it is unable to induce mucosal immune reconstitution.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_147.png

Immunological features in people living with HIV

OC 31 VIRO-IMMUNOLOGICAL RESERVOIRS CHARACTERIZATION IN PBMCS AND GALT IN INDIVIDUALS ON DUAL AND TRIPLE-ART REGIMENS

S. Khan[1], M. Compagno[2], C. Matteucci[1], L. Piermatteo[3], L. Benedetti[2], L. Duca[1], R. Scutari[1,4], V. Petrone[1], A. De Nicolò[5], C.A. Chenwi[1,6], O. El Khalili[1], L. Ferrari[2], E. Teti[2], A. Bertoli[1,7], V. Malagnino[2], M. Iannetta[2], A. D'Avolio[5], G. Di Perri[5], V. Svicher[3], R. Salpini[3], S. Grelli[1,7], L. Sarmati[2], M. Andreoni[2], F. Ceccherini-Silberstein[1]

[1]Department of Experimental Medicine, University of Rome Tor Vergata, Rome, Italy, [2]Department of System Medicine, Clinical Infectious Diseases, University of Rome Tor Vergata, Rome, Italy, [3]Department of Biology, University of Rome Tor Vergata, Rome, Italy, [4]Multimodal Laboratory Research Unit, Bambino Gesù Children's Hospital, IRCCS, Rome, Italy, [5]Laboratory of Clinical Pharmacology and Pharmacogenetics, Department of Medical Sciences; University of Turin, Italy, [6]Chantal Biya International Reference Center for Research on HIV and AIDS prevention and management (CIRCB), Yaounde, Cameroon, [7]Virology Unit, Tor Vergata University Hospital, Rome, Italy

Background: Recent data shows safety and efficacy of dual-drug regimens (2DR). We evaluated viro-immunological characteristics in gut-associated lymphoid tissues (GALT) and peripheral blood mononuclear cells (PBMCs) in individuals switched to 2DR or maintaining triple-ART (3DR).

Methods: Eleven virologically suppressed individuals for a median of >2-years were analyzed: 7 individuals in 2DR and 4 in 3DR, for a median time of 23.9 and 94 months, respectively. A rectal biopsy was collected during high resolution anoscopy, and mononuclear cells were isolated from peripheral whole-blood. Total HIV-DNA and cell-associated-HIV-RNA (ca-HIV-RNA) were quantified by droplet-digital-PCR and normalized in 106CD4+ T-cells. The transcriptional activity of HIV-DNA was evaluated by the ratio of ca-HIV-RNA copies/DNA copies. Lymphocyte phenotypes and ART drug concentrations were also analyzed in both compartments.

Results: Nine out of 11 individuals were male (81.8%), with median age of 35 (interquartile range [IQR] 30-42) years. Individuals were taking ART for a median of 75.5(IQR 57-94.5) months, with undetectable HIV-1-RNA for 45.5(IQR 30.0-62.5) months. The median [IQR] CD4+ and CD8+ counts, and CD4+/CD8+ ratio was 809 [734-874] cells/μL, 663 [521-863] cells/μL and 1.2[0.9-1.3], respectively. Higher HIV-DNA levels were observed in PBMCs compared to GALT (median [IQR] 1175[965-2220] vs 601[408.7-854.5] copies/106CD4, p=0.005), results confirmed also in individuals with 2DR and 3DR (Figure 1 - Panel A). Conversely, caHIV-RNA was similar in GALT and PBMCs (Figure 1 - Panel B).

Interestingly, we found significantly higher HIV-DNA transcriptional activity in GALT compared to PBMCs (median [IQR] 9.9[6.1-16.1] vs 4.3[2.4-6.1) ca-HIV-RNA copies/DNA copies (p=0.02), 2DR (p=0.1) and, 3DR (p=0.03) (Figure 1 - Panel C). The higher transcriptional activity in GALT suggests lower penetration of drugs into the tissues, which indeed was confirmed by a lower dolutegravir concentration in GALT (p=0.0007) (Figure 1 - Panel D).

Furthermore, we observed a trend of weak positive correlation between HIV-DNA and ca-HIV-RNA in PBMCs and GALT (Figure 1 - Panel E). Peripheral HIV-DNA negatively correlated with peripheral CD4+ (Figure 1 - Panel F), while GALT caHIV-RNA negatively correlated with GALT CD4+ and nadir CD4+ counts (Figure 1 -Panel G).

Interestingly, immunophenotyping showed GALT HIV-DNA transcriptional activity positively correlated with activated lymphocyte subsets CD19+/38+ in the overall population (p=0.003) (Figure 1 - Panel H) and in the participants on 2DR (p=0.01) (Figure 1 - Panel I), while no correlation with CD4+/38+, CD8+/38+ has been observed.

Conclusion: The HIV-DNA transcriptional activity was significantly higher in GALT and positively correlated with activated lymphocyte subsets, indicating tissue-specific differences in transcriptional activity in peripheral compartment respect to GALT. The lower drugs penetration in tissues, may triggers viral and immune activation. A larger study is ongoing to better understand these aspects.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_430.jpg

Immunological features in people living with HIV

OC 32 OXIDATIVE STRESS IN VIROLOGICALLY SUPPRESSED PEOPLE WITH HIV: IS DUAL ANTIRETROVIRAL THERAPY ASSOCIATED WITH A MORE FAVOURABLE PROFILE?

F. Lombardi[1,2], S. Belmonti[1], A. Sanfilippo[2], A. Borghetti[1], V. Iannone[2], P.F. Salvo[2], M. Fabbiani[3,4], E. Visconti[1], S. Di Giambenedetto[1,2]

[1]Fondazione Policlinico Universitario A. Gemelli IRCCS, UOC Malattie Infettive, Roma Italia, [2]Dipartimento di Sicurezza e Bioetica, Università Cattolica del Sacro Cuore, Roma, Italia, [3]Department of Medical Biotechnologies, University of Siena, Siena, Italy, [4]Infectious and Tropical Diseases Unit, Azienda Ospedaliera Universitaria Senese, Siena, Italy

Background: Oxidative stress (OS) is the imbalance between oxidant and antioxidant molecules, tilted in favour of oxidants, that is involved in aging in the general population and has been associated with an increased risk of developing aging-correlated and non-AIDS co-morbidities in ART-treated people with HIV (PWH).
It has been demonstrated that in the absence of ART HIV infection induces oxidative damage by the deregulation of OS pathways. It has also been suggested that ART might have a role in both enhancing the OS process triggering massive reactive oxygen species production and decreasing the antioxidant protection.
We evaluated OS by comprehensively assessing both plasma total oxidant and antioxidant levels and explored the factors associated with it in virologically suppressed PWH on long-term ART.
Method: This was a cross-sectional study that enrolled PWH from September 2022 to March 2023. We quantified plasma total oxidant levels by using the derivatives-reactive oxygen metabolites (d-ROMs) test and the plasma total antioxidant capacity by using the biological antioxidant potential (BAP) test in each sample. For each individual, we also calculated the BAP/d-ROMs ratio, expressed as oxidative stress index (OSi): a value < 7.3 was considered as an index of OS. Multivariable linear regression models were performed on the outcomes: d-ROMs, BAP levels and OSi index.
Results: We enrolled 299 ART-experienced PWH with virological suppression (HIV-RNA<50cps/mL). Baseline characteristic of the PWH are summarized in Table 1. The mean of the d-ROMs levels was 409 UCARR (95%CI 394 -422), indicating a high level of oxidants in this population (Figure1A). The mean of the BAP levels was 1.809 µmol/L (95%CI 1706-1851), suggesting an overall deficiency status in the antioxidant potential (Figure 1B). The OSi mean value was 4.84 and 91.6% of the participants were below the cut-off value, indicating a high level of OS. By regression analysis, higher production of oxidants was associated with female sex (+79.4, 95% CI 48.5-110.2, p<0.001), current exposition to PIs (+54.9, 95% CI 5.15-104.7, p=0.031) and HCV co-infection (+54.1, 95% CI 15.2 -93.1, p=0.007). A higher antioxidant capacity was correlated with higher HDL levels (+5.8, 95% CI 2.3-9.4, p=0.002). Interestingly, the current use of dual therapies was correlated with a low grade of OS (i.e., a higher OSi) (vs triple therapy, +0.41, 95% CI 0.001 to 0.82, p=0.049). A lower OSi was associated with female sex (-0.76, 95%CI -1.26/ -0.26, p=0.003). The OSi correlated negatively with cholesterol levels (-0.007, 95% CI -0.01/-0.002, p=0.009) and positively with HDL (+0.03, 95% CI 0.01 to 0.05, p=0.001).
Conclusions: In this study, virologically suppressed PWH on long-term ART showed marked OS. Note that OS was higher in PWH on triple regimens than in those on dual regimens. These results suggest that a less-drug strategy might mitigate oxidative status and warrant further investigations.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_43.jpg

Immunological features in people living with HIV

OC 33 CHARACTERIZATION OF SPECIFIC T-CELL RESPONSES TO A THREE-DOSES NONAVALENT HPV VACCINE SCHEDULE IN PLWH ON ART

E. Tortellini[1], M. Guardiani[1], F. Dominelli[1], C. Falvino[2], C. Fosso[1], M. Barresi[1], S. Corazza[2], S.G. De Maria[2], S. Garattini[2], A. Carraro[1,2], M.A. Zingaropoli[1], F. Mengoni[1], C. Giambi[4], C. Del Borgo[2], R. Marocco[2], M. Lichtner[2,3]

[1]Department of Public Health and Infectious Diseases, Sapienza University of Rome, Rome, Italy, [2]Infectious Diseases Unit, SM Goretti Hospital, Sapienza University of Rome, Latina, Italy, [3]Department of NESMOS, Sapienza University of Rome, Rome, Italy, [4]UOS Profilassi e sorveglianza malattie infettive, SM Goretti Hospital, Sapienza University of Rome, Latina, Italy

Background: PLWH have a higher incidence and persistence of HPV infection, leading to an augmented risk of HPV-related cancers and complications. An adjuvated recombinant nonavalent subunit vaccine has been approved for the prevention of HPV in PLWH. Since most studies are focused on the antibody response, we investigated specific T-cell responses in PLWH after nonavalent HPV vaccination.
Material and Methods: PLWH stable on ART under routine follow-up at the Infectious Diseases Unit of S.M. Goretti Hospital, Latina, Italy were enrolled. The vaccination schedule comprises of three-doses. T-cell responses were assessed at the moment of the administration of the first dose (T0), at six (T1) and 12 months (T2) from it after stimulation of heparinized whole blood with a pool of HPV16 and HPV18 L1 peptide libraries. IFNg, IL2 and TNFa production was assessed in supernatants with an automatized ELISA platform. Furthermore, an intracellular cytokine flow cytometry assay was performed to assess CD4 and CD8 specific production of such cytokines. Through Boolean gating, we identified T-cells producing all possible combinations of IFNg, IL2 and TNFa, defining those producing any of them as responding T-cells and those simultaneously producing all 3 as polyfunctional T-cells. An ulterior evaluation was performed stratifying PLWH according to previous HPV infection.
Results: Thirty-eight PLWH (29 male/9 female, median age [IQR] of 41 [34-50] years, median CD4 T-cell count [IQR] 716[419-881] cells/µl) were enrolled between September 2022 and May 2023. Among PLWH, HPV infection had previously been diagnosed in 14/38 patients (37%) (Table 1). To date, for 16 PLWH an evaluation at T2 has been performed. Overall, an increase in the production and release of IFNg, IL2 and TNFa at T2 was observed in all patients at T1 and T2 compared to T0 (Figure 1), and both CD4 and CD8 cells seems to contribute to the production of such cytokines. An increase in the percentage of responding and polyfunctional CD4 T-cells was found at T3 compared to T0 (p=0.0258 and p=0.0204, respectively) (Figure 2). Overall, the response seems to be predominantly monofunctional, although at T2 it reaches a certain degree of heterogenicity (Figure 2). Stratifying the population, an increase in responding CD4 T-cells was observed only in HPV- group (p=0.0517), together with a higher percentage of polyfunctional CD4 T-cells at T1, although not significant (p=0.0778) (Figure 3).
Conclusions: Our preliminary data show an increase in the percentage of both responding and polyfunctional T-cells, that are known to be functionally superior to single-cytokine producing cells, although the response continue to appear predominantly monofunctional. Furthermore, HPV- people apparently show a qualitative better response. In our opinion, it would be useful to consider this aspect in the design of vaccines, in order to try eliciting qualitatively better T-cell responses.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_367.png

Tailored approaches to antiretroviral therapy

OC 34 CLINICAL OUTCOME OF SWITCHING TO A DUAL DRUG REGIMEN (2DR) VS. SWITCHING OR REMAINING ON A TRIPLE (3DR) REGIMEN IN THE SETTING OF A VIRAL LOAD ≤50 COPIES/ML

C. Mussini[1], A. Di Biagio[2], E. Quiros Roldan[3], V. Mazzotta[4], A. Costantini[5], G. D'Ettorre[6], A. Giacometti[5], A. Vergori[4], A. Tavelli[7], M. Andreoni[8], A. Castagna[9], F. Maggiolo[4], A. Antinori[4], A. d'Arminio Monforte[7], A. Cozzi-Lepri[10], on behalf of the Icona Foundation Cohort Study

[1]Infectious Diseases Unit, Azienda Ospedaliero-Universitaria Policlinico di Modena, Modena, Italy, [2]Department of Specialist Medicine, Infectious Disease Clinic, IRCCS Ospedale Policlinico San Martino, Genoa, Italy, [3]Department of Clinical and Experimental Sciences, Unit of Infectious and Tropical Diseases, University of Brescia and ASST Spedali Civili di Brescia, Brescia, Italy, [4]Clinical and Research Infectious Diseases Department, National Institute for Infectious Diseases, Lazzaro Spallanzani IRCCS, Rome, Italy, [5]Department of Biomedical Sciences & Public Health, Polytechnic University of Marche, Ancona, Italy, [6]Department of Public Health and Infectious Diseases, Umberto I Hospital, Sapienza University of Rome, Rome, Italy, [7]ICONA Foundation, Milan, Italy, [8]Policlinico Tor Vergata, University of Rome "Tor Vergata", Rome, Italy, [9]Infectious Diseases Unit, IRCCS San Raffaele Scientific Institute, Milan, Italy, [10]Institute for Global Health, University College London, London, United Kingdom

Background: Dual drug regimens (2DR) have been proposed to reduce the emergence of toxicities in individuals with viral load (VL)≤50 copies/mL. A possible drawback of 2DR is greater inflammation, possibly leading to higher incidence of cardiovascular disease (CVD) and cancer. There are no randomised trials with clinical endpoints comparing 2DR vs. 3DR in the VL≤50 copies/mL setting.

Methods: We included PWH enrolled in the Icona Foundation Study who after November 2014 had kept a VL≤50 copies/mL for >6 months on a 3DR ART. HBsAg+ participants and pregnant women were excluded. PWH were followed up until they newly developed a clinical composite outcome (CCO) of CVD, cancer or death or their last visit with VL≤50. We aimed to emulate a parallel trial with primary endpoint the time to experience CCO by 48 months. Secondary endpoints were time to CVD and cancer alone, no deaths. The treatment strategies were defined as to switch to 2DR regimen (DRV/r/c+3TC or ATV/r/c+3TC or DTG+RPV or DTG+3TC) within 6 months from enrolment vs. switch or remain on a 3DR regimen. Participants' characteristics were compared according to the observed treatment strategy. The effect of switch to 2DR vs 3DR was quantified by the difference in the Kaplan-Meier estimated risk of CCO at 48 months (per protocol analysis). We used cloning to control for immortal time and confounding bias and inverse probability of censoring weights (IPW) to control for informative censoring bias. Factors used in the IPW model are reported in the footnote of Table 1B. The 95% CIs were calculated using 100 bootstrap replicates. Sensitivity analyses were performed after restricting to 3TC/DTG as the sole 2DR and in the subset of those with no prior evidence of failure to 3TC.

Results: We included 7,820 PWH of Icona, 595 (7%) who switched to a 2DR (502 to 3TC+DTG) within a median of 92 days (IQR:31-153) of enrolment. PWH who were switched to 2DR in the natural course were more likely to be MSM (48% vs 44%, p=0.03), more likely to be Italian (78% vs 73%, p=0.002) entered the target trial 2 years earlier, were more likely to be receiving INSTI-based regimens at baseline (51% vs 37%) and showed shorter previous gaps in care (6.3 vs. 7.5 months, p<0.001). The breakdown (n;%) of the 278 observed primary endpoint events was AIDS cancers (27;0.4%), CVD (52;1%), non-AIDS cancer (141;2%) and death (58;1%). Table 1A shows the KM estimates of the risk of CCO at 48 months from enrolment: in the weighted analysis the risk of CCO was 2.0% lower (95% CI: 0.6-2.9%) in participants who switched to 2DR vs. those switching/remaining on 3DR. This difference was similar in sensitivity analyses (not shown) but was attenuated after excluding deaths from the endpoint (Table 1B).

Conclusions: In our real-world switch setting, under our assumptions, a switch to modern 2DR regimens appears to lead to a small reduction in 2-year risk of CVD/cancer/death (2% difference) which seemed to be mainly driven by a difference in mortality.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_269.jpg

Tailored approaches to antiretroviral therapy

OC 35 CUMULATIVE RISK OF DISCONTINUATION OF MODERN FIRST-LINE ART BY REASON FOR STOPPING AND TYPE OF ART INITIATED: FINDINGS FROM THE ICONA COHORT

M. Poliseno[1], M. Giotta[2], F. Marascia[3,4], G. Micheli[5], F. Portunato[6], C. Seguiti[7], E. Zappulo[8], A. Vergori[9], E. Quiros-Roldan[7], S. Lo Caputo[10], A. Saracino[1], A. Tavelli[11], A. Antinori[9], A. d'Arminio Monforte[11], A. Cozzi-Lepri[12], on behalf of Icona Foundation Study Group

[1]Clinic of Infectious Diseases, Department of Precision and Regenerative Medicine and Jonian Area (DiMePreJ), A.O.U.C. Policlinico di Bari, Bari, Italy, [2]School of Medical Statistics and Biometry, Department of Interdisciplinary Medicine, University of Bari "Aldo Moro", Bari, Italy, [3]Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties "G. D'Alessandro", University of Palermo, Palermo, Italy, [4]Infectious and Tropical Diseases Unit, Sicilian Regional Reference Center for the Fight against AIDS, AOU Policlinico "P. Giaccone", Palermo, Italy, [5]Dipartimento di Sicurezza e Bioetica - Sezione di Malattie Infettive, Università Cattolica del Sacro Cuore, Rome, Italy, [6]Infectious Diseases Unit, IRCCS AOU San Martino-IST, University of Genoa, Genoa, Italy, [7]Fondazione Poliambulanza Istituto Ospedaliero, UOC Medicina Generale, Brescia, Italy, [8]Department of Clinical Medicine and Surgery, Section of Infectious Diseases, University of Naples "Federico II", Naples, Italy, [9]Clinical Infectious Diseases Department, National Institute for Infectious Diseases Lazzaro Spallanzani IRCCS, Rome, Italy, [10]Clinic of Infectious Diseases, Department of Clinical and Surgical Sciences, University of Foggia, Foggia, Italy, [11]ICONA Foundation, Milan, Italy, [12]Centre for Clinical Research, Epidemiology, Modelling and Evaluation (CREME), Institute for Global Health, University College London, London, UK

Background: Higher long-term antiretroviral treatment (ART) success is reported in People living with HIV (PLWH) remaining on their first-line ART over an extended period. This study estimates the current incidence and the leading causes for first-line ART discontinuation among ART-naive PWH after the advent of Integrase Strand Transfer Inhibitors (INSTI), a more effective, less toxic, and better-tolerated ART option.

Materials and Methods: The analysis included all >18 years ART-naive PLWH enrolled in the ICONA Foundation study cohort, who started their initial ART over January 1, 2012, to December 31, 2022. ART discontinuation was defined as either discontinuing or modifying ≥1 drug in the initial regimen (excluding backbone and booster). All PLWH were followed up until either discontinuation or their last follow-up visit or death before December 31, 2023. The cumulative incidence of first-line ART discontinuation due to simplification, failure, or toxicity, was calculated separately for each of the reasons for discontinuation treating the other reasons as competing events and stratified by regimen type (2DR vs 3DR) and the class of the anchor drug included in the initial regimen (NNRTI, PI, INSTIs). Gray's Test was employed to compare the cumulative incidence curves over time. Multivariable competing risk Cox regression analysis was performed to compare the risk of discontinuation according to initial regimens after controlling for potential confounding factors (the full list is shown in Table 1 footnote).

Results: Out of 10,462 ART-naive PLWH, a total of 5,261 (50%) discontinued their first ART by December 31, 2023. The median (95% Confidence Interval, CI) persistence in the first ART by Kaplan-Meier estimates was 6.52 (6.37 -6.64) years. There was strong evidence for a difference in the cumulative incidence of discontinuations due to simplification and toxicity by type of initial regimen (p-value<.0001) but not for discontinuing due to treatment failure (p-value=0.12), Figure 1. By 4 years the cumulative risk of discontinuation for simplification was 2.7% for PLWH starting 3TC+DTG, 6.3% for PLWH on INSTI-based,8.5% on NNRTI-based, and 16.4% on PI-based regimens, respectively; for toxicity the same risks were 7.3% for 3TC+DTG, 9.5% for INSTI-based, 14.4%for NNRTI-based, and 16.6% for PI-based regimens, respectively. Table 1 shows the results of the multivariable competing risk Cox regression model comparing 3TC/DTG with all other types of regimens initiated and separately for each of the reasons for discontinuation.

Conclusions: In the INSTI era, a non-negligible proportion of ART-naive patients within the ICONA cohort still discontinue their first-line ART, mainly for simplification or toxicity. INSTI 2DR showed a lower rate of discontinuation for simplification/toxicity than PI- and NNRTI-based regimens. However, INSTI 3DR were also more frequently discontinued because of toxicity than NNRTI-based regimens.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_234.png

Tailored approaches to antiretroviral therapy

OC 36 CD4 T-CELL, CD4/CD8 RATIO IMPROVEMENT AND A GENERAL REDUCTION IN INFLAMMATORY BIOMARKERS WITH LOW LEVEL VIREMIA (LLV) UP TO WEEK 192 WITH FOSTEMSAVIR (FTR) BASED REGIMENS IN INDIVIDUALS WITH MULTIDRUG-RESISTANT (MDR) HIV-1

V. Spagnuolo[1], N. Gregori[2], I. Marcon[2], F. Du[3], B. Li[3], M. Wang[3], M. Prakash[4], A. Clark[4]

[1]Infectious Diseases, IRCCS San Raffaele Scientific Institute, Milan, Italy, [2]ViiV Healthcare, Italy, UK, [3]GSK, Collegeville, PA, USA, [4]ViiV Healthcare, Brentford, UK

Background: Persistent LLV (40-1000 copies/mL) remains a challenge in the era of high effective ART, which is associated with the emergence of virological failure, drug resistance and an increased risk of immune system activation and inflammation, that may impact morbidity and mortality. FTR, the prodrug of the first-in-class attachment inhibitor Temsavir, is indicated in combination with other antiretrovirals (ARVs) for heavily treatment-experienced (HTE) individuals with MDR HIV-1 who are unable to construct suppressive regimens. BRIGHTE participants were not obligated to stop treatment due to LLV, here we describe outcomes and inflammatory biomarkers measured through Week 192 in participants with low level viremia (<40, 40-400, 400-1000 and >1000 copies/mL) on FTR based regimens from the Randomized Cohort (RC) in the BRIGHTE study.

Methods: BRIGHTE was a Phase III international registrational study 2016- ongoing [n= 371; randomized cohort (RC), n=272; non-randomized cohort n=99], in adults who were failing their current ARV regimen (HIV-1 RNA >400 c/mL) with ≤2 fully active and approved ARVs. Participants with 1 or 2 active ARVs entered the RC and received open-label FTR + optimized background treatment (OBT) after an 8-day blinded placebo-controlled period. Virologic and immunologic responses were analysed by baseline (BL) demographics and disease characteristics.

Results: At baseline in the RC, 89% of participants had a CD4 T-cell count <350 cells/mm3, with 5% between 350-<500 cells/mm3 and 6% ≥500 cells/mm3. The mean CD4 T-cell increase observed in the <40 copies/mL (n=142) group was 331 cells/mm3, 40-400 copies/mL (n=25) was 263 CD4 T-cells/mm3, 400-1000 copies/mL (n=2) was 218 CD4 T-cells/mm3, and in participants with >1000 copies/mL (n=10) it was 107 CD4 T cells/mm3. A similar mean increase in CD4/CD8 T cell ratio was observed across those individuals with LLV; the ratio in the <40 copies/mL (n= 142) group was 0.38, in those with a VL 40-400copies/mL (n=25) it was 0.31, 400-1000 copies/mL (n=2) it was 0.32, and in the >1000 copies/mL (n=10) group it was 0.09. Biomarkers measured as part of the BRIGHTE showed a mean general reduction in the study; <40 copies/mL [sCD14: -371ug/L (n=133); sCD163: -134 ug/L (n=40); D-Dimer: 0.16mg/L (n=1/39)], 40-400copies/mL [sCD14: -428ug/L (n=21); sCD163: -80ug/L (n=5); D-Dimer: -0.14mg/L (n=22)], 400-1000 copies/mL [sCD14: 1174ug/L (n=2); sCD163: no data; D-Dimer: 0.04mg/L (n=2)], >1000 copies/mL [sCD14: 271ug/L (n=10); sCD163: 107ug/L (n=3); D-Dimer: 0.08mg/L (n=10)].

Conclusions: In those individuals with LLV there is a persistent increase in CD4 T cell number and an improvement in CD4/CD8 ratio, with a general reduction of inflammatory markers (sCD14, sCD163, D-Dimer) up to week 192. These results highlight the value of FTR-based regimens for a sustained improvement where there is incomplete virologic suppression.

Tailored approaches to antiretroviral therapy

OC 37 WELL-BEING IN PEOPLE WITH HIV AFTER ONE YEAR OF LONG-ACTING CABOTEGRAVIR AND RILPIVIRINE

F. Alberton[1,2], S. Diotallevi[1], R. Lolatto[1], T. Clemente[1,2], B. Trentacapilli[1,2], C. Candela[1,2], S. Nozza[1,2], N. Gianotti[1], A. Castagna[1,2], C. Muccini[1]

[1]IRCCS San Raffaele Scientific Institute, Infectious Disease, Milan, Italy, [2]Vita-Salute San Raffaele University, Milan, Italy

Background: Our aim was to evaluate well-being of people with HIV (PWH) at cabotegravir (CAB) and rilpivirine (RPV) switch and after one year of long-acting therapy.

Material and methods: SCohoLART is a single-center, prospective, cohort study of PWH on virological suppression who switched to long-acting CAB/RPV. The 16-item Generic Well-Being (W-B) Questionnaire (W-BQ16) was administered at CAB/RPV start (baseline) and after one year of treatment/discontinuation. The General Well-Being score was calculated by adding the Energy and Positive Well-Being subscale scores and the inverse of the Negative Well-Being and Stress subscale scores. People answered on a 4-point scale ranging 3 to ' 0. Participants' characteristics reported as median (interquartile range, IQR) or frequency (%) and compared using Mann-Whitney or Chi-Square/Fisher's tests. Changes in scores and subscales assessed by Wilcoxon signed rank test. Associations between W-BQ16 scores and other characteristics assessed by Spearman's rank correlation coefficients.

Results: Overall, 391 participants completed at least the baseline questionnaire and 234 at both timepoints. At baseline, 357 (91.3%) male, median age years 48.8 (40.1-56.1) years and 43 (11.0%) discontinued CAB/RPV during the study follow-up. Median General W-B score was 37 (32-42); a greater portion of men compared to women had a General W-B score ≤37 (p=0.002), together with participants with more years from HIV diagnosis (p=0.043) and lower creatinine (p=0.002). Other baseline participant's characteristics reported in Table 1. After one year of CAB/RPV, median Negative W-B, Energy, Positive W-B and Stress scores were 1 (0-2), 8 (7-10), 9 (7-12) and 3 (1 -5), respectively, unchanged from baseline. Both baseline and one-year Negative W-B score were found to be correlated with time to regimen discontinuation (r=-0.10, p=0.05 and r=-0.15, p=0.02, respectively), while one-year Stress score with years since HIV diagnosis (r=0.13, p=0.05), years of antiretroviral therapy (r=0.13, p=0.04) and serum creatinine at baseline (r=-0.15, p=0.02). Despite unchanged General W-B score, we described a significant improvement in the questionnaire administered after one year of CAB/RPV compared to the questionnaire at baseline with regard to the median score of answer 2 ("I feel downhearted and blue"), 4 ("I get upset easily or feel panicky"), 7 ("I feel tired or exhausted") and to the median score of the subscale Negative W-B (significant reduction of the total score).

Conclusions: We did not find significant differences in the General W-B score between the questionnaire at CAB/RPV switch and one year after the switch; however, the subscale Negative W-B improved throughout the study. In PWH receiving long-acting therapy for one year, years since HIV diagnosis and of antiretroviral therapy and serum creatinine seemed to correlate with stress, whereas time to discontinuation with negative W-B (crying, demoralization, anxiety, agitation).

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_213.jpg

Critical clinical aspects underlining the control of viral hepatitis and emerging viral infections

OC 38 PERSISTENT HBV CRYPTIC ACTIVITY IS FREQUENTLY REVEALED AMONG ANTI-HBC POSITIVE/HBSAG NEGATIVE PEOPLE LIVING WITH HIV INFECTION DURING HBV-ACTIVE ART AND CAN JEOPARDIZE THE FULL CONTROL OF HIV REPLICATION

L. Piermatteo[1], R. Salpini[1], S. D'Anna[1], C. Castelli[1], I. Grossi[1], T. Mulas[2], A. Di Lorenzo[2], A. Bertoli[3,4], M. Iannetta[2], L. Sarmati[1], V. Svicher[1], V. Malagnino[2]

[1]Department of Biology, Tor Vergata University, Rome, Italy, [2]Department of System Medicine, Tor Vergata University, Rome, Italy, [3]Department of Experimental Medicine, Tor Vergata University, Rome, Italy, [4]Virology Unit, Tor Vergata University Hospital, Rome, Italy

Background: Occult HBV infection (OBI) is frequent and associated with poor survival in the setting of HIV infection. Here, we investigate cryptic HBV activity and factors correlated with its detection in anti-HBc positive/HBsAg-negative people living with HIV (PLWH) by applying a highly sensitive (HS) droplet digital (dd) PCR assay for serum HBV-DNA and HBV-RNA quantification.

Material and Methods: This study includes 74 anti-HBc-positive/HBsAg-negative PLWH, negative to serum HBV-DNA by commercial assays and treated for at least 12 months with an HBV active ART: TAF/FTC (48.4%), TDF/FTC (37.1%) or LMV (14.5%). Serum HBV-DNA and HBV-RNA are quantified by an in-house ddPCR assay at two different points during ART (T0 and T1, collected after 6 months) for all PLWH, and at a third time-point (T2) collected after 3 years for a subset of 44 PLWH.

Results: At T0, despite a prolonged HBV-active ART (median[IQR] duration: 54[25-101] months), most PLWH (72.6%) has evidence of cryptic HBV activity, unveiled by the positivity to serum HBV-DNA in 24.3% (N=18, median [IQR] 19[13-34] copies/ml), and by the positivity to serum HBV-RNA in 47.3% (N=35, median[IQR] 21[13-28] copies/ml). Conversely, only 27.4% has a complete negativity to both HBV-DNA and RNA by ddPCR, indicative of no active HBV reservoir.

Notably, despite similar rate of positivity to cryptic HBV viremia across the different HBV-active ART (26.7% for TAF, 26.1% for TDF and 33.3% for LMV, p=0.7), significantly lower levels of cryptic HBV viremia are observed in PLWH treated with TAF respect to TDF (median[IQR] HBV-DNA: 17[12-24] vs 43[25-61] copies/ml, P=0.01), suggesting a higher effectiveness of TAF in controlling HBV replication in the setting of OBI.

Furthermore, the presence of cryptic HBV viremia at T0 significantly correlates with a more advanced CDC stage at HIV diagnosis (CDC stage C3 in 55.6% with vs 23.2% without cryptic viremia, P=0.02).

By focusing on the kinetics of virological HBV markers across the 3 analysed time-points, 40.9% of PLWH have a persistent HBV activity, 50.0% shows an intermittent positivity to HBV markers while only 9.1% has a persistently negativity to both HBV DNA and RNA, suggestive of a silent HBV reservoir. Noteworthy, PLWH with persistent HBV activity are more frequently characterized by a detectable HIV viremia respect to those with intermittent/no positivity to HBV markers (HIV-RNA detectable in 50% vs 19.2%, p=0.05), supporting a worse HIV control in the setting of an underlying persistently active HBV reservoir.

Conclusions: In the setting of anti-HBc-positive/HBsAg-negative PLWH, persistent cryptic HBV activity is frequently revealed, can contribute to jeopardize the full control of HIV replication under ART and its extent can be modulated by the different HBV-active drugs. Overall, this highlights the importance to properly monitor PLWH with occult infection also by using highly-sensitive assays capable to reflect the activity of HBV reservoir.

Critical clinical aspects underlining the control of viral hepatitis and emerging viral infections

OC 39 CHRONIC HDV COINFECTION (CHD) IS CHARACTERIZED BY A DIFFERENT HBSAG ISOFORMS COMPOSITION RESPECT TO HBV MONO-INFECTION WITH HIGHER MIDDLE- AND LARGE-HBS LEVELS PARALLELING THE REPLICATIVE AND CYTOLYTIC ACTIVITY OF HDV

A. Magnapera[1], L. Piermatteo[1], S. D'Anna[1], A. Olivero[2], L. Duca[3], G. Torre[1], C. Castelli[1], E. Teti[4], A. Di Lorenzo[4], V. Malagnino[4], M. Iannetta[4], L. Baiocchi[5], S. Francioso[5], I. Lenci[5], F. Ceccherini-Silberstein[3], M. Milella[6], A. Saracino[6], A. Ciancio[2], L. Sarmati[4], P. Lampertico[7], M. Rizzetto[2], G.P. Caviglia[2], V. Svicher[1], R. Salpini[1]

[1]Department of Biology, University of Rome Tor Vergata, Rome, Italy, [2]Department of Medical Sciences, University of Turin, Turin, Italy, [3]Department of Experimental Medicine, University of Rome Tor Vergata, Rome, Italy, [4]Department of Systems Medicine, Infectious Disease Clinic, Tor Vergata University, Rome, Italy, [5]Hepatology Unit, Policlinico Tor Vergata, Rome, Italy, [6]Department of Biomedical Sciences and Human Oncology, Clinic of Infectious Diseases, University of Bari "Aldo Moro", Bari, Italy, [7]Division of Gastroenterology and Hepatology, Foundation IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy

Background: HBV surface proteins (HBsAg) facilitate HBV and HDV entry and morphogenesis. Total HBsAg comprises 3 different forms: Large- (L-HBs), Middle- (M-HBs) and Small-HBs (S-HBs) with L-HBs found in virions rather than subviral particles. Here, we investigate the levels of HBs forms in the setting of chronic HBV mono-infection (CHB) and HDV coinfection (CHD).

Method: 262 plasma samples from HBeAg-negative patients were included: 143 CHD and 119 CHB. Total HBsAg is measured by COBAS HBsAg II assays (Roche Diagnostics), HBs forms by ad hoc designed ELISAs (Beacle Inc) and HDV RNA by RoboGene HDV RNA Quantification Kit 2.0.

Results: CHD and CHB patients have a comparable age (median [IQR]: 54 [44-60] and 53 [39-64] years; P=0.8) and rate of NUC treatment (41.2% and 34.5%, P=0.3). CHD have lower HBV DNA (median [IQR]: 1.3 [0.0-2.3] vs 1.6 [1.2 -3.4] logIU/ml, P=0.002) and higher ALT (median [IQR]: 79 [50-113] vs 36 [22-63] U/L, P<0.001) and total HBsAg levels (median [IQR]: 5206 [827-8555] vs 1776 [354-6936] IU/ml, P=0.008). Median (IQR) HDV RNA is 5.2 (3.4-6.0) logIU/ml. Notably, HBs forms composition varies between CHD and CHB with remarkably higher M-HBs and L-HBs in CHD (median [IQR]: 1127 [145-2301] vs 142 [25-707] and 2.0 [0.2-6.3] vs 0.06 [0.2-0.5] ng/ml), P<0.001) despite similar S-HBs levels in the two groups (median [IQR]: 3221 [587-6497] vs 1039 [239-5438] ng/ml). Multivariable analysis confirms CHD as an independent factor associated with higher levels of M-HBs and L-HBs (OR [95%CI]: 4.7 [1.7-12-4] and 6.2 [2.2-17.9], P<0.002 for both).

Among CHD, the HBs forms positively correlate with HDV RNA levels (Rho=0.48, 0.49 and 0.43 for S-, M- and L-HBs; P<0.001 for all) while, in CHB, milder correlation with HBV DNA levels is observed only for L-HBs (Rho=0.29, 0.02).

Furthermore, patients with highly-replicating HDV (HDV RNA >3log IU/ml) show significantly higher levels of all HBs forms than lowly-replicating HDV (median [IQR] ng/ml: 4431 [1251-6950] vs 274 [25-2640] for S-HBs; 1404 [191 -2484] vs 127 [4-1242] for M-HBs; 3.3 [0.2-7.8] vs 0.3 [0.04-1.1] for L-HBs, P<0.001 for all).

Focusing on lowly-replicating HDV patients, 43.5% have altered ALT (median [IQR]: 75 [55-93] U/L). Notably, in this set of patients, M-HBs >200 ng/ml is the best cut-off predicting altered ALT (70% of patients with M-HBs >200 ng/ml vs 30% with M-HBs <200 ng/ml has ALT >40 U/L; PPV=70%, NPV=76.9%; P=0.04), supporting the role of M-HBs in reflecting cytolytic activity in the setting of low HDV replication.

Conclusion: The composition of HBs forms varies between CHD and CHB patients, with CHD characterized by higher M-HBs and L-HBs production along with HDV replicative activity. This may reflect a variation in the proportion of circulating viral and subviral particles for CHD and CHB.

Overall, HBs forms can help identifying patients more susceptible to liver disease progression, in whom treatment could be prioritized.

Critical clinical aspects underlining the control of viral hepatitis and emerging viral infections

OC 40 INVESTIGATING SEROPREVALENCE OF IGG AGAINST DENGUE VIRUS (DENV) IN A COHORT OF PEOPLE WITH HIV (PLWH) IN A NON-ENDEMIC COUNTRY AFTER AN AUTOCHTHONOUS OUTBREAK: ARE WE READY FOR NEXT SEASON?

P.F. Salvo[1], F. Lombardi[2], A. Sanfilippo, V. Massaroni, G. Baldin[2], V. Iannone[1], D. Farinacci[2], R.J. Steiner[1], C. Torti[1,2], S. Di Giambenedetto[1,2]

[1]Dipartimento di Scienze Mediche e Chirurgiche, Università Cattolica del Sacro Cuore, Rome, Italy, [2]UOC Malattie Infettive, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy

Background: With the advent of global warming, the landscape of infectious diseases has changed, notably evidenced by a surge in autochthonous cases of dengue virus (DENV) infection in Italy over the past year. This study aims to investigate the seroprevalence of IgG anti-DENV in a population of PWH, in anticipation of the upcoming season when autochthonous dengue cases may resurge.
Methods: From July to November 2023 (Phase1), we collected serum samples from PLWH attending our outpatient clinic for their routine analysis. IgGanti-DENV have been assessed on cryopreserved serum samples with an ELISA. Quality control measures, like the inclusion of known positive controls, were added throughout the analysis process to ensure the reliability of the results.
Positive participants (ppts) were further analysed (Phase2). Specifically, their cryopreserved serum samples from the previous year (2022) were retrieved and tested for IgGanti-DENV, aiming to date the infection and ascertain whether it occurred within the period of increased autochthonous dengue cases in Italy.
All positive subjects underwent a questionnaire to investigate any reported symptoms, travel to endemic areas, or contact with individuals diagnosed with dengue
Results: A total of 475 PWH were tested. Characteristics of the population are summarized in Table 1.
Thirty-six ppts tested positive for IgGanti-DENV. Characteristics of this population are summarized in Table 2. Seroprevalence was equal to 7.58%.
During Phase 2, 33/36 ppts tested positive for IgGanti-DENV in the previous year. Among them, 16 completed the questionnaire. Two ppts reported a confirmed previous diagnosis of dengue, over 10 years earlier. Both these individuals were born in DENV-endemic countries. All the remaining 14 ppts denied having had contact with individuals diagnosed with dengue. 6 of them reported having visited DENV-endemic countries during their lifetime. Regarding the 3 ppts who tested positive only during Phase 1, presumably indicating a recent infection, 2 completed the questionnaire, while the third one deceased before data analysis for reasons unrelated to a DENV infection. The 2 ppts, both Italian, denied ever receiving a diagnosis of dengue, reported no symptoms consistent with DENV infections, and denied contact with dengue cases. Both denied having visited DENV-endemic countries, particularly they didn't travel outside Italy in the past 12 months.
Conclusions: Our findings showed a relatively high prevalence of IgGanti-DENV among PLWH, even in those without epidemiological links to DENV-endemic countries. During the recent autochthonous dengue outbreak in Italy, it appears that some individuals may have contracted the infection asymptomatically. Since the current vaccination is effective both in DENVsero+ and sero-, and individuals who experience a second infection are at greater risk of severe illness, screening may be helpful to prioritise vaccination to those who already got infected by DENV.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_418.png

Critical clinical aspects underlining the control of viral hepatitis and emerging viral infections

OC 41 VIRAL RESPIRATORY INFECTIONS IN PATIENTS WITH HAEMATOLOGICAL DISEASES OVER 10 YEARS: A SINGLE-CENTER EXPERIENCE

P. Bono[1], A. Parisi[1], M. Sciumè[2], G. Bozzi[3], C. Biassoni[1], G. Giacomel[1], A. Valzano[1], S. Allaria[1], E. Tagliaferri[2], R. Ungaro[3], A. Bandera[3,4], N.S. Fracchiolla[2], A. Callegaro[1], C. Alteri[1,5]

[1]Clinical Microbiology and Virology Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milano, Italy, [2]Hematology Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milano, Italy, [3]Infectious Diseases Unit, Department of Internal Medicine, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy, [4]Department of Pathophysiology and Transplantation, School of Medicine and Surgery, University of Milan, Italy, [5]Department of Oncology and Hemato-Oncology, University of Milan, Italy

Objective: To describe the epidemiology of respiratory infections (no SARS-CoV-2) in individuals with hematological diseases and to define risk factors for low-respiratory tract infection (LRTI), and intensive care unit (ICU) admission.
Methods: 1,089 adult patients with hematological diseases were screened for respiratory viruses in nasopharyngeal swabs and bronco-alveolar-lavage samples by a respiratory viral panel multiplex PCR (Allplex, Seegene Inc.) between January 2013 and March 2024 at Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan. Repeated positive samples without evidence of negative tests in between were grouped into a single infection episode. Co-infection was the isolation of >1 respiratory virus during the same episode. Kaplan-Meier method and logistic regression analysis were performed to define cumulative incidence and factors associated with LRTI and ICU admission, respectively. Descriptive and statistical analyses were performed using IBM SPSS 29.0 (Inc., Chicago, IL)
Results: Of the 1,089 patients with hematological diseases tested for viral infections, 411 (37.7%) experienced at least one respiratory infection episode (total episodes: 544). They were prevalently male (325, 59.7%) with a median (IQR) age of 59 (47-68) years. 262 (48.2%) were hematopoietic stem cell transplants. Most respiratory infections were detected within 1 year of the first screening (cumulative incidence: 41%). Out of 544 infection episodes, 315 (57.9%) were diagnosed in the outpatient setting and 70 (12.9%) caused LTRI or ICU admission. Of the respiratory viruses detected, Rhinovirus (274, 50.4%) was the most common, followed by Influenza A/B (77, 14.1%), RSV (57, 10.5%), Coronaviruses 229E, NL63, OC43 (53, 9.7%), Parainfluenza 1-4 (49, 9.0%), and Metapneumovirus (35, 6.4%). No differences were detected across the years, except for Parainfluenza-4 detected only after 2020 (p<0.001). The longer duration of rt-PCR positivity was 147 and 144 days for Rhinoviruses (median days, IQR: 23[10-61]), followed by 87 days for Metapneumovirus. Coinfections were detected in 43 episodes (7.9%), three of them characterized by the co-presence of three viruses. Rhinovirus was the most common virus detected in coinfections (27, 58.7%), most frequently with Coronaviruses (10, 23.2%) and RSV (5, 11.6%).
On multivariate logistic regression analysis, a trend of positive association was found between RSV infection and the progression to LRTI and ICU admission (Odds ratio, 95 CI: 1.97[0.99-3.94] P=0.055).
Conclusions: Our results confirm that respiratory viral infections are common in hematological settings, that most of them were detected at the first viral screening, and that more than half were diagnosed in the outpatient setting. Moreover, we suggest the RSV contribution to the progression of LRTI and ICU admission. Overall, these results urge the screening and control strategies for viral infections, especially in fragile conditions.

Awareness in Sexual Health: U=U and prevention

OC 42 INFORMATION AND MISINFORMATION ON HIV AND THE NARRATION OF THE EVIDENCE U=U: A MIXED METHOD ANALYSIS ON SOCIAL MEDIA IN ITALY

V. Casigliani[1], A. Santoro[2], A. Chinelli[1], A. Agostini[2], G. Giupponi[3], F. Zollo[2], L. Tavoschi[1]

[1]Department of Translational research and new technologies in Medicine and Surgery, University of Pisa, Pisa, Italy, [2]Ca' Foscari University of Venice, Venezia, Italy, [3]Lila Onlus - Italian League for the Fight against AIDS, Italy

Background: Despite a declining trend in new HIV diagnoses, late diagnosis remains prevalent, potentially due to reduced HIV risk visibility and stigma. Media play a pivotal role in disseminating accurate information, particularly regarding U=U (Undetectable = Untransmittable) and preventive measures like PrEP and PEP. However, media language often perpetuates stigma. This study analyses HIV media communication in Italy by examining the communication language of the main Italian news sources on Facebook and Instagram, with a focus on U=U evidence.

Methods: A mixed-method analysis examined Facebook and Instagram posts on HIV, along with linked articles. from Italian news sources from 01/2009 to 04/2023. News sources were categorised as “reliable” or “unreliable” using independent third-party classification. Topic analysis identified the main topics in the posts, while an inductive content analysis was conducted on linked articles regarding U=U. The language and the accuracy in explaining U=U were evaluated through a checklist.

Results: A total of 10,539 Facebook posts were analysed, with 716 (7%) from unreliable sources, and 749 Instagram posts, with 18 (2%) from unreliable sources. Reliable and unreliable content surged around World AIDS Day (WAD) on both social media platforms, while it did not happen during the European Testing Week. On Facebook, the frequency of unreliable content increased over time, whereas on Instagram it was rare and recent. On Facebook, topics varied between reliable and unreliable sources: the 3 most frequent topics from reliable sources were: WAD, voluntary HIV spread, and public figures with HIV; those from unreliable sources were: Death and Migrant People; Luc Montagnier and COVID-19 Conspiracies; Public Figures with HIV. The first 3 topics on Instagram were the Italian National Institute of Health and Prevention, WAD, and public figures with HIV. After filtering duplicates, 68 articles nominating U=U were analysed. The analysis revealed 4 main areas: U=U definition, Prevention, Impact on people living with HIV (PLWHIV), and Stigma. Sub-areas within the “U=U definition” included Scientific evidence, Revolution, and Dissemination of the evidence. “Prevention” sub-areas covered Treatment as prevention, Test and treat, PrEP/PEP, and Risk of other STIs. "Impact on PLWHIV" was subdivided into Relationships and sexuality, Parenting, Life expectancy and chronicity, and Quality of life. The accuracy in explaining U=U was generally low, with 6 articles (8.8%) providing only a definition.

Conclusions: The communication surrounding HIV in Italy is limited and primarily centred around WAD. Particularly on Facebook, biases persist, mainly from unreliable news sources, such as associating migration with HIV. The dissemination of the U=U evidence remains inadequate. Urgent action is needed to shift the narrative and emphasize this groundbreaking evidence, which significantly impacts HIV epidemiology and the lives of PLWHIV.

Awareness in Sexual Health: U=U and prevention

OC 43 "U=U IMPOSSIBILE SBAGLIARE" AWARENESS CAMPAIGN: IMPACT ASSESSMENT AMONG PLWH

A. Tavelli[1], A. Cingolani[2], L. Cosmaro[3], S. De Benedittis[1], N. Frattini[4], G.V. Calvino[5], F.M. Fusco[6], A. Costantini[7], A. Di Biagio[8], B.M. Celesia[9], M. Guastavigna[10], M. Cernuschi[11,4], D. Calzavara[11], A. Antinori[12], F. Von Schloesser[13], A. d'Arminio Monforte[1], on behalf of Icona Foundation Study Group

[1]ICONA Foundation, Milan, Italy, [2]Clinic of Infectious Diseases, Catholic University, Rome, Italy, [3]LILA ONLUS, Milan, Italy, [4]A.S.A. ONLUS, Milan, Italy, [5]ANLAIDS ONLUS NAZIONALE, Rome, Italy, [6]P.O. 'D. Cotugno', Azienda Ospedaliera dei Colli, Naples, Italy, [7]Clinical Immunology Unit, Azienda Ospedaliero Universitaria delle Marche - Università Politecnica delle Marche, Ancona, Italy, [8]Infectious Disease Clinic, IRCCS Ospedale Policlinico San Martino, Genoa, Italy, [9]Unit of Infectious Diseases, ARNAS Garibaldi Hospital, University of Catania, Catania, Italy, [10]S.C. Malattie Infettive e Tropicali I, ASL Città di Torino, Amedeo di Savoia Hospital, Turin, Italy, [11]Milano Checkpoint ETS, Milan, Italy, [12]Clinical Infectious Diseases Department, National Institute for Infectious Diseases Lazzaro Spallanzani IRCCS, Rome, Italy, [13]NADIR Onlus, Rome, Italy

Background: The "undetectable equals untransmittable" (U=U) message should contribute to reduce stigma affecting PWH, who can live without the fear of transmitting HIV once they have reached undetectable HIV-RNA. Nevertheless, still many PWH are unaware of this concept. To spread the U=U message in Italy, an awareness campaign designed by the community 'U=U-Impossibile sbagliare' was launched in Sept 2023. This study aims to verify its impact among PWH by measuring the awareness of U=U and its association with self-stigma.

Methods: A survey was disseminated within the PWH of the ICONA network before (Jul-Sept2023) and after the launch of the campaign (Sept2023-March2024). It was accessible via web or Icona mobile app and consisted of the validated HIV Stigma Scale (12-items) and 3 questions on U=U (Do you know U=U? Do you think it is reliable? Did it change your life?). The domains of the stigma scale were 4: personalized stigma, disclosure concerns, concerns with public attitude, negative self-image. Scores varied from 3 to 12, with higher scores indicating higher stigma. The survey was anonymous and not designed to compare pre-/post results of same subject. Data on knowledge of U=U pre-and post-campaign were compared by logistic regression; association between U=U knowledge and HIV stigma was analyzed by linear regression. A logistic regression analysis was conducted to identify factors associated with lack of knowledge of U=U.

Results: A total of 820 PWH responded to the survey: 362 (44.1%) pre- and 458 post- start of campaign (55.9%). 333 (40.6%) PWH responded "No" and 487 (59.4%) "Yes" to the question on knowledge of U=U with no differences according to the period: 226 (62.4%) pre- vs 168 (56.6%) post-campaign knew about U=U (p=0.13) (Table 1). After adjusting for age, gender at birth, MSM, center, education and nation of birth, the marginal predicted probability of knowing U=U pre-campaign was 61.3% (95%CI 56.4%-66.3%) and 57.7% (52.3%-63.0%) post-campaign (p=0.32).
The HIV stigma domain with the highest score was related to disclosure concerns. There was no evidence for an association between knowledge of U=U and the HIV-stigma scale scores; the "concerns with public attitudes" domain was even higher for those who knew U=U (Table 2). Independent factors associated to lack of U=U knowledge were age > 40, being non-MSM, education below university level and not-knowing last HIV-RNA (Table3).

Conclusions: Still 40% of PWH do not know about U=U; it is essential that medical staff dedicate due time to inform their patients. The campaign did not result in an increased knowledge of U=U. Possible reasons relate to the lack of funds to promote the concept widely. In this setting, the spot intervention suggests the need for additional campaigns targeting people still unaware of this concept (those with lower educational level, older age and not MSM). Finally, HIV stigma is a multifactorial issue of which personal awareness of U=U is one -but not the only- driver.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_277.jpg

Awareness in Sexual Health: U=U and prevention

OC 44 LOSS OF "U=U STATUS" IN WOMEN WITH HIV: INSIGHTS INTO POSSIBLE REASONS FOR A HIGHER RISK COMPARED TO MEN

R. Fontana Del Vecchio[1], C. Marelli[2], A. Tavelli[3], C. Costa[4], V. Barocci[5], S. Gambino[6], J. Testa[7], M. Merelli[8], E. Zappulo[9], L. Taramasso[2], G. Madeddu[10], C. Pinnetti[11], A. Cingolani[12], A. d'Arminio Monforte[3], A. Cozzi-Lepri[13] on behalf of Icona Foundation Study Group

[1]Department of Infectious Diseases, Umberto I Public Hospital, Siracusa, Italy, [2]Department of Specialist Medicine, Infectious Disease Clinic, IRCCS Ospedale Policlinico San Martino, Genoa, Italy, [3]ICONA Foundation, Milan, Italy, [4]Infectious Diseases Department, SOC 1, USL Centro Firenze, Santa Maria Annunziata Hospital, Florence, Italy, [5]Department of Biomedical Sciences & Public Health, Polytechnic University of Marche, Ancona, Italy, [6]Infectious Diseases Unit, Bolzano Hospital, Bolzano, Italy, [7]Infectious Diseases Unit, Busto Arsizio Hospital, ASST Valle Olona, Busto Arsizio (VA), Italy, [8]Azienda Sanitaria Universitaria del Friuli Centrale, Udine, [9]Department of Clinical Medicine and Surgery, Section of Infectious Diseases, University of Naples "Federico II", Naples, Italy, [10]Unit of Infectious Disease, Department of Medicine, Surgery and Pharmacy, University of Sassari, Sassari, Italy, [11]Clinical Department of Infectious Diseases, National Institute for Infectious Diseases Lazzaro Spallanzani IRCCS, Rome, Italy, [12]Clinic of Infectious Diseases, Catholic University, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy, [13]Centre for Clinical Research, Epidemiology, Modelling and Evaluation (CREME), Institute for Global Health, University College London, London, UK

There is solid evidence that there is zero risk of HIV transmission from an HIV positive partner with VL ≤200 copies/ml (the Undetectable=Untransmittable, U=U status). Previous data reported that female sex at birth (FSAB) vs. MSAB is associated with higher risk of not maintaining the U=U status. Mechanisms leading to this observed difference have not been elucidated. ART management of women during pregnancy is complicated as treatment guidelines have changed over time regarding the use of specific drugs (i.e. DTG) which could lead to reduced adherence or ART interruptions. Also, women may have less time to focus on their own health before a certain age.
We included person with HIV (PWH) enrolled in the ICONA cohort who achieved a VL ≤200 copies/mL for the first time after January 1 2012, and kept the U=U status for ≥6 months. The main outcome was the proportion of participants who spent>10% of the total PYFU with a VL>200 copies/mL. Person-years of follow-up (PYFU) above or below threshold of 200 copies/ml were also calculated using consecutive VL pairs, the trapezoid rule and linear interpolation. Participants' characteristics at baseline were compared according to FSAB using chi-square and non-parametric tests. A logistic regression model was used to model the proportion of participants with VL>200 copies/mL. We hypothesized at the outset that pregnancy and fertility age might be effect measure modifiers in the association between FSAB and risk of losing the U=U status. We formally tested the interaction with age in the logistic model. We calculated the total and direct effect of FSAB by means of unadjusted and adjusted odds ratio overall and stratified by age. After restricting the analysis to only FSAB, we estimated the total effect of pregnancy on risk of losing U=U status after controlling for confounding factors.
We included 8,172 PWH enrolled in the Icona cohort of whom 1,409 (17.2%) FSAB. FSAB were less likely to have Italian nationality, with lower level of education, more likely to be with lower level of education, unemployed or have occasional jobs, more likely to have acquired HIV through sexual contacts and less likely to have a CVD comorbidity (Table 1). FSAB were under follow-up for a total of 6,591 PYFU of which 96.3% were with a VL≤200 copies/mL vs. 98.1% in MSAB. In terms of proportion of PWH with >10% PYFU with VL>200 copies/mL this was 9.4% in FSAB vs 4.8% in MSAB (adjusted OR=1.57, 95% CI:1.25-1.97, p-value<0.0001). There was some evidence for an interaction between sex and age (p= 0.10, Table 2) but in the subset of FSAB there was inconclusive evidence for an association between no. of pregnancies and risk of losing the U=U status (Table 3).
Our analysis confirms a substantial higher risk of VL>200 copies/mL in FSAB vs. MSABs after achieving the U=U status. Some of this risk was mediated by sociodemographic factors and data also carried evidence that it may vary by age but not strictly to issues related to pregnancy.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_51.jpg

Awareness in Sexual Health: U=U and prevention

OC 45 DOXYPEP IS ALREADY USED IN TWO COMMUNITY-BASED CENTERS IN BOLOGNA AND ROME. AN EXPLORATIVE SURVEY

M. Stizioli[1], M. Barracchia[1], S. Mattioli[2], L. del Negro[1], F. Leserri[1]

[1]Plus Roma, Roma, Italy, [2]Plus Nazionale, Bologna, Italy

Background: DoxyPEP, a post-exposure prophylaxis comprising 200 mg of doxycycline administered up to 72 hours following condomless sexual intercourse, has demonstrated efficacy in reducing the incidence of bacterial sexually transmitted infections (STIs). Three randomized clinical trials - ANRS Ipergay, ANRS Doxyvac, and DoxyPEP - have exhibited a reduction of over two-thirds in chlamydia and syphilis among gay, bisexual and other Men who have sex with men (GBMSM) and transwomen. Despite its potential, antimicrobial resistance (AMR) remains a concern. Currently, both SIMIT and HIV organizations have yet to offer formal position statements regarding DoxyPEP.
Material and methods: In March 2024, Plus and Plus Roma conducted a survey among users of the "Sex Check", a protocol following GBMSM at high risk of STIs, to assess their knowledge and use of DoxyPEP. A total of 395 surveys were distributed electronically, with 168 answers, among whom 32 people lived with HIV, 126 were on Pre-Exposure Prophylaxis (PrEP), and 10 were neither on PrEP nor living with HIV.
Results: Among 168 respondents, 88 (52%) individuals knew about DoxyPEP. Of these, 23 (14%) reported using DoxyPEP between 2023 and 2024: 15 people used it less than 5 times, 4 more than 10 times, 4 only once.
Notably, 17 of these individuals utilized DoxyPEP following group sex encounters. 14 individuals acquired DoxyPEP through personal networks or at-home availability and 9 via formal medical prescriptions.
23 (14%) individuals would never use DoxyPEP and 51 (30%) reported never having had the chance to use it. Interestingly, 35 (21%) respondents, who were previously unaware of PrEP, expressed interest in using it after receiving information through the survey, while 36 (21%) indicated a need for additional information.
Concerning AMR, 68 expressed beliefs in its potential to exacerbate antibiotic resistance (39%), 40 disagreed (24%), 61 were uncertain (37%).
Conclusions: Although the survey is limited to two community-based settings, more than half of the GBMSM survey participants reported having previous knowledge of DoxyPEP and some of the respondents already use DoxyPEP. A significant portion obtained it outside the formal medical system, facing a heightened chance of incorrect use. Only a small segment declared that they would never take DoxyPEP, indicating a potential for wider adoption in the future.
Given the lack of ongoing research on AMR in this context, it is crucial to understand SIMIT's position through a clear statement, guiding future research and interventions effectively, simultaneously useful for sector associations and the development of community campaigns.

A tale of two pandemics: molecular insights on SARS-CoV-2 and HIV

OC 46 GENOMIC EPIDEMIOLOGY OF THE MAIN SARS-COV-2 VARIANTS CIRCULATING IN ITALY DURING THE OMICRON ERA

A. Bergna[1], A. Lai[1], F. Sagradi[2], S. Menzo[3], N. Mancini[4], B. Bruzzone[5], S. Rusconi[6], G. Marchegiani[7], N. Clementi[8], D. Francisci[9], I. Vicenti[10], H. Djaya Mbissam[1], C. della Ventura[1], L. Lanfranchi[2], S. Testa[2], S. Caucci[3], C. Acciarri[3], L. Carioti[7], A. Occhinero[11], F. Novazzi[4], A.P. Genoni[4], F. Drago Ferrante[4], V. De Pace[5], M. Ferraris[5], M. Ogliastro[5], A. Gabrieli[1,12], M. De Paschale[12], G. Canavesi[6], M.C. Bellocchi[7], M. Iannetta[13], L. Sarmati[13], A. Riva[1], S. Antinori[1], G. Zehender[1], and SARS-CoV-2 ITALIAN RESEARCH ENTERPRISE – (SCIRE) collaborative Group

[1]Department of Biomedical and Clinical Sciences, University of Milan, Milan, Italy, [2]Unit of Infectious Diseases, Azienda Socio-Sanitaria Territoriale Cremona, Cremona, Italy, [3]Department of Biomedical Sciences and Public Health, Virology Unit, Polytechnic University of Marche, Ancona, Italy, [4]University of Insubria, Department of medicine and Technological Innovation; Ospedale di Circolo e Fondazione Macchi, Laboratory of Medical Microbiology and Virology, Varese, Italy, [5]Hygiene Unit, IRCCS AOU San Martino-IST, Genoa, Italy, [6]Ospedale Civile di Legnano ASST Ovest Milanese - University of Milan, Legnano, Italy, [7]Department of Experimental Medicine, University of Rome "Tor Vergata", Rome, Italy, [8]Laboratory of Microbiology and Virology, Università "Vita-Salute" San Raffaele, Milan, Italy, [9]Department of Medicine and Surgery, Clinic of Infectious Diseases, "Santa Maria della Misericordia" Hospital, University of Perugia, Perugia, Italy, [10]Department of Medical Biotechnologies, University of Siena, Siena, Italy, [11]Clinic of Infectious Diseases – AOU delle Marche, Ancona, Italy, [12]Unit of Microbiology, Legnano Hospital, ASST Ovest Milanese, Legnano, Italy, [13]Clinical Infectious Diseases, Department of System Medicine, Tor Vergata University, Rome, Italy

Introduction: Omicron, with its derived lineages, remains globally the dominant variant since 2022; it carries the highest number of mutations ever found in other VOCs, resulting associated with increased infectivity and enhanced capacity to evade the neutralizing immune defences due to previous infections or vaccination, but reduced clinical severity. Aims of this work were to study the clinical and epidemiological characteristics of COVID-19 patients and the reconstruction of the genomic epidemiology and phylodynamic of main SARS-CoV-2 Omicron lineages (BA.1, BA.2 and BA.5) in Italy in 2022.

Methods: The viral Whole Genome (WG) sequences have been collected to the collaborative SCIRE group. We analyzed 8,970 samples obtained by RT-PCR variant screening assays (n=4,640), spike Sanger (n=1,164), and Whole Genome Sequencing (n=3,166). Three national datasets were set up for Omicron variant using 1,658 WG sequences. Phylogenetic trees were estimated using IQ-TREE v.1.6.12. Clusters were analysed using BEAST v.2 to estimate their tMRCA (time of the Most Recent Common Ancestor) and main epidemiological parameters.

Results: More than 50% of sequences were from subjects having received at least three doses (56.5%) of vaccine and 54.8% of subjects experienced a reinfection. A significant largest proportion of infection was observed in vaccinated never experienced infection and in unvaccinated presenting reinfection ($p<0.001$). The main observed variant was Omicron (97.4%) and its sublineages showed a prevalence of 44.6%, 26.8%, 1.8% and 26.8% for BA.1, BA.2, BA.4 and BA.5, respectively.

All variants showed a high number of variant-specific substitutions and deletions. The analysis showed the presence of only small clusters at the external nodes of the tree, including only few isolates probably closely epidemiologically related. Clusters including more than 10 sequences presented a tMRCA between September-November 2021, November 2021-January 2022 and October 2021-May 2022 for BA.1, BA.2 and BA.5 variants, respectively. Re values showed the highest level (1.45) between September and October in BA.1 variant. From January 2022 it was observed a reduction and stabilization of Re around the unit. Omicron BA.2 showed an increase in the Re in January-February 2022 (peak of 1.42), decreasing above 1 until July 2022. For Omicron BA.5, Re values reached a peak in May 2022 (1.28). A slight decrease to 1 was observed starting from July 2022 remaining stable until September 2022.

Conclusions: The spread rate of the studied variant exceeded its evolutionary rate, thus this probably determined the limited number of sequences included in clusters. A single sublineage did not have sufficient time to differentiate forming large clusters, but only small and fragmented groups sharing the same recent ancestor. Our data allowed an accurate description of the epidemiological dynamics of Omicron sublineages in Italy over a period of great epidemiological changes in the COVID-19 epidemic.

A tale of two pandemics: molecular insights on SARS-CoV-2 and HIV

OC 47 GENOMIC CHARACTERIZATION OF SARS-COV-2 OMICRON VARIANTS AND CLINICAL PRESENTATION IN IMMUNOCOMPROMISED AND NON-IMMUNOCOMPROMISED ADULT PEOPLE

L. Carioti[1], G. Marchegiani[1], L. Coppola[2], M. Iannetta[2], L. Alborghetti[2], V. Malagnino[2], L. Benedetti[2], M.M. Santoro[1], M. Andreoni[2], L. Sarmati[2], C. Alteri[3,4], F. Ceccherini-Silberstein[1], M.C. Bellocchi[1]

[1]University of Rome Tor Vergata, Rome, Italy, [2]Clinical Infectious Diseases, Department of System Medicine, Tor Vergata University, Rome, Italy, [3]Department of Oncology and Hemato-Oncology, University of Milan, Italy, [4]Clinical Microbiology and Virology Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milano, Italy

Background: A retrospective analysis of SARS-CoV-2 Omicron variability during its spread in Central Italy focused on immunocompromised (IPs) and non-immunocompromised adult people (NIPs).
Methods: Nasopharyngeal swabs (NS) from SARS-CoV-2 positive individuals were consecutively collected at the University Hospital of Rome Tor Vergata between December 2021 and December 2023. SARS-CoV-2 whole genome was obtained by the Miseq platform. A maximum likelihood phylogenetic tree was performed to define Omicron variants. All single nucleotide polymorphisms (SNPs) having a minimum supporting read frequency of 2% with a depth ≥ 10 were retained. Clusters of SNPs were defined by covariation analysis (phi>0.70 and p<0.001). Fisher exact test and Mann-Whitney tests were used to define differences between IPs and NIPs. A multivariate logistic regression analysis was performed to evaluate demographic and virus-related associations with hospitalization.
Results: Among the 306 SARS-CoV-2 sequences obtained, 188 were from IPs and 118 NIPs. Overall, 50.9% were female, with a median [IQR] age of 64 [51-76] yrs and 6.8% reporting no SARS-CoV-2 vaccination (Tab.1). IPs were younger (median [IQR] yrs: 60 [47-71] vs 73 [60-81] in NIPs, p< 0.0001). Within hospitalized people, a significantly higher rate of pneumonia was observed in non-immunocompromised people (HP) with also a lower frequency of vaccination (p=0.002 and p<0.0001, respectively). According to the phylogenetic analysis at least five major Omicron lineages were identified (BA.1: 34.0%; BA.2+BA.4: 25.8%; BA.5+BF: 10.8%; BQ.1+BE+EF: 9.2%; Recombinants: 20.2%) (Fig.1). BA.2+BA.4 were prevalently found in IPs respect to NIPs (30.9% in IPs vs. 17.8% NIPs, p=0.01).
Regarding SARS-CoV-2 genetic variability, a significant increasing number of high-abundant SNPs (reads frequency ≥40%; median [IQR]) was observed among Omicron lineages: 54 (51–59) in BA.1 vs 68 (64–72) in BA.2+BA.4 vs 68 (63–73) in BA.5+BF vs 75 (72–78) in BQ.1+BE+EF vs 92 (84-100) in Recombinants, p<0.001. This increase mainly concerned the spike protein (p<0.0001). 107 SNPs were also found to be significantly associated in pairs, (phi > 0.7 and p<0.001), with 20 SNPs involved in 4 distinct clusters (bootstrap >0.75). No differences were found in the distribution of clusters between IPs and NIPs.
Multivariate regression analysis showed that hospitalization was positively associated with the cluster composed by Spike: S686R, Spike: A694S; Nucleocapsid: L221F and increased age (AOR [95% CI]: 2.80 [1.15–6.79], p=0.023 and 1.03 [1.00–1.06], p=0.045, respectively), while negative associations were found for female and previous vaccination (AOR [95% CI]: 0.32 [0.13–0.80], p=0.014 and 0.18 [0.05-0.60], p=0.005, respectively).
Conclusions: The study provided increased knowledge about the Omicron variability in IPs and NIPs and confirmed a potential role of Omicron diversification in influencing disease severity and consequently hospitalization, within age, sex, and vaccination status.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_468.JPG

A tale of two pandemics: molecular insights on SARS-CoV-2 and HIV

OC 48 ANALYSIS OF CHROMOSOME INTEGRATION SITES OF HIV-1 DNA IN PBMC OF PWH SHOWING PLASMA HIV-1 RNA DETECTED ONLY BY THE LTR TARGET WITH APTIMA HIV-1 QUANT DX ASSAY

G. Sberna[1], G. Berno[1], G. Rozera[1], C. Gruber[1], I. Abbate[1], R. Gagliardini[2], V. Mazzotta[2], I. Mastrorosa[2], A. Antinori[2], F. Maggi[1], A. Amendola[1]

[1]Laboratory of Virology, National Institute for Infectious Diseases I.R.C.C.S. L. Spallanzani, Rome, Italy, [2]Clinical and Research Infectious Diseases Department, National Institute for Infectious Diseases I.R.C.C.S. L. Spallanzani, Rome, Italy

Background: The Aptima HIV-1 Quant Dx (Aptima) diagnostic assay for the quantification of HIV-1 RNA uses transcription-mediated amplification and dual-target/dual-probe technology to detect and amplify the pol and 5'UTR (referred to as LTR by the manufacturer) regions of the HIV-1 RNA. Usually, the viral load (VL) is derived from the pol signal; the VL quantified by LTR (LTR-VL) is shown exclusively when pol is undetected (ND), while the LTR target is amplified and quantified. It is known that 6% of plasma samples from PWH on antiretroviral therapy (ART) with persistent suppressed VL quantified by pol (pol-VL) show LTR-VL in the range from <30 to 12,000 cp/mL when monitored with Aptima [Amendola et al. 2020; Sberna et al. 2022]. In in-vitro settings, it has been reported that viral RNA transcripts detected by LTR in the plasma of PWH are unable to trigger productive infection [Sberna et al. 2023], thus the LTR-VL probably derives from the transcription of defective proviral DNA (pvDNA). We hypothesize that LTR-VL originates from defective pvDNA integrated into particular sites of chromosomes in PBMC.
The study aims to characterize the integration sites of pvDNA in the human chromosome of PBMC from PWH with LTR-VL and in PWH with pol-VL to understand whether the LTR-VL is the result of particular insertion sites of the pvDNA.
Material and methods: PBMC from 4 PWH with LTR-VL and 10 PWH with pol-VL were analysed for pvDNA load by PCR (cp/million PBMC) and for the integration sites in human chromosomes with a shot-gun next-generation sequencing approach [Rozera et al. 2022].
PWH with LTR-VL [50% male; mean age (IQR): 55 years (45–61 years)] showed a mean (±SD) of 3.4 (±2.9) Log cp/million PBMC of pvDNA and mean (±SD) of 2.5 (±2.5) Log cp/mL of HIV-RNA. PWH with pol-VL [100% male; mean age (IQR): 54 years (47–62 years)] showed a mean (±SD) of 3.8 (±3.7) Log cp/million PBMC of pvDNA and a mean (±SD) of 7 (±0.9) Log cp/mL of HIV-RNA.
Results: pvDNA integration was found in different chromosomal sites. As shown in Table 1, some integration sites were shared by both groups analysed (100%), such as chromosome 5 at the nucleotide 139967566 positions or chromosome 2 at position 16097405. By contrast, PWH with LTR-VL showed pvDNA integration in sites not found in PWH with pol-VL. Specifically, at the level of chromosome 16 at position 11077559 in 100% of PWH with LTR-VL; at the level of chromosome 12 in position 7004267 in 75% of LTR-VL PWH; and in 25% of LTR-VL PWH either at chromosome 3 in position 138897387 or at chromosome 19 in position 4205409.
Conclusions: Our preliminary data demonstrate that, in PBMC of PWH with LTR-VL, the pvDNA is integrated preferentially in chromosomes 16, 12, 3, and 19. Further studies are ongoing to verify whether such sites of pvDNA integration are exclusive to PWH LTR-VL only and whether the pvDNA located in these sites is defective and produces the transcripts detected by Aptima only with the LTR target.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_44.png

A tale of two pandemics: molecular insights on SARS-CoV-2 and HIV

OC 49 POST-TRANSLATIONAL HIV-1 INTEGRASE MODIFICATION SITES MIGHT BE AFFECTED BY COMPLEX AND PROLONGED TREATMENT HISTORY ASSOCIATED WITH MULTIDRUG RESISTANCE: A PROOF OF CONCEPT STUDY FROM THE PRESTIGIO REGISTRY

D. Armenia[1], V. Spagnuolo[2], L. Galli[2], T. Clemente[2,3], R. Lolatto[2], D. Minisci[4], L. Pagnucco[5], R. Pincino[6], V. Malagnino[7], T. Mulas[7], L. Sarmati[7], M. Zazzi[8], M.M. Santoro[9], A. Castagna[2,3]

[1]Saint Camillus International University of Health Sciences, Rome, Italy, [2]Infectious Diseases, IRCCS San Raffaele Scientific Institute, Milan, Italy, [3]Vita-Salute San Raffaele University, Milan, Italy, [4]University Division of Infectious and Tropical Diseases, University of Brescia and ASST Spedali Civili Hospital, Brescia, Italy, [5]Division of Infectious Diseases, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy, [6]Ospedale di Sanremo-ASL 1 Imperiese, Sanremo, Italy, [7]Policlinic of Rome Tor Vergata, Rome Italy, [8]Department of Medical Biotechnologies, University of Siena, Siena, Italy, [9]Department of Experimental Medicine, University of Rome "Tor Vergata", Rome, Italy

Background: Multiple posttranslational modifications (PTM) of HIV-1 integrase such as acetylation, phosphorylation, sumoylation and ubiquitination have been described. Variations in PTM sites might impact viral fitness but nothing is known about variability of PTM sites in vivo and their association with drug-resistance. The aim of this study was to characterize integrase PTM in heavily treatment experienced (HTE) multidrug resistant (MDR) individuals compared to individuals never exposed to antiretrovirals or to those treated but never exposed to integrase inhibitors (INI).
Material and methods: HIV-1 Integrase sequences from plasma RNA specimens of viremic HTE MDR individuals from the PRESTIGIO registry were compared to sequences from drug-experienced INI naïve and drug-naïve individuals, all harboring subtype B virus. The MusiteDeep tool (https://www.musite.net/) was used to evaluate known PTM sites for acetylation, phosphorylation, sumoylation and ubiquitination. Associations between CD4 count, viremia and integrase resistance (HIVdb ver 9.5) and the number and type of PTM sites were evaluated.
Results: 38 integrase sequences from distinct individuals were compared with 48 and 76 sequences from INI-naive and drug-naïve individuals, respectively (Table 1). PTM frequency for each group is reported in Figure 1. All acetylation sites were fully conserved in 99.4% of individuals. No significant differences in the number of phosphorylation sites were observed among the three groups. By contrast, the number of sumoylation sites was lower in HTE MDR individuals compared to those drug-naïve or INI-naïve. This was driven by a lower frequency of K136 and K244 PTM sites in HTE MDR individuals. The number of ubiquitination sites was higher in HTE MDR individuals than in other groups (P=0.043). CD4 counts and viremia levels were not significantly different according to PTM sites within treatment groups. Concerning INI resistance in HTE MDR, individuals with cross resistance to all INI showed less than three phosphorylation sites as opposed to HTE individuals with lower-level or no resistance (P=0.001, Figure 2A). The proportion of individuals with intermediate or high-level resistance to bictegravir/dolutegravir increased with increasing numbers of sumoylation sites (P=0.021, Figure 2B).
Conclusions: The number of integrase phosphorylation, sumoylation and ubiquitination sites seems to be affected by a complex and prolonged treatment history associated with multidrug resistance. The presence of high-level resistance to second generation INI seems to impact phosphorylation and sumoylation sites in integrase. Further longitudinal studies are needed to unveil the nature and implications of these correlations.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_128.jpg

PrEP and prevention strategies

OC 50 IMPLEMENTATION OF PREP IN ITALY: RESULTS OF PRIDE SURVEY

S. Nozza[1], V. Mazzotta[2], T. Masoero[3], A. Tavelli[3], F. Leserri[4], L. Taramasso[5], D. Tesoro[6], E. Caruso[7], A. d'Arminio Monforte[3], F.M. Fusco[8], M. Menozzi[9], E. Milano[10], D. Moschese[11], R. Rossotti[12], F. Barbaro[13], S. Cecere[14], M. Giglia[15], S. Venturelli[16], M. Cernuschi[7], A. Castagna[1], A. Antinori[2]

[1]Infectious Diseases Unit, Vita Salute San Raffaele University, Milan, Italy, [2]Clinical and Research Infectious Diseases Department, National Institute for Infectious Diseases, Lazzaro Spallanzani IRCCS, Rome, Italy, [3]ICONA Foundation, Milan, Italy, [4]Plus Roma, Rome, Italy, [5]Infectious Disease Clinic, IRCCS Ospedale Policlinico San Martino, Genova, Italy, [6]Unit of Infectious Diseases, ASST Santi Paolo e Carlo, Milan, Italy, [7]Milano Checkpoint ETS, Milan, Italy, [8]P.O. "D. Cotugno", Azienda Ospedaliera dei Colli, Naples, Italy, [9]Department of Infectious Diseases, Azienda Ospedaliero-Universitaria, Policlinico of Modena, Modena, Italy, [10]Clinic of Infectious Diseases, Department of Precision and Regenerative Medicine and Ionian Area, Polyclinic of Bari, University Hospital Polyclinic, University of Bari, Bari, Italy, [11]I Division of Infectious Diseases, Luigi Sacco Hospital, ASST Fatebenefratelli Sacco, Milan, Italy, [12]Department of Infectious Diseases, ASST Grande Ospedale Metropolitano Niguarda, School of Medicine and Surgery, Milan, Italy, [13]Department of Medicine, Infectious Diseases Unit, University Hospital of Padova, Padova, Italy, [14]Bologna checkpoint, Bologna, Italy, [15]Infectious Diseases Unit, IRCCS Policlinico di Sant'Orsola, University of Bologna, Bologna, Italy, [16]Infectious Diseases Unit, ASST Papa Giovanni XXIII, Bergamo, Italy, [17]Infectious Diseases

Background: HIV pre-exposure prophylaxis (PrEP) is considered a high-priority strategy in preventing HIV and reducing the incidence of new HIV diagnoses. In Italy, free of charge PrEP availability started in May 2023. We designed and submitted to ethical committee a protocol to implement PrEP in the ICONA national network (PrIDE protocol- Implementation of Pre-Exposure Prophylaxis across the Italian Cohort Naive Antivirals) and preliminarily collected data on PrEP users in Italy through a survey. The aim of the study was to describe the distribution and organization of PrEP centers and the PWH/PrEP ratio in centers participating in PrIDE.
Methods: We conducted a survey on 62 PrEP centers among the ICONA cohort from the 29th November 2023 to the 1st of February 2023, and 3 checkpoints focused on the number of individuals in PrEP, new individuals in PrEP in 2023, organization of PrEP services (in particular presence of services dedicated to PrEP), and physicians involved.
Results: All the 62 centers completed the survey. PrEP is offered in 57 (92%): 45 (78.9%) have a PrEP unit, and 12 (21.1%) follow individuals in PrEP in other clinics (e.g., services dedicated to PWH). 11,675 at-risk persons ever started PrEP, and 9,221 were in active follow -up in 2024. The distribution of PrEP users was not unequal in all Italian regions: 50.1% of individuals were in Lombardia and 17.9% in Lazio. After the PrEP reimbursement in 2023, 12 new centers were opened in Italy, and 4,276 new persons started PrEP, representing 36.6% of all individuals who started PrEP in Italy, 42.47% in Lombardia, and 23.7% in Lazio. The mean number of physicians per PrEP service was not equally distributed They are 3.5 in Lombardia, 3.4 in Lazio, and 5.6 in Emilia Romagna, partly involved in PrEP management. Accordingly, the number of PrEP users per physician differed across regions: 101.1 in Lombardia and 54.2 in Lazio, indicating a lower number of doctors and/or a higher request in Lombardia. According to the ICONA data, the PWH/PrEP ratio was 6.84 in Lombardia and 9.60 in Lazio (Figure 1A). 12/62 PrEP centers were opened after PrEP reimbursement (Figure 1B).
Conclusions: Implementation of PrEP in Italy is currently rapid in two regions, Lombardia and Lazio, which represent 67.5% of all individuals in PrEP. The availability of a PrEP free of charge increased access and prescriptions. Despite the overall increase in PrEP use, the organization and work pressure are not equally distributed, and there are some disparities that the PWH/PrEP ratio could measure.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_29.png

PrEP and prevention strategies

OC 51 HIV PRE-EXPOSURE PROPHYLAXIS (PREP) EFFICACY, ADHERENCE AND PERSISTENCE IN AN ITALIAN MULTICENTRIC COHORT: ITAPREP STUDY

V. Mazzotta[1], D. Calzavara[2], A. Tavelli[3], S. Lanini[4], R. Esvan[1], A. De Bona[5], S. Mattioli[6], E. Caruso[3], De Zottis[1], D. Tesoro[5], L. Badia[6], S. Nozza[7], A. Cingolani[8], A. Bianchi[3], R. Bellagamba[1], M. Pedone[6], N. Frattini[3], A. Oliva[1], R. Repossi[3], R. Rossotti[9], C. Mastroianni[10], C. Torti[8], G. Marchetti[5], A. Castagna[7], A. d'Arminio Monforte[2], M. Cernuschi[3], A. Antinori[1]

[1]HIV/AIDS Unit, INMI L. Spallanzani IRCCS, Roma, Italy, [2]Milano Checkpoint, Milano, Italy, [3]Fondazione Icona, Milano, Italy, [4]Clinica Malattie Infettive, Università di Udine, Italy, [5]ASST Santi Paolo e Carlo, University of Milano, Italy, [6]PLUS aps (BLQ Checkpoint), Bologna, Italy, [7]HSR San Raffaele Scientific Institute, Milano, Italy, [8]Fondazione Policlinico A. Gemelli, Catholic University, Roma, Italy, [9]ASST Niguarda Hospital, Milano, Italy, [10]Sapienza University, Roma, Italy

Background: PrEP implementation in Italy faced initial challenges until the AIFA reimbursement and national data were limited. The study aimed to report HIV and other sexually transmitted infections (STIs) rates in a PrEP multicentric access program in Italy, along with rates and predictors of poor adherence and discontinuation.
Methods: Prospective cohort study on PrEP users (PrUs) in 8 Italian centers (Sep 2017-Nov 2023). Through the study's support, free drug supplies were partially provided. Incidence rate (IR) of HIV and other STIs was calculated using total number of new diagnoses over person-years of follow-up (PYFU) on PrEP, assuming Poisson distribution. Poor adherence was defined as an incorrect intake for on-demand, temporary stop for daily PrEP, or reported sex without PrEP or a condom, and PrEP discontinuation as a definitive stop of or loss to FU for at least 1 year. The proportion of PrUs experiencing outcome (poor adherence/discontinuation) was expressed as marginal estimates and 95%CI. Kaplan-Meier was fitted to estimate outcome probability, and a mixed-effect logistic model with a random intercept on the center to explore predictors of the outcomes (unadjusted and adjusted). The strength of the association between risk factors and outcomes was expressed in OR, relative 95%CI, and LRT P-value.
Results: 1,758 PrUs with at least 1 FU visit were included (Fig.1): 98% men, 92% MSM, 88% Caucasian with a median age of 36 yrs (31-44). 66% had university degrees, and 19% used chemsex (Tab1). 655 PrUs (38%) chose daily, 619 (36%) on-demand schedule, and 464 (27%) switched (Fig.2). 6 HIV seroconversions were observed for 2,673 PYFU [IR 0.22/100 PYFU (95%CI 0.08-0.49)]. IR/100 PYFU of STIs was 13.1 (11.7-14.5) for syphilis, 23.8 (22 -25.7) for chlamydia, and 24.2 (22.4-26.1) for gonorrhoea with a risk of subsequent events of 2.66 (2.11-3.34), 1.67 (1.42-1.96) and 1.70 times (1.45-1.99), respectively. IR and 2-year probability of poor adherence were 44/100PYFU (40.8-47.2) and 57.9% (54.8-61.0). Chemsex users (OR 1.56; 1.11-2.18) and those switching schedules (3.21; 2.38 -4.33) were more likely to be poorly adherent, unlike PrUs with a high educational level (0.70; 0.54-0.91).
IR and 2-year probability of discontinuation were 22.1/100PYFU (20.2-24.2) and 37.1% (34.3-40.1). An age >40y (0.68; 0.53-0.86), free drug supplies (0.73; 0.54-0.99) and laboratory monitoring (0.40; 0.29-0.53) were associated with a lower risk of discontinuation, while chemsex with a higher risk (1.80; 1.30-2.48) (Fig.3).
Conclusions: In this PrEP program promoted in Italy before reimbursement, the HIV seroconversion rate was strongly lower than that observed in the control arms of RCTs in high-risk populations, whereas STI incidence was close to that estimated in other cohorts. Factors such as younger age, low educational level, and chemsex, and barriers such as lack of free access to drugs and monitoring are key to targeting strategies to improve PrEP implementation.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_370.jpg

PrEP and prevention strategies

OC 52 OVERCOMING HPV VACCINATION BARRIERS IN TARGET POPULATIONS: THE VACCINAMILANO EXPERIENCE

P. Raimondo[1], D. Dalu[2], E. Caruso[3], C. Fusetti[1], C. Fasola[2], D. Calzavara[3], F. Barone[1], F. Manoni[2], M.V. Cossu[1], L. Ruggieri[2], A. Giacomelli[1], R. Repossi[3], M.S. Cona[2], N. Frattini[3], N. La Verde[2], A. Gori[1], M. Cernuschi[3], D. Moschese[1]

[1]Department of Infectious Diseases, Luigi Sacco University Hospital – Milan, Italy, [2]Oncology Unit, Luigi Sacco University Hospital – Milan, Italy, [3]Milano Checkpoint ETS – Milan, Italy

Background: HPV vaccination is an effective prevention strategy to reduce HPV infection and its complications. As in the National Immunization Plan, HPV immunization is cost-free for boys and girls of 12 years of age, women up to 26y, women with CIN 2/3, PWH, MSM, transgenders, and sex workers. Despite these facilitations, vaccine coverage is still suboptimal. Barriers to vaccine uptake are believed to be low socio-economic position, poor knowledge, stigma on sexual behavior, distrust of healthcare, low physician recommendations, and limited access to preventive care. If HPV-related cervical cancer gained popularity over the years, anal pathology remains neglected and its prevention strategies are struggling with low adherence even in target populations. Aim of this experience is point out the reasons behind previous vaccination hesitancy in people accessing a HPV vaccination clinic.
Methods: The infectious diseases and oncology units of our Hospital, in concert with a community-based STIs service and the Regional Service for Prevention, arranged a mobile walk-in pop-up vaccine clinic offering cost-free HPV counselling and vaccine to target populations in the LGBTQI+ neighborhood in Milan, in order to raise awareness on anal HPV and start the immunization schedule in otherwise difficult to reach high-risk individuals. For those undergoing the HPV vaccination first dose, an appointment to a vaccination hub was granted in order to complete the vaccine schedule. At the time of second dose, a survey about socio-demographic characteristics and perceived barriers to vaccination uptake as well as satisfaction about the pop-up walk-in experience was submitted.
Results: A total of 180 costumers received a dose of vaccine. Of those, 135 (75%) accessed the second dose and took the survey. The age of responders was low with only 9% exceeding the age of 45 and 16% falling in the 18-25 age range. Mostly cisgender self-identified homosexuals (77%), 12% of people reported having a cervix. As per sexual habits, anal sexual intercourses were reported in 69% of responders. Surprisingly, 110 (81%) reported knowing the value of the vaccination even before on-site consultation about HPV and 14 (13%) received a prescription by their doctor. When asked about reasons for not being vaccinated earlier in life, most people reported difficulties to start the procedures, misinformation about gender or age related limitations, the working-life schedules interfering with visits, and less attention to vaccination schedules during adult age (Figure 1). Customer satisfaction about the chance of being immunized with a novel walk-in approach on a mobile clinic exceeded 99%. **Conclusions:** Vaccine strategies for infective agents and their long-term complications are pivotal in healthcare. Even if facilitated in terms of costs, different barriers (cultural and managerial) must be taken in consideration in order to build efficacious strategies and improve HPV vaccination coverage.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_342.jpg

PrEP and prevention strategies

OC 53 HIV SCREENING STRATEGIES IN THE EMERGENCY DEPARTMENT TO REVEAL HIDDEN INFECTIONS

F. Romano[1], A. Santoro[2], A. Lazzaro[1], L. Santinelli[1], F. Biamonte[2], L. Colombo[3], G. Galardo[4], C. Tincati[2], C.M. Mastroianni[1], G.C. Marchetti[2], G. d'Ettorre[1]

[1]Department of Public Health and Infectious Diseases, Sapienza University of Rome, Policlinico Umberto I of Rome, Rome, Italy, [2]Clinic of Infectious Diseases, San Paolo Hospital, ASST Santi Paolo e Carlo, Department of Health Sciences, University of Milan, Milan, Italy, [3]Emergency Department, San Paolo Hospital, ASST Santi Paolo e Carlo, Milan, Italy, [4]Medical Emergency Unit, Sapienza University of Rome, Rome, Italy

Background: Despite advances in the continuum of care of HIV infection, the prevalence of new diagnoses with CD4+ T-cell counts < 350 cell/µl (late presenters - LT)) is still high (58.7% in Italy). LT have worse prognosis and higher risk of HIV transmission. Even in presence of suggestive symptoms, missed diagnosis are common in Italy, where an opt-in HIV testing strategy is the only one accepted by national jurisdiction. We aimed to assess the prevalence of newly diagnosed HIV infections among people referring to the Emergency Department (ED), through active opt-in testing strategy.

Materials and Methods: Multicenter, cross-sectional study enrolling people with clinical indicators and/or risk factors for HIV infection referring to the following two Italian EDs between Sep 2022 to Sep 2023: AOU Policlinico Umberto I in Rome (rapid immunochromatographic point of care HIV testing assay - Bio-Rad GeneTM Fast HIV ½ Assay), and ASST Santi Paolo e Carlo in Milan (4th generation HIV tests). Positive results were confirmed by fourth generation ELISA blood test and western blot.

We adopted an opt-in approach with people presenting with clinical indicators of HIV infection, combined to a risk-based approach in presence of risk factors associated to HIV infection.

Informed consent for HIV testing was collected. New diagnoses were further immunovirologically and anamnestically profiled to identify missed opportunities for earlier HIV diagnosis.

Results: A total of 821 subjects were tested. Most patients (479/821, 58.3%) were males, the median age was 50 (33-66 IQR) years. The most common presenting condition at ED admission was fever (35%). Overall, 12/821 participants (1.46%, 0.76-2.54 CI 95%) were diagnosed with HIV (table 1). Among them 7 (58%) were Italian, 10/12 (83%) were males, median age was 47 (34-62.5 IQR) years. Median CD4 T-cell absolute count and percentage were 62 cells/uL (30.5-149), and 6% (3%-9%). 4/12 identified as heterosexual (33.3%), 2/12 as homosexual (16.7%), 2/12 were migrants (16.7%), 1 (8.3%) reported IV drug abuse. 10/12 patients (83%) were late presenters, all of which met the criteria for AIDS (CD4+ < 200/ul). Anamnestic review revealed missed opportunities for earlier diagnosis in 6 out of 9 cases for which data were available (66.7%).

Conclusions: This is the first Italian study attempting to implement HIV testing beyond the opt-in strategy imposed by local jurisdiction, focusing on hidden infections in the Emergency Department.

Prevalence of HIV infection in our setting was relatively high, but consistent with current literature. Our combined risk-based and clinical-based approach was effective in revealing missed cases, however most patients were diagnosed at an advanced stage.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_249.JPG

HIV associated comorbidities: matters of the heart

OC 54 INCIDENCE OF METABOLIC SYNDROME IN PEOPLE WITH HIV IN ITALY WHO STARTED ART SINCE 2008: DATA FROM THE ICONA COHORT

E. Bruzzesi[1], A. Tavelli[2], R. Salpini[3], A. Carraro[4], M. Camici[5], C. Papalini[6], G.E. Recchia[7], C.R. Santoro[8], M.V. Cossu[9], A. Guida[10], A. Mondi[5], G. Marchetti[11], G. Guaraldi[12], A. d'Arminio Monforte[2], S. Nozza[1,13], on behalf of ICONA Foundation Study Group

[1]Infectious Diseases Unit, Vita-Salute San Raffaele University, Milan, Italy, [2]ICONA Foundation, Milan, Italy, [3]Department of Biology, University of Rome Tor Vergata, Rome, Italy, [4]Infectious Diseases Unit, SM Goretti Hospital, Sapienza University of Rome, Latina, Italy, [5]Clinical and Research Infectious Diseases Department, national Institute for Infectious Diseases Lazzaro Spallanzani IRCCS, Rome, Italy, [6]Infectious Diseases Clinic, Santa Maria della Misericordia Hospital, Università degli Studi di Perugia, Perugia, Italy, [7]Department of Public Health and Infectious Diseases, Sapienza University of Rome, Rome, Italy, [8]Infectious Diseases Clinic, University of Bari, Bari, Italy, [9]Department of Infectious Diseases, ASST Fatebenefratelli Sacco University Hospital, Milan, Italy, [10]Infectious Diseases and Gender Medicine Unit, Cotugno Hospital, AO dei Colli, Naples, Italy, [11]Clinic of Infectious Diseases, ASST Santi Paolo e Carlo, Department of Health Sciences, University of Milan, Milan, Italy, [12]Department of Surgical, Medical, Dental and Morphological Sciences, University of Modena, Modena, Italy, [13]Infectious Diseases Unit, IRCCS San Raffaele Scientific Institute, Milan, Italy

Background: The prevalence of metabolic syndrome (MetS) in people with HIV (PWH) on ART is higher than in general population; age, BMI, and certain ART regimen have been identified as predictors. Nevertheless, the role of CD4 count at diagnosis has not been investigated yet.

Material and methods: We included PWH enrolled in ICONA who started ART from 2008 and excluded those with MetS, or MACE before ART. Primary endpoint is time to diagnosis of MetS, as defined by modified NCEP ATP III criteria, in PWH enrolled in ICONA cohort who started ART when recently HIV infected (RHI), or when chronically infected with CD4 count above (CHI) or below 200 cells/mm3 (advanced HIV disease). Abdominal fat accumulation was assessed by waist circumference or, if missing, by formula 31.2+2.4×BMI for men and 33.2+2.1×BMI for women. RHI was defined as reporting acute/primary infection and having started ART within 100 days since diagnosis or includes those with a negative HIV test within 1 year that have started ART within 6 months since estimated time of infection.

Incidence rates (IRs) of MetS were calculated as the number of events per 100-person-years-of-FU (PYFU) with 95% confidence intervals (95%CIs). Kaplan-Meier curves estimated cumulative probabilities of the first incident metabolic syndrome. Univariable and multivariable Cox proportional hazard models were applied to estimate factors associated with the event, adjusting for age, year of ART start, sex, risk factor for HIV acquisition, ethnicity, HCV and HBV coinfection, ART class of the first line, HIV-RNA and CD8 count at ART initiation.

Results: Among 13,034 PWH starting ART after 2008 enrolled in ICONA, 11,137 were included in the analysis after excluding those with a diagnosis of MetS (974, 7.47%) or MACE (63, 0.48%) and those lost-to-follow up: 685 (6.15%) were diagnosed with RHI, 7,253 (65.1%) with CHI and 3,199 (28,72%) were advanced HIV disease (Table 1).

Overall, IR of MetS was 3.96 x 100 PYFU (3.8 - 4.1) with an overall prevalence of 18.5% (17.8-19.2). In depth, MetS were 82 (12.0%) in RHI, 1,201 (16.6%) in CHI and 775 (24.2%) in advanced HIV disease ($p < 0.001$). The cumulative 5-year probability of MetS with advanced disease (25.6% [95% 23,8%, 27,4%]) was higher than that observed in the CHI (15,7% [14,8%, 16,7%]) and RHI (12.9% [10,2%, 16,3%], $p < 0.001$) (Figure 1).

At multivariable analysis, a higher adjusted hazard of MetS was found for advanced HIV disease vs CHI [aHR 1.39 (95%CI 1.23-1.57)] ($p < 0.001$) (Table 2), while no difference was observed between CHI and RHI and when comparing calendar period 2008-2015 to 2016-2023 (p: 0.146).

Conclusions: Our findings show that PWH who start ART with CD4 count < 200 cell/mm3 are at higher risk of developing MetS. This risk is independent of calendar period and other key confounders factors and unlikely to be mediated by first-line ART regimen. The role of chronic inflammation and activation should be further investigated.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_335.png

HIV associated comorbidities: matters of the heart

OC 55 CURRENT AND TEMPORAL EXPOSURE TO INTEGRASE STRAND TRANSFER INHIBITORS ARE NOT ASSOCIATED WITH HYPERTENSION OR ARTERIAL STIFFNESS IN PEOPLE WITH HIV

G. Alfano[1], J. Milic[2], M. Mantovani[4], F. Calandra Buonaura[4], F. Motta[3], M. Menozzi[4], G. Cuomo[4], G. Mancini[4], C. Mussini[2,4], G. Donati[1], G. Guaraldi[2,4]

[1]Nephrology Dialysis and Transplant Unit, University Hospital of Modena, Modena, Italy, [2]Department of Surgical, Medical, Dental and Morphological Sciences, University of Modena and Reggio Emilia, Modena, Italy, [3]Department of Physical, Computer and Mathematical Sciences, University of Modena and Reggio Emilia, Modena, Italy, [4]Department of Infectious Diseases, Azienda Ospedaliero-Universitaria, Policlinico of Modena, Modena, Italy

Background: Controversial data exists regarding the association of integrase strand transfer inhibitors (INSTIs) therapy with hypertension (HTN) in people with HIV (PWH). HTN may drive arterial stiffness (arteriosclerosis) that can be assessed by means of pulse wave velocity (PWV). The aim of this study was to estimate the association between current and temporal exposure of INSTI vs boosted protease inhibitors (PIs) or non-nucleoside reverse transcriptase inhibitors (NNRTI) with both HTN and arterial stiffness.

Methods: We included 1408 antiretroviral therapy (ART)-experienced PWH, aged ≥18 years who underwent PWV assessments as part of cardiovascular disease (CVD) screening at Modena HIV Metabolic Clinic, Italy. Current and temporal exposure (in months) to each drug class was collected. HTN was defined as two consecutive systolic blood pressure (SBP) measurements ≥140 mmHg and/or diastolic blood pressure (DBP) ≥90 mmHg or the use of antihypertensive medications. Arterial stiffness was assessed with a carotid-femoral PWV measure >10 meters/second (m/s). Predictors for HTN and PWV>10 m/s were evaluated in the multivariate logistic regression.

Results: 1767 blood pressure and PWV measurements were evaluated. Median age was 53 years (IQR: 47-59), 70.9% males, 84.3% with high cardiovascular risk (ASCVD>7.5%). Current exposures to main ART classes were as follows: INSTI 45%, NNRTIs 31.6%, and PIs 39.9%. Temporal exposure to INSTIs was 31.1, NNRTIs 33.3, and PIs 44.3 months respectively. The median baseline SBP and DBP were 120 mmHg (IQR: 110-130), 76 mmHg (IQR: 70–82), 45.9% PWH were on treatment for HTN. Median PWV was 8.1 m/s (IQR, 7-9.8). Overall, the prevalence of HTN was 45.9% and the prevalence of PWV>10 was 22.8%. At last observation, PWH on INSTI displayed a worse cardiometabolic profile as depicted in Table 1. In detail, a significantly higher prevalence of HTN (51.4% vs. 41.3%; p<0.001), PWV>10m/s (30.3% vs. 16.7%; p<0.001), diabetes (22.4% vs 13%; p<0.001) and dyslipidemia (85.2% vs 78.2%; p <0.001) when compared to other drug classes. Temporal exposure to INSTI was not a predictor of HTN (OR, 1; 95% CI 0.98-1.01; p=0.893) in a regression model adjusted for age, smoking (pack of cigarettes/year), body mass index, diabetes, dyslipidemia, time since HIV diagnosis, PI, NNRTI current exposure and temporal exposure (in months) to INSTI, PI and NNRTI. Temporal exposure to INSTI was not predictor of PWV>10 m/s (OR, 0.98; 95%CI 0.96-1.007; p=0.226) in a logistic regression model adjusted for the above-mentioned variables and HTN. The same results were obtained evaluation g separately raltegravir (RAL) and dolutegravir (DTG).

Conclusion: This study implies that INSTI-based regimens are preferentially offered to PWH with high cardiometabolic risk but current and temporal exposure to INSTI did not increase the risk of HTN or its associated vascular disease condition assessed with PWV>10 m/s.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_475.jpg

HIV associated comorbidities: matters of the heart

OC 56 METABOLIC AND WEIGHT CHANGES IN PEOPLE WITH HIV AFTER SWITCHING TO LONG-ACTING THERAPY WITH CABOTEGRAVIR AND RILPIVIRINE: RESULTS FROM THE SCOHOLART STUDY

M. Bottanelli[1], N. Gianotti[2], S. Diotallevi[2], R. Lolatto[2], V. Spagnuolo[2], D. Canetti[2], S. Bagaglio[2], V. Gordo Perez[2], T. Clemente[1], C. Candela[1], S. Nozza[1,2], A. Castagna[1,2], C. Muccini[2]

[1]Vita-Salute San Raffaele University, Milan, Italy, [2]Infectious Diseases Unit, IRCCS San Raffaele Scientific Institute, Milan, Italy

Background: Aim of the study was to evaluate metabolic and weight changes in people with HIV (PWH) and a long exposure to antiretroviral therapy (ART) switching to long-acting (LA) cabotegravir (CAB) and rilpivirine (RPV).
Material and methods: SCohoLART (cohort study of HIV-positive people treated with long-acting antiretroviral therapy, NCT05663580) is a single-center, prospective, phase IV, cohort study designed to collect both samples and clinical data of PWH on virological suppression who switched to bimonthly LA CAB/RPV 600/900 mg, followed at the Infectious Diseases Department of IRCCS San Raffaele Scientific Hospital, Milan, Italy.
Participants' characteristics were reported as median (interquartile range, IQR) or frequency (%). Univariable mixed linear models were calculated to estimate crude mean changes in metabolic parameters and weight; slopes were reported with the corresponding 95% confidence intervals (95%CI). Participants starting or stopping statin during follow-up were excluded from the analysis.
Results: We evaluated 514 participants for a median follow-up of 13.1 (9.1-15.5) months. Overall, 467 (90.9%) PWH were male and median age was 48.9 (39.9-56.2). At the time of switching (baseline), median years from HIV diagnosis, of ART exposure and of virological suppression were 14.0 (8.8-20.5), 11.4 (7.9-17.4), and 8.6 (5.1-12.8), respectively. At baseline, median CD4+ count was 794 (602-994) cells/μL and median CD4+ nadir was 334 (214 -512) cells/μL.
Regarding the metabolic profile, at baseline median weight was 76.0 (69.0-84.6) kg and median body mass index (BMI) 24.8 (22.8-27.0) kg/m2; total cholesterol (TC) was 180 (159-202) mg/dL, median high-density lipoprotein-cholesterol (HDL-c) 48.0 (40.8-57.0) mg/dL, and median low-density lipoprotein-cholesterol (LDL-c) 113 (96.0-136) mg/dL; moreover, TC/HDL-c ratio was 3.7 (3.1-4.4). Other participants' characteristics at baseline are reported in Table 1.
In participants switching to LA CAB/RPV, crude mean changes in weight and BMI were non statistically significant [+0.41 Kg/year (95%CI: -0.15, 0.97, p=0.15) and +0.14/year (95%CI: -0.04, 0.33, p=0.125), respectively], as well as mean increases in TC and LDL-c [0.45 (95%CI: -2.36, 3.26, p=0.754) and +0.48 (95%CI: -1.94, 2.9, p= 0.697), respectively] whereas crude mean changes in HDL-c and TC/HDL-c ratio were +2.97 mg/dL/year (95%CI: 1.88, 4.07, p=<0.0001) and -0.2/year (95%CI: -0.3, -0.11, p=<0.0001), respectively. Crude mean changes of other metabolic parameters are reported in Table 2.
Conclusions: In people switching to LA CAB/RPV treatment enrolled in the SCohoLART study, we observed a statistically significant increase in HDL-c and a concomitant reduction in the TC/HDL-c ratio, while no significant changes in weight and other metabolic parameters were described. Longer follow-up is needed to confirm these changes over time and assess the potentially favourable metabolic impact observed from the current data.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_199.png

HIV associated comorbidities: matters of the heart

OC 57 CAROTID INTIMA MEDIA THICKNESS (IMT) AND STATINS PRESCRIPTIONS IN THE REAL LIFE SETTING OF THE ARCHI PREVALEAT COHORT

B.M. Celesia[1], S. Martini[2], E.D. Ricci[3], L. Galli[4], A. Masiello[5], C. Muccini[4], S. Zacà[6], S. Ferrara[7], G. Di Filippo[8], M.S. Paternò Raddusa[1], A. Tartaglia[9], R. Basile[10], D. Angiletta[6], A. Castagna[4], P. Maggi[2,5]

[1]Unit of Infectious Diseases, Department of Clinical and Experimental Medicine, ARNAS Garibaldi Hospital, University of Catania, Catania, Italy, [2]Department of Mental Health and Public Medicine, Section of Infectious Diseases, University of Campania, Luigi Vanvitelli, Naples, Italy, [3]Fondazione ASIA Onlus, Milan, Italy, [4]Clinic of Infectious Diseases, San Raffaele Scientific Institute, Vita-Salute San Raffaele University, Milan, Italy, [5]AORN Sant'Anna e San Sebastiano of Caserta, Caserta, Italy, [6]Department of Emergency and Organ Transplantation, University of Bari School of Medicine, Bari, Italy, [7]Department of Medical and Surgical Sciences, Section of Infectious Diseases, University of Studies of Foggia, Foggia, Italy, [8]Department of Medicine and Surgery, Section of Infectious Diseases, University Federico II of Naples, Napoli, Italy, [9]Azienda Ospedaliera di Foggia, Foggia, Italy, [10]Section of Infectious Diseases, Grande Ospedale Metropolitano, Bianchi Melacrino Morelli, Reggio Calabria, Italy

Background: Preventive cardio vascular diseases (CVD) strategies among individuals treated with antiretroviral therapy (cART) are a cornerstone in the era of the effective ARV treatment and ageing. EACS guidelines agree upon the use of hypolipipidemic drugs and report that "statins should be used by all those with established vascular disease and in persons who are not at LDL-c goals considering their level of CVD risk".
Archi Prevaleat is a multicenter, nationwide, prospective cohort study, including 8 Italian centres, aimed to evaluate the prevalence of carotid intima□media thickness (IMT) and plaques in people living with HIV (PLWH). Aim of the study was to evaluate the concordance between guidelines indications and real-life prescriptions of statins among the PLWH showing carotid intima□media thickness (IMT) or plaques enrolled in this cohort.
Methods: Cross sectional study: sex, age, BMI, use of statins and laboratory tests including fasting total, LDL and HDL cholesterol were recorded at the time of enrollement. The 10-year coronary heart disease (CHD) risk was evaluated with ACC-AHA score. Subjects with a score >10 were considered at high CVD risk; under this condition a LDL-goal below 70 mg/dl should be recommended. Finally a Doppler scan of the supra-aortic vessels was performed; only a carotid IMT > 1.2 mm or the presence of a plaque were considered in accordance with the objectives of the study.
Results: Data of 1457 PLWH were analyzed; 1170 (80.3%) were male, median age 52 (IQR 45.9-58) years, median time from HIV diagnosis 17.8 (IQR 6.5-22.3) years, 276 (18.9%) had a diagnosis of AIDS, Median BMI was 24.6 (IQR 22.5-27.1). 147 (9.6%) had BMI >30. 376 had a CVD risk score > 10. 416 (31.5%) subjects were on treatment with statins
Globally, any thickness or plaques were detected in 553 (36.6%) subjects. 211 out of 376 PLWH with high CVD risk showed any IMT or plaque; 87 (41.7%) of them were on treatment with statins. 189 subjects among 376 at high CVD risk showed any IMT or plaque associated with LDLc value >70 mg/dl. 74 (37%) of them were on treatment with statins.
Conclusion: Although coronary heart disease prevention is actually a hot clinical topic, a low percentage of PLWH with carotid IMT >1.2 mm and/or a plaque and/or high CVD risk score were detected to use consistently statins. A more coscentious reconciliation of indications and real life prescriptions of statins is desirable. Finally, a preventive action of information, aimed to those patients preferring to refuse or delay the prescription of statins to avoid potential side effects, is increasily desiderable.

What is left to say on COVID-19 today?

OC 58 INFLAMMATORY MILIEU AND SPECIFIC T CELLS RESPONSE AFTER THREE MONTHS AND ONE YEAR FROM SARS-COV-2 INFECTION

E. Cimini[1], C. Cimaglia[2], E. Tartaglia[3], M. Camici[4], S. Notari[1], F. Colavita[3], G. Matusali[3], I. Mastrorosa[4], V. Mazzotta[4], P. Chinello[4], P. Mencarini[4], M.L. Giancola[4], A. Abdeddaim[4], R. Casetti[1], G. Grassi[1], S. Gili[1], F. Cristofanelli[1], F. Maggi[3], P. Piselli[2], E. Girardi[5], C. Agrati[6], A. Antinori[4], A. Vergori[4]

[1]Laboratory of Cellular Immunology and Pharmacology, INMI-IRCCS Lazzaro Spallanzani, Rome, Italy, [2]Clinical Epidemiology Unit, INMI-IRCCS Lazzaro Spallanzani, Rome, Italy, [3]Laboratory of Virology, INMI-IRCCS Lazzaro Spallanzani, Rome, Italy, [4]Clinical Department, INMI-IRCCS Lazzaro Spallanzani, Rome, Italy, [5]Scientific Direction, INMI-IRCCS Lazzaro Spallanzani, Rome, Italy, [6]Unit of Pathogen Specific Immunity, IRCCS Ospedale Pediatrico Bambino Gesù, Rome, Italy

Background: Post-COVID-19 condition (PCC) is characterized by a plethora of symptoms, whose aetiology is not fully understood. The aim of this study was to analyse inflammatory/coagulative factors and the specific T cells response to SARS-CoV-2 and investigate if they are associated with the presence of PCC.
Material and methods: Adult participants, diagnosed with SARS-CoV-2 during 2020-2021 were enrolled. Blood and plasma samples were collected after three (T3M) and 12 months (T12M) post-acute COVID19. Demographic and clinical data were collected during each visit and structured in an electronic system. Plasma concentrations of inflammatory (IL-6, IL-8, TNF-a, IL-2) and coagulative factors (D-Dimer, E-sel, ICAM, VCAM) were tested by Elisa test at T3M and T12M. Peripheral blood mononuclear cells (PBMC) were stimulated with a mixture of Spike (S) and Nucleocapside (N) peptides to analyse SARS-CoV-2 specific T cells response. IFN-γ production was quantified by Elispot assay. Mann-Whitney and Wilcoxon tests were used for comparisons. Spearman correlation between all markers, including serologic parameters (IgM, IgG, IgA, neutralization title), was showed with a heat map.
Results: We included 196 participants: 39% female, with a median age of 56.5 years (IQR 49.5-64.9), 78% of them were previously hospitalized for COVD-19. The median time between SARS-CoV-2 infection and the post COVID evaluation was of 86 days (78-91), 34% reported post-COVID symptoms, of which 68% with only 1 symptom. Most symptoms were respiratory (54%), followed by asthenia (30%) and neuropsychological (14%). At T3M and T12M, according with symptoms onset (presence or not), the inflammatory profile generally did not change (IL-8, TNF-a, IL1b) except for IL-6 which decreased significantly from T3M to T12M (p=0.02) and with no differences according with symptoms (Figure 1 A). With respect to coagulation factors a general increase was observed at T12M of all markers (D-D-Dimer: p=0.0002; E-Sel and VCAM: p=0.0001; ICAM-1 p=0.006), independently from the presence of symptoms (Figure 1 B). Spike specific T cells response was higher than N response at T3M (p=0.0009), by reaching the same level at T12M, and was not associated with the presence of symptoms (Figure 1 C). According to the heat map showed in Figure 1 D, a significant expression of inflammatory/coagulative factors was measured a T12M post infection.
Conclusions: In this cohort, the analysis of inflammatory/coagulative milieu showed altered coagulation factors one year after the acute COVID-19, by meaning that SARS-CoV-2-damage lasts for a long time after infection. Moreover, T cells specific response was detected 12 months after COVID19, even though lower than that observed 3 months after infection, suggesting the maintenance of the protective memory T cells response overtime.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_254.png

What is left to say on COVID-19 today?

OC 59 CLINICAL FEATURES AND IMPACT ON MORTALITY OF COVID-19 EPIDEMICS IN PATIENTS WITH NON-HODGKIN LYMPHOMA: LONG-TERM RESULTS FROM A TERTIARY CENTER IN ITALY

E. Zappulo[1], L. Ametrano[1], S. Barbato[2], L. Fusco[1], A. Severino[2], F. Pane[2], I. Gentile[1]

[1]Department of Clinical Medicine and Surgery—Infectious Diseases Unit, University of Naples Federico II, Naples, Italy, [2]Department of Clinical Medicine and Surgery – Haematology Unit, University of Naples Federico II, Naples, Italy

Introduction: Due to the heterogeneity of the monitoring strategies and scant reliability of available data, quantifying the magnitude of the COVID-19 pandemic in terms of excess mortality and disease progression in hematologic populations is still an open challenge. We aimed to determine whether patients with Non-Hodgkin lymphoma (NHL) experiencing COVID-19 have an increased risk of mortality and are prone to more severe outcomes according to ongoing treatments and disease activity.

Materials and Methods: An ambivalent study was conducted recruiting patients with NHL followed at the Haematology Unit of the "Federico II" University hospital of Naples, Italy, from March 2020 to January 2023.

Results: During a median follow up of 35 months [IQR:20-71], a total of 206 patients were enrolled and observed; more than half of the patients experienced COVID-19(57%). Comparisons between main demographical features, lymphoma subtype, and immunosuppressive treatments in patients with or without SARS-CoV-2 infection are resumed in Table 1.

Overall median age was 68 years in our cohort; comorbidities were observed in 86% of patients; DLBCL and follicular were the more represented NHL subtypes (33% and 29%, respectively). Most patients had received rituximab-based regimens (85%); 44% were administered bendamustine, 20% were on obinutuzumab.

Primary disease, treatments or baseline demographical parameters did not differ between the two groups. Nevertheless, a significant increase in overall mortality was recorded in patients experiencing SARS-CoV2 infection (34% vs 18%, p=0.012). In detail, when evaluating risk factors for mortality at multivariate Cox regression analysis (Table 2), male sex (aHR: 1.876, p=0.045), active NHL (aHR: 6.075, p=0.009), and occurrence of SARS-CoV2 infection (aHR: 3.776, p=0.029) showed to significantly worsen all-cause fatality rate. Notably, the mean survival time in patients with COVID-19 was reduced of a little less than a year (329 days, 1231 vs 1408 days, p=0.011 log rank test)(Fig. 1).

Looking at COVID-19 clinical features, approximately 15% of patients experienced severe-critical disease (30/118): examining predictors of severity, only refractory hematologic disease resulted as significant determinant of critical illness (aHR: 3.991, p=0.023) while infections occurring in Omicron era were associated with better outcomes (aHR: 0.09, p=0.005) (Table 3). No impact of sex, age, comorbidity burden, NHL subtype, hypogammaglobulinemia, vaccinal status, or immunochemotherapy was observed.

Conclusions: Patients with NHL and COVID-19 have an increased overall mortality compared to uninfected peers, independently from undergoing treatments, comorbidities, and baseline demographical features. Refractory disease emerges as significant determinant of severe-critical COVID-19. Our findings underscore the urgent need to mitigate the pandemic's impacts on this setting of patients who have been uniquely vulnerable to SARS-CoV2 threat.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_420.jpg

What is left to say on COVID-19 today?

OC 60 TIME TO ANTI-CANCER TREATMENT RESUMPTION AFTER SARS-COV-2 INFECTION IN PATIENTS WITH ACTIVE HEMATOLOGICAL DISEASE UNDERGOING OFF-LABEL COMBINED ANTIVIRAL TREATMENTS

E. Matteini[1], C. Pinnetti[2], F. Frondizi[1], E. Rando[1], M. Chiuchiarelli[1], E. Metafuni[3], I. Mastrorosa[2], E. Alma[3], V. Mazzotta[2], R. Santangelo[4], S. Marchetti[5], M. Sanguinetti[4], S. Sica[3], C. Torti[1,6], A. Antinori[2], A. Cingolani[1,6]

[1]Dipartimento di Sicurezza e Bioetica - Sezione di Malattie Infettive, Università Cattolica del Sacro Cuore, Rome, Italy, [2]Clinical and Research Infectious Diseases Department, National Institute for Infectious Diseases, Lazzaro Spallanzani IRCCS, Rome, Italy, [3]Ematologia e Trapianto di cellule staminali emopoietiche, Dipartimento di Scienze di Laboratorio ed Infettivologiche, Italy, [4]Department of Laboratory and Hematological Sciences Fondazione Policlinico Gemelli, IRCCS, Department of Basic, Biotechnological Sciences, Intensivological and Perioperative Clinics Catholic University School of Medicine, Italy, [5]Department of Laboratory and Hematological Sciences Fondazione Policlinico Gemelli, IRCCS, Italy, [6]Dipartimento di Scienze Mediche e Chirurgiche, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy

Background: The in-hospital management of patients with active hematologic malignancies who acquired SARS-CoV-2 infection during the treatment phase results is challenging due to waiting time before resuming anti-cancer therapy. Combination therapy (antivirals with or without mAbs) was reported to be effective in limited studies, mainly without a control group and observational.

Objectives: We aimed at evaluating time to resumption of hematological therapy in adult patients with active hematological disease who underwent combined regimens (CR) or regimens based on single drug (SR) for SARS-CoV-2 infection.

Materials and Methods: A two-center observational cohort study including patients with active hematologic diseases treated for SARS-CoV-2 infection from January 2022 to December 2023 was set up.

Clinical data, occurrence of SARS-CoV-2 infections and time to negativization with subsequent resumption of hematology therapy were collected based from medical records.

Wilcoxon rank-sum test was used to compare continuous variables and Fisher's exact test for categorical variables. A multiple Cox regression model was run to investigate factors associated with the 60-day re-start of hematological therapy restricting the variables used according to the outcome number. Kaplan-Meier (KM) curves were calculated.

Results: Eighty-seven patients were included, of whom 75 (86%) underwent SR and 12 (14%) CR. Female sex patients accounted for 31%, mean age was 59 years (IQR 47-68), 39% had pneumonia requiring supportive oxygen. Details of treatment regimens (SR and CR) are reported in Table 1. At baseline, patients who performed CR required supportive oxygen more frequently (p=0.02), and had more frequently causes of immunosuppression besides hematologic disease (p=0.007) than those who were prescribed SR.

Time from the first positive SARS-CoV-2 nasal swab to restarting hematologic treatment was not significantly different at KM estimate (median 38 days [IQR 21-70] in SR and 30 days [IQR 18-77] in CR group; p=0.46) (Figure 1).

By Cox regression analysis (Table 2), after adjusting for combined antiviral therapy, pneumonia (HR 0.53, 95%CI 0.28-0.98) but not CR (HR 1.72, 95%CI 0.82-3.63) was associated with an independent risk of not resuming anti-cancer treatment within 60 days from diagnosis of SARS-CoV-2 infection.

Conclusions: The results of this study suggest that combination therapy with antivirals and/or mAbs for SARS-CoV -2, generally used by clinicians as off-label, could not be an effective strategy for reducing the time to re-initiation of hematological therapy in patients with active disease. Pneumonia is associated with less chance of restarting therapy within 60 days from diagnosis of infection. Baseline potential unmeasured biases may have influenced the results such as the low number of patients included. Randomized controlled trials are urgently needed to assess the impact of CR, especially if used for early treating SARS-CoV-2.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_376.jpg

What is left to say on COVID-19 today?

OC 61 SARS-COV-2 INTRA-HOST EVOLUTION DURING ACUTE INFECTION IN COVID-19 PATIENTS

C. della Ventura[1], A. Bergna[1], C.L. Ciubotariu[2], H. Chmes[1], M. Corbellino[2], A. Riva[1,2], S. Antinori[1,2], G. Zehender[1], A. Lai[1]

[1]Department of Biomedical and Clinical Sciences, University of Milan, Milan, Italy, [2]III Division of Infectious Diseases, ASST Fatebenefratelli Sacco, Luigi Sacco Hospital, Milan, Italy

Background: Intra-host evolution reflects a general mechanism for the continued emergence of novel highly divergent SARS-CoV-2 variants, so their monitor is crucial to track viral mutations through the sequencing of viral genomes. In this work, the intra-host evolution of SARS-CoV-2 was investigated with the aim of assessing conditions associated with the acquisition of new viral mutations.
Methods: We analysed 58 cases of COVID-19 with two or more longitudinally collected positive SARS-CoV-2 swabs in the period December 2021-December 2023. Serial swabs were analysed: 0-7 (T1, n=54), 8-14 (T2, n=54), 15-21 (T3, n=14), 22-29 (T4, n=6) and 30-37 (T5, n=4) days after positivity. All samples were subjected to targeted amplification of SARS-CoV-2 and next-generation sequencing. Only pairings where initial and subsequent samples had cycle threshold ≤ 32 were included to ensure high quality genomic sequencing.
Results: The median age of the subjects was 83 years (interquartile rage, IQR: 73-88) and 55.2% were female. 57 subjects were hospitalized for a median of 23 days (IQR:16-32) and 12 died (20.7%) after a median of 25 days (IQR:19-34). Median time to RT-PCR negativity was 18 days (IQR:15-23). 78.9% of subjects were vaccinated with at least 2 doses. No one reported previous documented SARS-CoV-2 infection. Swab positivity was observed after a median of 261 days after the last SARS-Cov-2 vaccine dosing (IQR:58-419). 7 subjects did not have comorbidities and were not treated for SARS-CoV-2 infection while 25.5% of individuals received more than one treatment. No drug resistance mutations were observed over time. Significant differences (p=.04) were observed in negativisation period according to viral variant, with longer intervals observed in BQ.1 (38.5 days) and shorter in BA.1 infections (16.5 days). Comparing T1 and T2, 40% of subjects lost mutations, 36% accumulated mutations while 24% maintained the same pattern. Stratifying according to the infecting variant, significant mutations disappearing was observed in all genes in BA.1 (p<.0001) while in XBB variant a significant mutation emerging was detected in ORF1a, ORF1b and S genes compared to N and ORF9b (p=.016). Subjects with cardiovascular disease showed a significant acquisition of mutations over time (p=.048). 4 subjects carried nsp14 mutations; S2027L was present in all time points of two BQ.1 subjects. In two BA.2 subjects, mutations A1798L+F1874V, observed at T4 disappeared at T5, while D1797Y+K1873R+F1874L emerged at T5.
Conclusions: Although the exact biological mechanisms of the intra-host population dynamics remain to be explored, our data suggested a mechanism of 2-step fitness selection of SARS-CoV-2 mutations. The first step occurs after randomized mutations are generated, indicating that genetic diversity increases during the first week of viral infection. In the second week a purifying selection process was observed, which accounts for the reduction in the number mutations.

HIV associated comorbidities: pressing matters

OC 62 CANCERS IN PEOPLE LIVING WITH HIV: AN OBSERVATIONAL STUDY IN THE COHORT OF MODENA OVER 27 YEARS

F. Prandini[1], M. Menozzi[2], F. Casari[1], D. Lusetti[1], B. Fontana[1], M. Ricciardetto[1], E. Ghidoni[1], F. Calandra[1], E. Martini[1], G. Guaraldi[1], C. Mussini[1]

[1]Department of Infectious Diseases, University of Modena and Reggio Emilia, Modena, Italy, [2]Department of Infectious Diseases, AOU Modena, Modena, Italy

Background: Life expectancy of people living with HIV(PLWH) is similar to the general population thanks to antiretroviral therapies(ART). Simultaneously, prevalence of comorbidities increased, including neoplastic diseases, one of the main causes of death and more frequent in PLWH due to immunosuppression and inflammatory state. The aim of the study was to describe cancer prevalence, deaths and 5-year survival in PLWH in our center.

Methods: We retrospectively included all PLWH followed at Modena Clinic who developed cancer from 1996 to 2023, excluding those who received cancer diagnosis before having HIV. We analyzed demographic, survival characteristics and the different types of tumors, comparing three observational periods(1996-2003, 2004-2013, 2014 -2023) according to cancer diagnosis. After descriptive analysis, a logistic regression was performed to define factors that contribute to death and 5-year survival.

Results: Two hundred fifty eight PLWH developed 309 tumors in the study period. Demographic characteristics of PLWH are reported in table 1, while table 2 depicts cancer description. The tumor which caused more frequently metastasis was lung cancer(5.3%), followed by anal cancer(2.7%) and colon cancer(2%).

Progressively it has been observed an increase of cancer's diagnoses (figure 3) with a concomitant rising prevalence of the Non-AIDS Defining Malignancy(NADM) compared to the AIDS-Definig Malignancy(ADM)(figure 1). The median CD4 cell count and CD4/CD8 ratio at cancer diagnosis were significantly lower in PLWH with ADM versus NADM (247 vs 443 and 0.36 vs 0.58, p<0.001).

The most frequently diagnosed cancers were haematologic malignancies(18%), Kaposi's sarcoma(15.3%) and genito-urinary tract(15%) (figure 2).

The viral load was undetectable at cancer diagnosis in most of PLWH with NADM(75.7%), while it was undetectable only in 24.4% of PLWH with ADM.

Table 3 shows the main risk factors contributing to death or 5 year survival: PLWH with AIDS diagnosis had an increased risk of death(p=0.009) and those with undetectable HIV RNA at the diagnosis of cancer increases the survival at 5 years (p=0.051). Lung cancer is the one with highest risk of death(p=0.012), while HPV related cancer including in situ lesions presented the lowest one(p=0.004). Having metastasis significantly increased the risk of death and reduced by 25% the survival at 5 years. There are no differences in outcome depending on ART administered at the diagnosis of cancer.

Conclusions: According to literature, in our cohort, we observed an increase of tumor diagnoses in recent years, both for total prevalence and for NADM(more prevalent than ADM). As expected, PLWH with AIDS had worse outcomes; while being undetectable at cancer diagnosis and receiving cancer diagnosis in recent years were predictors for longer survival. Our findings confirm the importance of cancer prevention and early detection in PLWH.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_371.jpg

HIV associated comorbidities: pressing matters

OC 63 CNS RELAPSE RISK IN HIV-POSITIVE PATIENTS AFFECTED BY DLBCL AND HGBL - A RETROSPECTIVE STUDY OF THE MUSTHAL COHORT

G. Rindone[1], M. Rossi[2], F. Sabbatini[2], P. Columpsi[2], D. Dalu[3], C. Fasola[3], P. Vitiello[4], C. Viganò[5], E. Suardi[6], C. Gambacorti Passerini[1,7], P. Bonfanti[2,7], A. Bandera[8,9], L. Verga[1]

[1]Hematology department IRCCS San Gerardo dei Tintori, Monza, Italy, [2]Infectious diseases department IRCCS San Gerardo dei Tintori, Monza, Italy, [3]Oncology department ASST Fatebenfratelli Sacco, Milano, Italy, [4]Hematology department Ospedale di Busto Arsizio, Busto Arsizio, Italy, [5]Oncology department Ospedale Manzoni, Lecco, Italy, [6]Infectious diseases department ASST Santi Paolo e Carlo, Milano, Italy, [7]University of Milano-Bicocca, Milano, Italy, [8]Infectious diseases department IRCCS Ca' Granda Policlinico di Milano, Milano, Italy, [9]University of Milano, Milano, Italy

Background: After cART introduction HIV+ patients (pts) with aggressive lymphoma are treated similarly to HIV- population. HIV+ pts are still considered at higher risk of central nervous system (CNS) relapse, but data from randomized and controlled studies on efficacy of CNS-directed prophylaxis are lacking.
Material and methods: Data on clinical and virological features, treatment, and outcomes of 96 HIV+ pts affected by diffuse large B-cell lymphoma (DLBCL) or high-grade B-cell lymphoma (HGBL) from 1996 to 2023 in Northen Italy were recorded. Patients' disposition, overall survival (OS), progression-free survival (PFS), the impact of lymphoma-related, HIV-related features, first line treatments and CNS-directed prophylaxis on survival and relapse risk were evaluated, with focus on CNS relapses. A CNS relapse risk score (CNS-IPI) has been validated in HIV- pts. We tested whether this score was also valid in HIV+ pts.
Results: 82 DLBCLs and 14 HGBLs were evaluated. Median age at lymphoma presentation was 49 years. 90% of pts had an advanced stage at diagnosis. CNS involvement was observed in 8 pts (8%) at diagnosis (table 1). Two thirds of pts were already on cART at the time of lymphoma diagnosis (table 2). Pts received CHOP-like regimens (74%), EPOCH (12%) and intensive chemotherapy (10%) in first line. 57 pts (61%) achieved complete response (CR). 23 pts progressed during chemotherapy and 10 pts relapsed after obtaining a first remission. 8 CNS relapses were recorded, mostly in high-risk for CNS-IPI population. A total of 46 pts is currently alive in CR (table 3). After a median follow-up of 43 months, 5-years OS is 57% and PFS is 59% in our cohort (figure 1). Pts who responded to first line treatment showed an OS of 78% at the last follow-up (figure 2). Only 4 deaths are due to infective complications during chemotherapy. A CD4+ count at lymphoma diagnosis > 200/microliter has a borderline association with a longer OS (p = 0.072). Multivariate analysis showed that PFS, but not OS, was significantly influenced by HIV viral load at its zenith, by CD4+ count at lymphoma diagnosis and by the presence of a cART at lymphoma diagnosis (table 4). Neither HIV and lymphoma related features, therapeutic regimens nor CNS directed prophylaxis seem to influence CNS relapse risk in our cohort.
Conclusions: The CNS-IPI score appears to be effective also in HIV+ population affected by DLBCL and HGBL, which still display higher risk of CNS involvement at diagnosis and of CNS relapse than HIV- pts. HIV+ pts need to achieve a stable complete remission after first line therapy, which is associated with significantly higher and longer survival. The main cause of death in our cohort is progressive disease and not infective or therapy related complications also in the most immunodeficient group. CNS prophylaxis has been widely used in this population, but a larger sample and further studies to clarify which prophylactic approach is the most effective are needed.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_280.jpg

HIV associated comorbidities: pressing matters

OC 64 COGNITIVE PERFORMANCE IN OLDER PEOPLE WITH AND WITHOUT HIV IN THE GEPPO COHORT

A. Calcagno[1], A. Tommasi[2], L. Patetta[3], J. Milic[4], A. Coin[5], C. Mussi[6], S. Calza[7], B.M. Celesia[8], S. Gardin[9], D. Azzolino[3], E. Lenotti[10], M. Ferrara[1], B. Fioretti[11], G. Madeddu[12], F. Barrera[1], G. Orofino[13], G. Guaraldi[4], E. Focà[11]

[1]Unit of Infectious Diseases, Department of Medical Sciences, University of Turin, Turin, Italy, [2]Department of Infectious Diseases, Azienda Ospedaliero-Universitaria di Perugia, Perugia, Italy, [3]Geriatric Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico di Milano, Milano, Italy, [4]Department of Mother, Child and Adult Medicine and Surgical Science, Infectious Disease Clinic, University of Modena and Reggio Emilia, Modena, Italy, [5]Geriatric Unit, University of Padova, Padova, Italy, [6]Centre of Gerontological Evaluation and Research, University of Modena and Reggio Emilia, Modena, Italy, [7]Unit of Biostatistics and Bioinformatics, Department of Molecular and Translational Medicine, University of Brescia, Brescia, Italy, [8]Division of Infectious Diseases, Department of Clinical and Molecular Biomedicine, University of Catania, ARNAS Garibaldi, Catania, Italy, [9]Unit of Infectious Diseases, Department of Internal Medicine, Azienda Ospedaliero-Universitaria di Padova, Padova, Italy, [10]Geriatric Unit, University of Brescia and ASST Spedali Civili Hospital, Brescia, Italy, [11]Department of Infectious and Tropical Diseases, University of Brescia and ASST Spedali Civili Hospital, Brescia, Italy, [12]Unit of Infectious and Tropical Diseases, Department of Medical, Surgical and Experimental Sciences, University of Sassari, Sassari, Italy, [13]Unit of Infectious Diseases, 'Divisione A', Amedeo di Savoia Hospital, ASLTO2, Torino, Italy

Background: Older people living with HIV (OPWH) display multiple risk factors that may contribute to lower cognitive performance when compared to people without HIV (PWoH) Recent data reported a worrisome higher risk of dementia in OPWH. Aim of this study is to describe cognitive performance in OPWH and OPWoH in the GEPPO cohort.

Methods: This was a cross sectional study of participants enrolled in the GEPPO cohort who were assessed for cognitive performance with: the Mini-Addenbrooke Cognitive Examination test (MACE) and the Grooved Pegboard Test (GPT). Impaired cognitive performance was defined as MACE score ≤21 and as motor speed ≥2 SD of normative values of non-dominant hand (ndh-GPT). Additionally OPWH from Modena site were evaluated for cognitive performance with Cog-state battery. Each individual CogState raw score was transformed into a Z-score correcting for age and gender. A global NF performance score was defined as the mean of Z-score by averaging individual task Z-scores. Impaired cognitive performance was defined by total global deficit score (GDS) > 0.5. Multimorbidity (MM) was defined as the presence of at least 3 comorbidities and polypharmacy (PP) as the use of >5 drugs (excluding antiretroviral regimen) in the same individual. Anticholinergic burden was measured using anticholinergic burden score. Data are presented as number (%) or mean (SD).

Results: We included 240 OPWH and 52 OPWoH. Age was significantly lower (73.7 vs. 81.1 years, p<0.001) and male sex was more represented (85 vs 25 %, p<0.001) in OPWH. In this group mean CD4 was 647 (307) and HIV RNA was <50 copies/mL in 194 (83%). Antiretroviral treatment included INSTI in 75%, NNRTI 28% and boosted PI in 18%. MM (56 vs. 58%, p=0.8) and PP (29 vs. 35%, p=0.4) were equally prevalent in cases and controls.

MACE scores were similar in the two groups (22.8 vs. 22.8, p=0.9 and <21 in 34 vs. 40%, p=0.4) while ndh-GPT scores were significantly lower in OPWH (Z-scores 1.23 vs. 3.33, p<0.001 and abnormal in 24 vs. 56%, p<0.001). Impaired cognitive performance was present in 110 (45.8%) OPWH and in 36 (69.2%) PWoH (p=0.002).

Age was the only predictor of impaired cognitive performance (aOR 1.09, 95CI 1.04-1.15, p<0.001) after adjustment for sex, HIV status, MM, PP and anticholinergic burden score. In a separate multivariate analysis restricted to OPWH (additionally adjusted for HIV duration and CD4 nadir), age was confirmed to be the only predictor of the outcome variable (aOR 1.08, 95CI 1.03-1.14, p=0.004). In the group of 129 OPWH assessed with Cogstate, abnormal GDS was observed in 28 (21.7%) and it was associated with older age (73.3 vs. 69.3, p<0.001) and the absence of MM (92.1% vs 75%, p=0.020).

Conclusion: This preliminary data from the GEPPO cohort suggest that age is the main driver of impaired cognitive performance in older individuals and that HIV infection does not seem to be a significant contributing factor. Motor speed seems to be less impaired in OPWH, but lower age may be a relevant confounder. Longitudinal data are needed in order to predict cognitive trajectories in ageing participants with and without HIV infection.

HIV associated comorbidities: pressing matters

OC 65 INCREASING PREVALENCE OF COGNITIVE FRAILTY IN PEOPLE LIVING WITH HIV

J. Milic[1], S. Renzetti[2], S. Calza[3], F. Motta[4], L. Lazzarini[5], M. Cocchi[5], V. Todisco[6], A. Tili[6], M.C. Pellegrino[6], M. Menozzi[6], G. Cuomo[6], G. Mancini[6], C. Mussi[1], C. Mussini[6,7], A. Calcagno[8], G. Guaraldi[6,7]

[1]Department of Biomedical and Metabolic Sciences and Neuroscience, University of Modena and Reggio Emilia, Modena, Italy, [2]Department of Medical-Surgical Specialties, Radiological Sciences and Public Health, University of Brescia, Brescia, Italy, [3]Department of Molecular and Translational Medicine, University of Brescia, Brescia, Italy, [4]Department of Physical, Computer and Mathematical Sciences, University of Modena and Reggio Emilia, Modena, Italy, [5]School of Medicine, University of Modena and Reggio Emilia, Modena, Italy, [6]Department of Infectious Diseases, Azienda Ospedaliero-Universitaria, Policlinico of Modena, Modena, Italy, [7]Department of Surgical, Medical, Dental and Morphological Sciences, University of Modena and Reggio Emilia, Modena, Italy, [8]Unit of Infectious Diseases, Department of Medical Sciences, Amedeo di Savoia Hospital, University of Torino, Torino, Italy

Objective: Cognitive frailty (CF) offers a new framework to characterize cognitive impairment in persons living with HIV (PWH). The objective of the study was to prospectively describe CF in terms of risk factors and changes in prevalence at follow-up in PWH.

Methods: This was an observational longitudinal study including ART-experienced PWH attending Modena HIV Metabolic Clinic (MHMC) with at least two assessments for neurocognitive function and frailty. Neurocognitive function was measured with Cogstate battery that comprises six domains: simple speed processing, complex speed processing, attention/working memory, visual learning memory, verbal learning and verbal memory. Each individual CogState raw score was transformed into z-score after correction for age and sex. Impaired neurocognitive test was defined by total global deficit score >0.5. Frailty was assessed by a previously validated 37-Item frailty index. Scores <0.25 were considered fit or >0.26 as frail. CF was defined as the contemporary presence of impaired neurocognitive test and frailty. Multimorbidity was defined as the presence of at least 3 comorbidities, while polypharmacy as concomitant use of more than 5 drugs other than ART. Linear mixed effect model was used to assess risk factors at follow-up.

Results: A total of 650 PWH with at least two CF assessments were included, 485 (74.6%) were males, median age was 56.3 years, follow-up was 3.8 years, body mass index was 24.7 kg/m2, time since HIV diagnosis was 25.8 years, HIV RNA was undetectable in 98.5% of PWH. CF was present in 15 (2.3%) PWH at baseline and in 62 (9.5%) at follow-up. PWH who developed CF had higher BMI (26.7 vs. 24.5 kg/m2, p<0.001), higher median number of co-morbidities (2.5 vs. 1; p<0.001) and higher prevalence of polypharmacy (46.8% vs. 16.5%, p<0.001) at baseline. Clinical characteristics according to the presence of CF is shown in Table 1. Current exposure to different ART classes was not associated with CF (Table 1). Table 2 shows risk factors for CF at follow-up. Follow-up time, multimorbidity and waist circumference were independently associated with higher risk of CF, while ART does not impact CF.

Conclusion: CF is a progressively increasing condition which implies assessment of person's vulnerability trough the frailty evaluation. The association between waist circumference, multimorbidity and CF suggests that metabolic health interventions may prevent CF development.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_463.png

Highlighting the diversity of people living with HIV

OC 66 SOCIO-DEMOGRAPHIC, CLINICAL AND THERAPEUTIC FEATURES OF PERSONS WITH HIV (PWH) CURRENTLY IN CARE IN ITALY: DATA FROM THE ICONA COHORT

A. d'Arminio Monforte[1], A. Rodano[1], I. Fanti[1], C.F. Perno[2], D. Segala[3], A. Santoro[4], M.B. Pasticci[5], L. Calza[6], A. Carraro[7], A. Cingolani[8], M. Puoti[9], A. Castagna[10], S. Lo Caputo[11], A. Tavelli[1], A. Antinori[12] on behalf of Icona Foundation Study Group

[1]ICONA Foundation, Milan, Italy, [2]IRCCS Bambino Gesù Pediatric Hospital, Rome, Italy, [3]Pathology Department, University of Brescia, ASST Spedali Civili di Brescia, Brescia, Italy, [4]Clinica di Malattie Infettive, ASST Santi Paolo e Carlo-Presidio Ospedaliero San Paolo, Milano, Italy, [5]Infectious Diseases Unit, Santa Maria Terni Hospital, Terni, Italy, [6]Infectious Diseases Unit, IRCCS Policlinico di Sant'Orsola, University of Bologna, Bologna, Italy, [7]Department of Public Health and Infectious Diseases, Sapienza University of Rome, Rome, Italy, [8]Clinic of Infectious Diseases, Catholic University, Rome, Italy, [9]Department of Infectious Diseases, ASST Grande Ospedale Metropolitano Niguarda, Milan, Italy, [10]Infectious Diseases Unit, IRCCS San Raffaele Scientific Institute, Milan, Italy, [11]Clinic of Infectious Diseases, Department of Clinical and Surgical Sciences, University of Foggia, Foggia, Italy, [12]National Institute for Infectious Diseases Lazzaro Spallanzani, IRCCS, Roma, Italy

Background: Aim of this study is to characterize socio-demographic, clinical and therapeutic features of PWH currently in care in 61 Italian Infectious Diseases centers belonging to the ICONA cohort.
Material and Methods: All the PWH enrolled in ICONA with at >= follow-up in 2022-2023 are included. Data from the ICONA database including age, sex, nation of birth, scholarity, employment, mode of HIV transmission, last CD4 and HIV-RNA, ongoing ART line and regimens, and comorbidities are analyzed. In case of multiple visits only the more recent one is considered.
Results: A total of 10900 PWH are included; 2173 (19.9%) are females, median age is ¬49 years (IQR: 40-58), 1962 (18.0%) are > 60 years old, 2072 (19.0%) are born outside Italy. Sexual contacts are the most frequent mode of HIV transmission: 4947 (45.3%) by MSM, 4334 (39.7%) by heterosexual route. Median time from HIV diagnosis is 8.4 years (IQR: 3.9-13.9); 1531/10900 (14%) PWH have an AIDS diagnosis .
Current data on scholarity and employment are reported among the 1622 PWH enrolled in 2022-23: 154 (9.7%) have university degree, 32 (2%) have primary school degree. 54.2% PWH have a stable employment, 12,5% are unemployed.
A total of 190 (11.7% of the 1622 enrolled in 2022-23) are current recent (within one year) seroconverters.
A total of 541 (5.0%) have CD4<200 cells/mL, 1381 (12.7%) < 350/mL, 8112 (75.5%) >500cells/mL. Median CD4 is 722 cells/mL. HIV-RNA is <50 copies/mL in 9601 (89.2%), <200 copies/mL in 10006 (91.8%), >100,000 copies/mL in 311 (2.8%) .
276 (2.5%) are affected by cardiovascular disease, 70 (0.6%) by non AIDS malignancies.
Total cholesterol >200/ml is reported in 3237 (29.6%), and triglicerydes>200/mL in 1167 (10.7%).
As refers to antiretroviral therapy (ART), 149 (1.3%) are naives, 2800 (25.7%) are at their first regimen, 2291 (21.0%) at 2nd and 5660 (51.9%) at >=3rd one (TABLE 1a and b).
Considering all lines of ART, BIC/FTC/TAF is the more frequent regimen (in 28.4% of 10751 on ART, 3TC/DTG the second one (22.7%), 471 (4.4%) are on treatment with Long-Acting agents. (Figure 1).
Conclusions: PWH currently in care in Italy are mostly men, aged 60 or older in one fifth of cases,
born outside of Italy in another fifth. The majority are at their third or more line of therapy. 3-drug INSTI based regimen are given in a large majority, and dual regimen are the second more used one. More than 90% are not sexually transmitters as HIVRNA is below 200 copies/mL; their immunologic condition is in normal range in two third of them. We may conclude that HIV is becoming a chronic long-lasting non infective illness in those who are in care. Still 12% of new enrolments acquired HIV infection less than one year before. These data demonstrate that there are still individuals who get infected now, either by subjects unknown to be HIV positive or by those missing care and/or therapy.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_130.jpg

Highlighting the diversity of people living with HIV

OC 67 LOW PREVALENCE OF OPTIMAL HEALTH-RELATED QUALITY OF LIFE IN REAL-WORLD DATA AMONG PEOPLE WITH HIV

J. Milic[1], E. Gnoatto Perondi[1], F. Motta[2], V. Menozzi[3], M. Simion[3], F. Romani[3], M. Menozzi[3], G. Cuomo[3], G. Mancini[3], C. Mussini[1,3], G. Guaraldi[1,3]

[1]Department of Surgical, Medical, Dental and Morphological Sciences, University of Modena and Reggio Emilia, Modena, Italy, [2]Department of Physical, Computer and Mathematical Sciences, University of Modena and Reggio Emilia, Modena, Italy, [3]Department of Infectious Diseases, Azienda Ospedaliero-Universitaria, Policlinico of Modena, Modena, Italy

Objective: Optimal health-related quality of life (HRQoL) is the goal of HIV care. Little is known regarding its changes over time in real life. The objective of this study was to explore prevalence of long-term optimal HRQoL and predictors of improvement and worsening in HRQoL trajectories in people with HIV (PWH).
Methods: This was a longitudinal observational study that included PWH attending Modena HIV Metabolic Clinic (MHMC) from 1/1/2014 to 31/12/2022. HRQoL was assessed with a validated EQ5D5L questionnaire evaluating the following domains: Mobility, Self-care, Anxiety and Depression, Pain and Discomfort, and Usual Activity. The optimal HRQoL was defined as score of EQ5D5L >89.7%. PWH with at least two EQ5D5L scores greater than the previous ones generated the HRQoL trajectory of improvement, while those with at least two lower than the previous ones generated HRQoL trajectories of worsening. PWH with either stationary or fluctuating EQ5D5L scores were grouped into a unique trajectory. Multimorbidity was defined as the contemporary presence of at least 3 comorbidities, while polypharmacy as use of at least five drugs other than ART. Predictors of improvement and of worsening of HRQoL trajectories, when compared with the stable group, were explored with logistic regressions.
Results: EQ5D5L was filled by 27.4% of PWH attending MHMC and 1232 PWH generated 5099 EQ5D5L questionnaires. Mean age was 57 (SD=8.0) years, 77% were males, mean ART duration was 19 years (SD=7.4). Figure 1 shows the annualised prevalence of optimal HRQoL (p<0.001). Figure 2 shows EQ-5D-5L total score and self-reported score according to the improvement trajectories at follow-up. The majority of PWH, i.e. 721 (59%) had stationary or fluctuating EQ5D5L scores, while PWH with worsening and improving trajectories were 250 (20%) and 261 (21%), respectively. PWH displaying improving trajectories when compared to the rest of the population were younger (56±8 vs 57±7.8, p=0.158), had a lower prevalence of lipodystrophy (69% vs 76%, p=0.049), were less frail (frailty index= 0.18±0.08 vs 0.20±0.08, p=0.007) and a lower prevalence of polypharmacy (12.4% vs 18.3%, p=0.052). Risk factors for improvement of HRQoL trajectories were: multimorbidity (OR=1.1, 95%CI:1.0-1.2) and polypharmacy (OR=0.90, 95%CI: 0.80-0.99) after adjustment for age, sex, frailty index, ART duration and neurocognitive impairment. None of the variables explored in the multivariable logistic regression were associated with the worsening of HRQoL trajectories.
Conclusion: Optimal HRQoL is far from the 4th 90% goal. The trend for this achievement appears to worsen over time, implying the need to explore predictors of HRQoL trajectories. This study underlines the multidimensional nature of HRQoL and the need to explore EQ5D5L contemporary with other patient reported outcomes for better understanding of impaired domains and targeting possible interventions.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_405.png

Highlighting the diversity of people living with HIV

OC 68 AFRICAN WOMEN LIVING WITH HIV IN MODENA: FAR FROM FULFILLING THE GAP

F. Casari[1], A. Cervo[2], M. Pellegrino[1], C. Puzzolante[2], M. Menozzi[2], G. Guaraldi[1,2], C. Mussini[1,2]

[1]Department of Infectious Diseases, University of Modena and Reggio Emilia, Modena, Italy, [2]Department of Infectious Diseases, AOU Modena, Modena, Italy

Background: Despite advances in HIV treatment, gender and racial disparities exist for retention in HIV care and ART adherence. The aim of this study was to define the clinical profile of African women living with HIV(WLWH) in order to implement strategies for improving retention in care and quality of life.
Methods: This was a retrospective study on WLWH attending HIV Clinic in Modena since 1996. Only cisgender women considered. Data on follow-up status according to ethnicity were gathered: women not in active follow-up (considered as the presence of at least one visit after 1st Jan 2023) or without any notion about transfer to other centre were considered lost to follow-up. The two prevalent ethnic groups of WLWH(Caucasian and African) in active follow-up were compared, using Fisher's exact test and Wilcoxon-Mann-Whitney for categorical and continuous variables, respectively. Virological failure(VF) was considered if HIV RNA was >200 copies/ml while on antiretroviral therapy and/or absence of clinical visit for more than 18 months during follow-up.
Results: 962 women had at least one access in HIV Clinic since 1996: median age at HIV diagnosis 29.6(IQR 18.5 -52.2) years, 19.4% with AIDS, median baseline CD4 cell count 406(35-1167) cells/mmc; 67.6% were Caucasian, 28% African, 3% South-American and 1.4% Asiatic. Figure 1 describes the follow-up status of the population. Among women in active follow-up, 368(72%) and 213(24%) were Caucasian and African, respectively. Characteristics of those two groups are described in Table 1. African WLWH had higher number of VF(p=0.021) and they had lower CD4 cell count and CD4/CD8 ratio at the last available visit than Caucasian women. They were therefore more frequently on three-drug regimen(80.5% vs 46.5%, p<0.001), often TAF-based(63.4% vs 38.6%, p<0.001) but less frequently INSTI-based(51.2% vs 74.5%, p>0.001). While Caucasian WLWH were more frequently smokers(39.9% vs 5.7%, p<0.001) and had dyslipidemia(70% vs 49%, p>0.001), African women had higher BMI (median 28 [IQR 21-36] vs 32 [18-33] Kg/m2, p<0.001) and more frequently diabetes(15.4% vs 7.1%, p=0.005). The higher prevalence of osteoporosis, menopause and cancer among Caucasian women could be confounded by the related missing data in African WLWH.
Conclusion: African WLWH represent a quarter of the female population in Modena, characterized by a high rate of lack of adherence to treatment and clinical visit. Moreover, obesity and diabetes were the two major metabolic problems in this population. That led to multiple vicious circles in the management of these WLWH: the more frequent use of high genetic barrier antiretroviral regimens, not often metabolic friendly; the difficulties in comorbidities management; the low rate of screening for cancer and comorbidities. More efforts are needed to fulfil the gap in African population, taking into consideration cultural, social and economic determinants and adopting different retention in care strategies.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_351.jpg

Highlighting the diversity of people living with HIV

OC 69 PREGNANT WOMEN LIVING WITH HIV: THE EXPERIENCE OF IRCCS SAN GERARDO DEI TINTORI

A. Ranzani[1], G. Lapadula[1,2], F. D'Aloia[4], S. Ornaghi[2,3], A. Locatelli[2,3], P. Bonfanti[1,2], F. Sabbatini[1]

[1]S.C. Malattie Infettive, IRCSS San Gerardo dei Tintori, Monza, Italy, [2]Università degli Studi Milano-Bicocca, Italy, [3]S.C. Ostetricia, IRCSS San Gerardo dei Tintori, Monza, Italy, [4]Scuola di specializzazione in Malattie Infettive e Tropicali, Università degli Studi di Milano-Bicocca, Italy

Background: Describing delivery mode trends, pregnancy outcomes, and the rationale behind the continued use of cesarean section (CS) in women living with HIV (WLWH) is important for optimizing maternal and neonatal health.
Materials and methods: We conducted a retrospective study at IRCCS San Gerardo of Monza to analyze pregnancy outcomes of all WLWH who sought care from 2008 onwards. We collected demographic data, immunovirological parameters and antiretroviral (ARV) treatment, delivery mode and obstetric management from clinical records. Pregnancies were divided in 3 groups based on the year of delivery: 2009-2013 (before VD was considered an option), 2014-2018 (early adoption period of VD) and 2019-today (late period).
Results: Seventy-nine pregnancies were observed in 63 WLWH, described in table 1. Most women were non-Italian (63.5%) and sexual intercourse was the most common risk factor for HIV acquisition (85.7%). In 20 women (31.8%), HIV infection was diagnosed during prenatal screening.
As shown in Table 2, 49 out of 79 pregnancies (64.6%) occurred in women already treated with ARV at conception; the proportion of these women significantly increased across time (chi-square for trend <0.001), consistently with the adoption of universal ARV initiation.
Between 2009 and 2013, during pregnancy, protease inhibitors were the most commonly prescribed drug in combination with nucleoside reverse transcriptase inhibitors (90%), while in the subsequent period there was an increased use of non-nucleoside and integrase inhibitors; 19 pregnancies (24%) required a later change in the ARV regimen (mainly raltegravir add-on for blips).
Most women (74/79) obtained HIV-RNA<50 cp/ml at delivery. Time to first HIV-RNA<50 cp/ml reduced from a median of 144 days before 2013 to 0 days after 2018; the median proportion of time spent in pregnancy with HIV-RNA<50 cp/ml increased from 44% (2009-2013) to 71.5% (2014-2018) to 100% (2019-2023) (Kruskal-Wallis P<0.001).
Before 2013, all women underwent CS, as recommended by national guidelines (GL) at that time. Since 2014, 30 women had a VD (50.9%), 19 (32.2%) had a CS due to obstetric indications, and only 8 (13.6%) had a CS related to HIV infection. After 2018, no women underwent CS because of HIV, but the proportion of CS remained high (42%). None of the infants acquired HIV.
Most women were still on active follow up (FU) 1 year post-delivery (84.8%); differences in viral undetectability are explained by changes in GL indications to use of ARV.
Conclusions: Our study shows the changes regarding pregnant WLWH management. It is reassuring that most women reached delivery with undetectable viral load and maintained regular FU. Changes in ARV GL were associated with earlier viral suppression throughout pregnancy. VD was promptly implemented following GL changes, but the rate of CS remained higher than that of the general population, suggesting the need of further investigation to better understand the underlying reasons.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_461.png

Novel insights in the management of chronic viral hepatitis

SC 1 EXPERIENCE FROM A SINGLE CENTRE ON HBV SEROCONVERSION IN PEOPLE LIVING WITH HIV AND HBV: THE RELEVANCE OF INDIVIDUAL CLINICAL HISTORY

M. Simion, A. Soffritti, A. Tili, M. Menozzi, G. Cuomo, M. Digaetano, C. Mussini

Operative Unit of Infectious Diseases, University of Modena and Reggio Emilia, Modena, Italy

Background: The worldwide prevalence of chronic HBV hepatitis (HBV) in people living with HIV (PLWH) is 10-15%. HBV-HIV co-infected individuals are at increased risk for liver fibrosis and cirrhosis, leading to higher mortality. Tenofovir-containing cART represents the standard of care in this population. The aim of the study was to describe HBV seroconversion in HBV-HIV subjects attending Modena HIV Clinic.

Material and methods: PLWH were screened for HBV infection at first access at the Clinic and regularly in presence of risk factors. Subjects with HBV co-infection were included. Clinical and laboratoristic data were collected retrospectively from electronic charts. Minimum follow-up time considered was 6 months. HBV seroconversion was defined as anti-HBsAb development in presence of seroclearance defined as HBsAg loss). Antiviral therapy (tenofovir disoproxil fumarate [TDF], tenofovir alafenamide [TAF], lamivudine [3TC]) was recorded at seroconversion and as cumulative exposure. Subjects were compared according to the outcome (HBV seroconversion) with univariable analysis (Mann-Whitney U test and Chi-square test as appropriate) and with logistic regression to evaluate the associated factors.

Results: 160 HBV-HIV individuals included (Tab 1): 77% male, 32% were intravenous drug users, with median HIV duration of 16 (Interquartile range [IQR], 9-25) years. Of those, 29(18%) presented HBsAg loss and 17(10.6%) had HBV seroconversion during follow-up, with a median time from HBV diagnosis of 11(IQR 8-17) years. HBV seroconversion incident rate was 0.23 per 10,000 Patient-Year Follow-Up (PYFU). Positive HDV and HCV Ab were found in 0% and 71% of seroconverter, while in 8.4% and
30% of non seroconverter, respectively (p=0.001). No difference in prevalence of elevated ALT (p=0.868) and cirrhosis was found between groups (p=0.987), but seroconverters underwent more frequently liver transplantation (p=0.010) and presented lower prevalence of AIDS diagnosis than those without seroconversion (p=0.017).Subjects with HBV seroconversion had lower cumulative exposure to TAF and were more frequently on TDF-based regimen at time of seroconversion. At logistic regression (Tab 2), only a negative association with seroconversion was found for history of AIDS diagnosis (OR 0.11, 95%CI 0.02-0.93, p 0.043).

Conclusion: In our cohort, a tenth of HBV-HIV individuals had HBV seroconversion, a prevalence similar to that described in literature. History of AIDS diagnosis was confirmed to be linked to bad outcomes, being negatively correlated to HBV seroconversion. Any correlation with specific antivirals was found, although cumulative exposure could be overestimated considering difficulties in the historical seroconversion time extrapolation. Future data from TAF exposure may be useful to highlight its effect on HBV seroconversion.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_432.png

Novel insights in the management of chronic viral hepatitis

SC 2 SAFETY AND EFFECTIVENESS OF SWITCHING PWH WITH OCCULT HBV INFECTION TO TENOFOVIR-SPARING REGIMENS

V. Malagnino[1], A. Giacomelli[2], R. Rossotti[3], A. Tavelli[4], A. Calcagno[5], A. Santoro[6], G. Calleri[5], A. Vergori[7], A. Cervo[8], V. Svicher[9], M. Puoti[3], A. d'Arminio Monforte[4], L. Sarmati[1], A. Cozzi-Lepri[10], on behalf of Icona Foundation Study Group

[1]Clinical Infectious Diseases, Department of System Medicine, Tor Vergata University, Rome, Italy, [2]III Infectious Diseases Unit, ASST FBF-Sacco, Milan, Italy, [3]Department of Infectious Diseases, ASST Grande Ospedale Metropolitano Niguarda, School of Medicine and Surgery, Milan, Italy, [4]ICONA Foundation, Milan, Italy, [5]Unit of Infectious Diseases, Department of Medical Sciences, University of Turin, Amedeo di Savoia Hospital, Turin, Italy, [6]Clinica di Malattie Infettive, ASST Santi Paolo e Carlo-Presidio Ospedaliero San Paolo, Milano, Italy, [7]Clinical Infectious Diseases Department, National Institute for Infectious Diseases Lazzaro Spallanzani IRCCS, Rome, Italy, [8]Unit of Infectious Diseases and Infection Control, ISMETT-IRCCS Istituto Mediterraneo per i Trapianti e Terapie ad Alta Specializzazione, Palermo, Italy; University Hospital of Modena, Infectious Diseases Clinic, Modena, Italy, [9]Department of Biology, Tor Vergata University, Rome, Italy, [10]Centre for Clinical Research, Epidemiology, Modelling and Evaluation (CREME), Institute for Global Health, University College London, London, United Kingdom

Background: There is increasing concern about the occurrence of breakthrough/relapse of hepatitis B (HBV) and transaminase flare among anti-HBV core-positive (HBcAb) people living with HIV (PWH) who discontinue anti-HBV-containing antiretroviral drugs.

Materials and Methods: PWH antigen S of HBV (HBsAg) negative and HBcAb-positive, irrespectively of HBsAb serostatus, on a stable (>18 months) TXF-containing regimen with HIV-RNA ≤50 copies/mL by January 2017 and free from liver events and transaminases elevation at screening were included. A per-protocol emulation trial approach by 'cloning and weighting' was used to compare PWH continuing 3 drugs, TXF- containing regimens (3DR, control arm) with PWH who switched to TXF-sparing but XTC-containing regimens (trial 1) or switched to NRTI-sparing dual regimens (trial 2), intervention arms. Primary endpoint was the 1-year risk of ALT≥2 ULN (42 M; 30F); secondary endpoint was the 5 risk of occurrence of FIB-4 increase >3.25. Unadjusted and weighted Kaplan-Meier (KM) estimates were calculated. The following factors were used in the model for the censoring weights: age, sex, body mass index (BMI), alcohol use, diabetes, dyslipidemia and HCVAb/HBsAb serostatus.

Results: In trial 1 (natural course), 217 PWH were included in the switch arm, 816 maintained TXF-containing regimens. The intervention arm was enriched with MSM, participants of Italian nationality, higher frequency of alcohol use and lower prevalence of diabetes. In the unadjusted natural course analysis, the 1-year risk of ALT≥2ULN was higher in PWH switching to the TXF-sparing regimen (11 pts [5.5%] vs. in those remaining on a TXF-containing arm 14 [1.9%], p=0.005) but weighted KM estimates were reversed with 0.60% in intervention vs. 2.51% in control (difference -1.91 [CI95% -3.01, -1.11], Table). In the weighted model, there was no evidence for a difference in the 5-year risk of FIB-4 increase >3.25 (2.6% higher in intervention 95% CI:-6.5;+8.6%). Trial 2 included 79 PWH who were switched to NRTI-sparing regimens vs. 756 remaining on a 3DR TXF-containing therapies.. Participants in the intervention arm were slightly older, MSM, more likely of Italian nationality and with higher CD4 count. In the unadjusted analysis, there was no evidence for a difference in the 1-year risk of ALT elevation ≥2 ULN (2 participants [2.5%] in the NRTI-sparing switched arm vs. 14 participants [1.9%] in the 3DR-based arm, p=0.91). In the weighted model, the risk of occurrence of ALT elevation >=2ULN was 0.68% in the switch arm and 2.14% in 3DR (difference -1.46 [CI 95%: -2.43, -0.70]), Table.

Conclusions: Under our model assumptions, PWH/HBcAb-positive who maintained a 3DR containing TXF, showed a higher risk of short-term ALT elevation possibly correlated with the greater drug burden. In contrast, for the 5-year risk of liver fibrosis results were inconclusive; we found a higher risk in those who were switched to TXF-sparing regimens vs. those who were kept on active anti-HBV drugs, although with large uncertainty around the estimate.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_235.jpg

Novel insights in the management of chronic viral hepatitis

SC 3 OCCULT HBV INFECTION AND ARCHIVED RESISTANCE TO 3TC COULD PREDICT VIROLOGICAL FAILURE DURING 3TC/DTG MAINTENANCE ANTIRETROVIRAL THERAPY: A RETROSPECTIVE STUDY

S. Occhineri[1], A. Palomba[1], T. Matucci[1], M.L. Vatteroni[2], L. Del Bono[1], M. Polidori[1], R. Iapoce[1], A. Borghetti[1], M. Falcone[1]

[1]U.O. Malattie Infettive, Azienda Ospedaliera Universitaria Pisana, Pisa, Italy, [2]U.O. Virologia, Azienda Ospedaliera Universitaria Pisana, Pisa, Italy

Background: Randomized and cohort studies from clinical practice have established the efficacy and tolerability of lamivudine/dolutegravir (3TC/DTG) in most people living with HIV (PLWH) with suppressed viral load. However, observations from clinical practice suggest a higher risk of virological failure (VF) in the setting of archived resistance-associated mutations (RAMs) to 3TC or occult HBV infection. We explored predictors of VF in a cohort of PLWH.

Material and methods: A retrospective, monocentric cohort study from a 3rd level hospital in Pisa, Italy, was performed. Adult (18 years-old) individuals switching to 3TC/DTG after reaching virological suppression (HIV-RNA<50 cp/mL), with negative HBsAg serostatus, were followed-up from the initiation of 3TC/DTG (baseline, BL) up to treatment discontinuation for any cause (TD) and up to discontinuation for VF (as defined by two consecutive HIV-RNA>50 cp/mL, a single HIV-RNA>200 cp/mL, or a single HIV-RNA between 50 and 200 cp/mL followed by TD and regimen intensification). For the second outcome, participants were censored at last available viral load measurement or TD. Probability of TD and VF over time were evaluated by Kaplan-Meier estimator. Predictors of VF were specifically analyzed by multivariable Cox regression analysis (including all factors associated with the outcome at univariable analysis at a p-value<0.05). Mutation scores based on Stanford algorithm were used to detect archived 3TC resistance.

Results: Overall, 177 PLWH were eligible for study analysis: 137 (77.4%) were men, with 54 years median age. Thirty of them experienced at least one AIDS event in their life; the median nadir CD4+ T-cell count and zenith viral load were 276 cells/μL and 118,577 copies/ml, respectively. Most PLWH (123, 69.5%) switched from an integrase inhibitor-based 3 drug-regimen; the reason for switching to 3TC/DTG was proactive optimization for virtually all people (176, 98.7%). Table 1 summarizes population characteristics.

Over 5145 patient-years follow-up (PYFU), 16 PLWH experienced TD (0.31 per 100 PYFU), whereas over 5082 PYFU, 8 PLWH experienced VF (0.16 per 100 PYFU). Probabilities of TD were 1.3%, 4.6%, 8.2%, 13.6%, 34.5% after 1, 2, 3, 4 and 5 years, respectively. Reasons for TD were: VF (6/16, 37.5%), switch to long-acting therapy (2/16, 12.5%), toxicity (5/16, 31.3%), other/unknown cause (3/16, 18.7%). Probabilities of VF were 0.7%, 2.9%, 6.3%, 6.3%, 11.0% after 1, 2, 3, 4 and 5 years, respectively. After adjusting for gender, both anti-HBcAg positive serostatus (versus negative, aHR 10.09, 95% CI 1.02-99.69; p=0.048) and Stanford algorithm-based mutation score for 3TC (every 10 points more, aHR 1.42, 95% CI 1.00-2.03; p=0.054) predicted VF.

Conclusions: 3TC/DTG confirmed good efficacy and tolerability for the large majority of virologically-suppressed PLWH. However, RAMs to 3TC, as well as occult HBV infection, could play a role in increasing the risk of VF.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_466.png

Novel insights in the management of chronic viral hepatitis

SC 4 RISK OF HEPATITIS B REACTIVATION IN PEOPLE WITH HIV (PWH) WITH ISOLATED ANTI-CORE ANTIBODY (HBCAB) AFTER SWITCH TO 2DR STRATEGIES WITH LAMIVUDINE(3TC)/DOLUTEGRAVIR(DTG)

P.F. Salvo[1], V. Iannone[1], R.A. Passerotto[1], F. Lamanna[1], E. Visconti[2], F. Lombardi[2], C. Torti[1,2], S. Di Giambenedetto[1,2], G. Baldin[2]

[1]Dipartimento di Scienze Mediche e Chirurgiche, Università Cattolica del Sacro Cuore, Rome, Italy, [2]UOC Malattie Infettive, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy

Background: Isolated HBV anti-core antibodies (HBcAb) positivity is not an absolute contraindication for using two-drug regimen (2DR) antiretroviral therapy, even if the absence of nucleos(t)ide reverse transcriptase inhibitors (NRTIs) with long-term activity against HBV may increase the risk of HBV reactivation in people with HIV (PWH). Recent studies showed that HBcAb positivity is also associated with an increased risk of suboptimal HIV suppression after switching to 3TC/DTG 2DR.
The aim of this study was to investigate HBV reactivation in PWH with isolated HBcAb positivity and to assess virological efficacy of 3TC/DTG in this population
Methods: This was a retrospective observational study enrolling virologically suppressed PWH switching to 2DR containing 3TC and DTG. Criteria for eligibility: patient informed consent to data collection, being at least 18 years-old, being on viral suppression (HIV-RNA<50 copies/mL) at time of switch (baseline, BL) and being HBsAg negative.
We collected data on clinical history and viroimmunological status at BL and after 48 weeks (W48). GOT and GPT levels were evaluated at BL and at W48. We performed survival analysis to evaluate time to virological failure (VF, defined as a single HIV-RNA determination ≥ 1000 cp/mL or two consecutive determinations ≥ 50 cp/mL), assessing predictors via Cox regression analysis. Data were collected as part of routine clinical management.
Results: A total of 643 PWH were included, 40 of them had isolated positivity for HBcAb. Baseline characteristics of the entire population and of HBcAb+/HBsAb- PWH are summarized in Table1.
The majority of the population (266, 41.4%) switched to 3TC/DTG from a three drugs regimen (3DR) INSTI-based. Previous ARV regimens and reasons for switch are summarized in Table 2. Notably, 305 participants (47.4%) switched to 3TC/DTG from an ARV regimen containing tenofovir (TXF), 20 of them being part of the HBcAb+/HBsAb- group.
At W48, no significant modifications of GOT or GPT were observed in the HBcAb+/HBsAb- group, with a median value of GOT at 48 weeks of 22 (IQR 16 – 31) and of GPT of 13 (IQR 8 – 33.75). We also observed a median GOT reduction after 48 weeks of -1.78 (IQR – 37.71 – 2.28) and a median GPT reduction of -1.38 (IQR -5.65 – 0.79), but it was not clinically or statistically significant. No evidence of HBV viral rebound was observed during 48 weeks of follow-up. We observed 3 VF (1 VF in the HBcAb+/HBsAb- group). Estimated probabilities of maintaining virological suppression at 48W were 93.75% (SD±0.89) for the entire population and 89.51% (SD±2.58) for the HBcAb+/HBsAb- group (Log Rank =0.89). No significant predictors of VF were found.
Conclusion: Our data confirm the high efficacy and safety of a 2DR with 3TC/DTG as a switch strategy even in the HBcAb+/HBsAb- population. Reactivation of HBV was not evident in this cohort, probably as a result of small risk and maintenance of 3TC in the simplification regimen.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_423.png

Novel insights in the management of chronic viral hepatitis

SC 5 HDV PERSISTENCE IS SUSTAINED BY HBSAG MAINLY DERIVED FROM INTEGRATED HBV-DNA AND IS INDEPENDENT FROM THE EXTENT OF HBV RESERVOIR

S. D'Anna[1], L. Piermatteo[1], G. Brancaccio[2], E. Teti[3], A. Di Lorenzo[3], I. Grossi[1], G. Torre[1], V. Malagnino[3], M. Iannetta[3], F. Ceccherini-Silberstein[4], C. Pasquazzi[5], U. Cillo[6], A. Vitale[6], E. Gringeri[6], M. Magrofuoco[6], M. Pacenti[7], L. Baiocchi[8], S. Francioso[8], I. Lenci[8], A. Koffas[9], A.M. Geretti[10], M.L. Abate[11], A. Olivero[11], G.B. Gaeta[12], L. Sarmati[3], M. Rizzetto[11], U. Gill[9], P. Kennedy[9], G.P. Caviglia[11], V. Svicher[1], R. Salpini[1]

[1]Department of Biology, Tor Vergata University, Rome, Italy, [2]Department of Molecular Medicine, Infectious Diseases, University of Padua, Padua, Italy, [3]Infectious Diseases Unit, University Hospital of Rome Tor Vergata, Rome, Italy, [4]Department of Experimental Medicine, University of Rome Tor Vergata, Rome, Italy, [5]Sant'Andrea Hospital, Rome, Italy, [6]Hepatobiliary Surgery and Liver Transplantation Unit, Department of Surgery, Oncology and Gastroenterology, University of Padova, Padua, Italy, [7]Microbiology and Virology Unit, Padova University Hospital, Padua, Italy, [8]Hepatology Unit, Policlinico Tor Vergata, Rome, Italy, [9]Blizard Institute, Barts and The London School of Medicine and Dentistry, Queen Mary University of London, London, United Kingdom, [10]Department of Systems Medicine, Infectious Disease Clinic, University of Rome Tor Vergata, Rome, Italy, [11]Department of Medical Sciences, University of Turin, Turin, Italy, [12]Infectious Disease Unit, University L. Vanvitelli, Naples, Italy

Background: HDV exploits HBV surface glycoproteins (HBsAg) for viral morphogenesis and infectivity. Here, we investigate HBV and HDV activities and their interplay in liver biopsies from patients (pts) with chronic HDV infection (CHD) and HBV monoinfection (CHB).

Methods: 68 HBeAg-negative pts (75% NUC treated) are included: 32 with CHD and 36 with CHB. Intrahepatic levels of cccDNA, pgRNA and HDV-RNA were assessed by droplet digital PCR (ddPCR). ddPCR assays were set-up to quantify total HBs transcripts and to distinguish those deriving from cccDNA and from integrated HBV-DNA (Grudda, 2022).

Results: Pts with CHD and CHB are comparable in terms of age and NUC-treatment duration (median [IQR] age and NUC duration: 49 [39-59] and 42 [34-60] years; 6 [4-12] and 6 [4-7] years). As expected, CHD has lower serum HBV-DNA than CHB (median [IQR]: 20 [12-50] vs 3,981 [251-79,432] IU/ml, P<0.0001). CHD is characterized by higher ALT levels and advanced fibrosis status (median [IQR] ALT: 68 [45-89] vs 28 [21-49] U/l, P=0.001; Fibrosis score>F5 in 53.3% vs 19.4%, P=0.005). Median (IQR) serum HDV-RNA is 6.0 (3.8-6.7) logIU/ml, positively correlated with intrahepatic HDV-RNA (Rho=0.62, P=0.006; 784 [1-4,266] copies/1000cells). CHD presents a more restricted HBV reservoir in terms of cccDNA and pgRNA (median [IQR]: 1 (0.02-16) vs 10 (2-18) copies/1000cells, P=0.02 and 10 [1-173] vs 72 [38-380] copies/1000cells, P=0.08, respectively). Nevertheless, both CHD and CHB are characterized by a substantial production of HBs transcripts (median [IQR]: 6,267 [345-31,387] and 8,081 [314-15,189]), with >99% of them deriving from integrated HBV-DNA. By stratifying CHD pts according to cccDNA size, lower levels of HBV intrahepatic markers are observed in those with a restricted HBV reservoir (median [IQR] pgRNA and cccDNA-derived transcripts: 1.4 [0.4-78] vs 108 [5-411], P=0.01 and 0.3 [0.2-1.5] vs 48 [9.6-186] copies/1000cells, P=0.002 in cccDNA<1 vs cccDNA>1 copy/1000cells). Conversely, no differences are observed for intrahepatic HDV-RNA levels (median [IQR]: 782 [1-5,559] vs 844 [1-6,371] copies/1000cells, P=0.6). Even more, among the 32 CHD pts, 7 showed undetectable cccDNA, cccDNA-derived HBs transcripts and serum HBV-DNA. Nevertheless, these patients are characterized by a considerable amount of intrahepatic and serum HDV-RNA (median [IQR]: 1,659 [660-12,261] copies/1000cells and 6.0 [5.9-7.3] log IU/ml, respectively), as well as by the presence of HBs transcripts derived from integrated HBV-DNA (median [IQR]: 3 [2-690] copies/1000 cells), supporting that HDV persistence can be sustained by HBsAg derived from integrated HBV-DNA.

Conclusions: Pathways sustaining HDV persistence act independently from the extent of intrahepatic HBV reservoir and are fueled by an intense production of HBs transcripts, mainly derived from integrated HBV-DNA. In this light, pharmacological strategies should take into account HBsAg production from integrated HBV-DNA for achieving HDV cure.

Novel insights in the management of chronic viral hepatitis

SC 6 HETEROGENEITY IN THE DIAGNOSTIC SENSITIVITIES OF HDV RNA QUANTIFICATION ASSAYS USED IN CLINICAL PRACTICE IN ITALY: DATA FROM THE FIRST NATIONAL QUALITY CONTROL MULTICENTER STUDY

R. Salpini[1], L. Piermatteo[1], G.P. Caviglia[2], A. Bertoli[3,4], M.R. Brunetto[5], B. Bruzzone[6], A. Callegaro[7], C. Caudai[8], D. Cavallone[5], L. Chessa[9], F. Coghe[10], N. Coppola[11], N. Cuomo[12], S. D'Anna[1], M. Di Stefano[13], F. Facchetti[14], C. Farina[15], D. Ferraro[16], E. Franchin[17], D. Francisci[18], S. Galli[19], A. R. Garbuglia[20], W. Gennari[21], V. Ghisetti[22], P. Lampertico[14,23], N. Marascio[24], S. Menzo[25], V. Micheli[26], G. Niro[27], A. Olivero[2], P. Paba[4], C.I. Palermo[28], O. Palmieri[27], S. Paolucci[29], M. Pisaturo[11], T. Pollicino[30], G. Raffa[30], G. Torre[1], O. Turriziani[31], S. Uzzau[32], M. Vatteroni[33], M. Zazzi[34], A. Craxì[16], F. Ceccherini-Silberstein[3], Valentina Svicher[1] on behalf of the Virology Italian Network Vironet C

[1]Department of Biology, University of Rome "Tor Vergata", Rome, Italy, [2]Department of Medical Sciences, University of Turin, Turin, Italy, [3]Department of Experimental Medicine, University of Rome "Tor Vergata", Rome, Italy, [4]Unit of Virology, Tor Vergata Polyclinic Foundation, Tor Vergata University, Rome, Italy, [5]Dept of Clinical and Experimental Medicine, University of Pisa and Hepatology Unit and Laboratory of Molecular Genetics and Pathology of Hepatitis Viruses, Pisa University Hospital, Italy, [6]Department of Health Sciences, University of Genoa, Genoa, Italy, [7]Medicina di Laboratorio, ASST Bergamo Est, Bergamo, Italy, [8]Microbiology and Virology Unit, Siena University Hospital, Siena, Italy, [9]Dipartimento di Scienze Mediche e Sanità Pubblica Università di Cagliari, AOU Cagliari, Italy, [10]Microbiologia, Azienda Ospedaliero-Universitaria di Cagliari, Italy, [11]Department of Mental Health and Public Medicine, Section of Infectious Diseases, University of Campania Luigi Vanvitelli, Caserta, Italy, [12]Microbiology and Virology Unit, Domenico Cotugno Hospital, Naples, Italy, [13]Clinical and Surgical Sciences, Section of Infectious Diseases, University Hospital "Riuniti" of Foggia, Foggia, Italy, [14]Division of Gastroenterology and Hepatology, Foundation IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy, [15]Microbiology and Virology Unit, ASST "Papa Giovanni XXIII", Bergamo, Italy, [16]Section of Microbiology and Clinical Microbiology, Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties, PROMISE, University of Palermo, Palermo, Italy, [17]Department of Molecular Medicine, University of Padova, Padova, Italy, [18]Infectious diseases laboratory, Santa Maria della Misericordia Hospital, Perugia, Italy, [19]Operative Unit of Clinical Microbiology, IRCCS S. Orsola-Malpighi University Hospital, Bologna, Italy, [20]Laboratory of Virology, "Lazzaro Spallanzani" National Institute for Infectious Diseases, IRCCS, Rome, Italy, [21]Molecular Microbiology and Virology Unit, Department of Laboratory Medicine and Pathological Anatomy, Azienda Ospedaliero Universitaria di Modena, Modena, Italy, [22]Laboratory of Microbiology and Virology, Amedeo di Savoia Hospital, ASL Città di Torino , Turin, Italy, [23]CRC "A. M. and A. Migliavacca" Center for Liver Disease, Department of Pathophysiology and Transplantation, University of Milan, Milan, Italy, [24]Unit of Clinical Microbiology, Department of Health Sciences, "Magna Græcia" University, Catanzaro, Italy, [25]Department of Biomedical Sciences and Public Health, Università Politecnica Delle Marche, Ancona, Italy, [26]Laboratory of Clinical Microbiology, Virology and Bioemergencies, Ospedale Sacco, Milan, Italy, [27]Division of Gastroenterology and Endoscopy, Fondazione IRCCS "Casa Sollievo della Sofferenza", San Giovanni Rotondo, Italy, [28]Policlinico Universitario "Gaspare Rodolico", Catania, Italy, [29]Microbiology and Virology Unit, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy, [30]Department of Clinical and Experimental Medicine, University Hospital "G. Martino" Messina, Messina, Italy, [31]Department of Molecular Medicine, Sapienza University of Rome, Rome, Italy, [32]Department of Biomedical Sciences, University of Sassari, Sassari, Italy, [33]Virology Unit, Pisa University Hospital, Pisa, Italy, [34]Department of Medical Biotechnology, University of Siena, Siena, Italy

Background: A reliable quantification of serum hepatitis D virus (HDV) RNA is of paramount importance for a proper monitoring of patients under antiviral therapy. This quality control study aimed at comparing the diagnostic performances of quantitative HDV-RNA assays, used in clinical practice.

Methods: Two HDV-RNA sample panels were quantified at 30 Italian labs by 6 commercial assays: RoboGene (RG, N=9 labs), Eurobio on EliTech platform (ET, N=7), Altona (AL, N=5), Anatolia (AN, N=3), DiaPro (DP, N=2), Nuclear Laser Medicine (NL, N=1) and 3 in-house assays (IH). Panel-A comprised 8 serial dilutions of WHO HDV gen-1 standard from 5 to 0.5logIU/ml. Panel-B included 20 clinical samples with HDV-RNA from 6 to 0.5logIU/ml. Participating labs quantified each dilution of Panel-A and -B 9 and 5 times, respectively (3 independent runs). Panel-A was used to define assay sensitivity by 95%LOD (limit of detection) and Panel-B to assess assay precision by the intra- and inter-run coefficient of variation (CV). Diagnostic accuracy was defined by calculating the differences between expected and observed values for each HDV load of both Panels while assay linearity was determined by linear regression analysis.

Results: In Panel-A, 95%LOD varied across the assays underlining heterogeneous sensitivities: AL had the lowest median 95%LOD (10[min-max:3-316]IU/ml), followed by RG (31[3-316] IU/ml), NL (31IU/ml) and ET (100[100-316] IU/ml). The other assays had a median 95%LOD ranging from 100 to 1000IU/ml. Moreover, 5 assays (RG, ET, AL, NL and HM) showed a <0.5logIU/ml difference between expected and observed HDV-RNA values for all dilutions. Conversely, for AN and DP, these differences exceeded 1logIU/ml, unveiling HDV-RNA underestimation for most HDV loads.

In Panel-B, ET and AL had a mean intra-run CV<20% for each tested load while RG and NL showed a slightly lower precision (mean CV<30%), similarly to AN, DP and IH assays, for which CV was even >50% at specific loads. Inter-run CV was higher for all assays with only AL, NL and ET maintaining mean inter-run CVs <25%.

Five assays (RG, AL, ET, NL, and IH) showed a good linearity (R2>0.9) between their LLOQ and 6.7 logIU/ml. Conversely, a linearity drop emerged for HDV-RNA<1000IU/ml, with only AL and RG retaining R2>0.85.

Lastly, in Panel-B, loads>100IU/ml were always detected in 100% of replicates by all assays except for DP and AN. Differently, false negative results in >25% of replicates were observed for ET at HDV-RNA<10IU/ml and for RG only at 3IU/ml. No false negative results were observed for AL and NL in the range between 100 and 3IU/ml.

Conclusions: This study underlines different degrees of sensitivities (inter- and intra-assays), that could hamper the proper detection/quantification of HDV-RNA particularly at low viral loads, thus raising the need to improve the diagnostic performance of most assays. These results have relevant implications for the proper identification of virological response to anti-HDV drugs.

Sexual health and love's labours

SC 7 A HIDDEN CHALLENGE: STIS DETECTION PREVALENCE DURING NPEP FOLLOW UP. A RETROSPECTIVE ANALYSIS

N.B. Bana[1,3], G. Cavazza[1,3], E. Di Gennaro[1,3], F. Peracchi[1,3], C. Baiguera[1], A. Raimondi[1], F. D'Amico[1], A. Nava[2], D. Fanti[2], M. Puoti[1,3], R. Rossotti[1]

[1]Department of Infectious Diseases, ASST Grande Ospedale Metropolitano Niguarda, Milan, Italy, [2]Department of Clinical Microbiology, ASST Grande Ospedale Metropolitano Niguarda, Milan, Italy, [3]School of Medicine and Surgery, University of Milano Bicocca, Milan, Italy

Background: Nonprofessional Post-Exposure Prophylaxis (nPEP) provides protection against HIV acquisition in case of risk exposure. Sexually Transmitted Infections (STIs) could be a threat for the single individual and could spread among community but also represent an additional factor that increase the likelihood to acquire HIV infection. Thus, nPEP course is a chance to screen for the other STIs. Aim of this study is to describe STIs prevalence in a cohort of individuals who started nPEP, assessing temporal trends and factors associated with diagnosis.
Material and methods: This retrospective monocentric observational study included individuals who started nPEP after a sexual risk exposure between January 2011and February 2024. The nPEP associated follow up programme includes full screening for STIs (serology for syphilis and viral hepatitis and NAAT for Chlamydia, Gonorrhoea, and Mycoplasms/Ureaplasms on pharyngeal, anal, cervical, and urine samples) at baseline and at the end of the course. Subjects who could not be screened were excluded, while those for whom nPEP was not confirmed after the first evaluation or that were lost to follow up were considered only for their baseline samples. Demographic, behavioural, and clinical data were registered. Descriptive statistic and nonparametric tests were used to describe study population. Cochran-Armitage analysis was performed to test STIs temporal trend, while adjusted Poisson regression analysis was performed to find factors associated with STIs diagnosis.
Results: The study included 541 subjects with STIs detected in 105 (19.4%) of them. Main features are summarised in Table 1. The most common were non-pathogenic Ureaplasms/Mycoplasms (31.5%), followed by Gonorrhoea (14.8%) and Chlamydia (12.4%) (Figure 1). 2 or more concurrent STIs were detected in 3 (2.9%) subjects. Cochran-Armitage analysis did not find significant variations in STIs detection over time (p=0.154, Figure 2). At adjusted Poisson regression analysis, being MSM (aIRR 1.78, 95%CI 1.06-3.01, p=0.03) and reported Chemsex practices (aIRR 1.79, 95%CI 1.00-3.19, p=0.049) were significantly associated with higher risk of STIs detection, while loss to follow-up was associated to a lower diagnosis (aIRR 0.33, 95%CI 0.16-0.66, p=0.002).
Conclusions: We found a very high prevalence of STIs in a population recently exposed to a significant risk of HIV acquisition. This result is even more striking considering that these infections were mostly asymptomatic. MSM and Chemsex users showed an increased risk to detect a STI while those who were lost to follow up had a lower burden of disease probably because they were tested only once. Our data suggest that nPEP represents also an important tool to catch STIs in asymptomatic individuals at significant risk of HIV exposure and that more common STI screening might be essential to contain the epidemic.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_359.jpg

Sexual health and love's labours

SC 8 **INCREASING GONORRHEA AND CHLAMYDIA INFECTIONS OBSERVED IN MSM IN THE EARLY 2024**

C. Stingone[1], F. Pimpinelli[2], R.J. Riveros Cabral[2], E.E. Abril[2], L. Gianserra[1], G. Prignano[2], E. Giuliani[1], M. Giuliani[1], M.G. Donà[1], M. Zaccarelli[1], A. Latini[1]

[1]UOSD Dermatologia MST e Malattie Tropicali San Gallicano Dermatological Institute IRCCS, Rome Italy, [2]UOSD Microbiologia e Virologia San Gallicano Dermatological Institute IRCCS, Rome, Italy

Background: The Sexually Transmitted Infections clinic of the San Gallicano Institute is one of the reference centers for STI in the urban area of Rome and central Italy: its daily activity is constantly monitored through routine data collection and surveys. We therefore analyzed the trend of new diagnoses of Gonorrhea and Chlamydia from routinely tests performed on MSM patients referred to our service in the first 2 months of 2024 and compared with the new diagnoses observed in the same period of 2023.

Methods: Routine screening for MSM includes serology tests for HIV, HCV, HBV and syphilis, pharyngeal, rectal and, according to medical evaluation, urethral swabs for both C.trachomatis and N.gonorrhoeae research, generally performed every 6 months. In case of positivity to C.trachomatis the laboratory proceeds with typing of the L1, L2 and L3 serovars. Every patient undergoes medical examination, blood tests, swabs collection, psychological evaluation, and if necessary immediate therapy.

Results: Overall, 154 patients underwent swab testing in Jan/Feb 2024 compared to 146 in 2023, among these, PLWH in 2024 were 31 (20.1%) and 27 (18.5%) in 2023. The median age was 41 years (range 19-65) in 2024 and 39 (17-71) in 2023 and was higher in PLWH (46, 23-71 vs. 38, 17-67).

The proportion of positive tests at any site observed was: 17/133 (12.8%) in 2024 vs. 11/124 (8.9%) in 2023 for Gonococcus culture (Figure1); 7/22 (31.8%) in 2024 vs. 16/45 (13.3%) in 2023 for Gonococcus PCR (Figure 2) and 20/112 (17.9%) vs. 16/128 (12.5%) for Chlamydia PCR (Figure 3). As reported in the Figures, the proportions of positive tests obtained in 2024 were always higher than those observed in 2023.

Positive results were more frequent in symptomatic patients: 64.1% vs. 1.4% in asymptomatic patients for Gonococcus culture, 57.9% vs. 4.2% for Gonococcus PCR, and 63.0 vs. 3.6% for Chlamydia PCR: the highest percentage of positive swabs in symptomatic patients was detected in urethral swabs (86.4%). Moreover, the proportions of positive swabs was higher in HIV-negative patients (22.0% vs. 11.8%) for gonococcal PCR, but it was similar for Gonococcus culture (10.8% in HIV-negative vs 11.1%) and Chlamydia PCR (14.5% vs. 16.7%). In 2024, molecular typing for Chlamydia serotypes causing lymphogranuloma venereum (LGV) was positive in 7/14 (50.0%) patients with rectal symptoms; no LGV serovars had been observed in 2023.

Conclusions: Our experience suggests an increase in Gonococcus and Chlamydia infections among MSM population in our area. The reasons may be related to less attention to prevention and the progressive overcoming of the fear of the risk of contracting HIV infection. The presence of symptoms is highly indicative of STI, while molecular typing of Chlamydia serovars suggests a re-emergence of lymphogranuloma venereum. Constant monitoring of patients with STIs provides critical information for the clinical practice and prevention.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_212.jpg

Sexual health and love's labours

SC 9 SEXUALLY TRANSMITTED INFECTIONS IN MEN-WHO-HAVE-SEX-WITH-MEN WITH HIV RESISTANT TO TENOFOVIR/EMTRICITABINE AND/OR CABOTEGRAVIR

T. Clemente[1,2], M. Bellomo[2], A.R. Raccagni[1,2], R. Lolatto[2], S. Diotallevi[2], R. Papaioannu Borjesson[1,2], C. Maci[1,2], M. Negri[1,2], G. Torkjazi[3], E. Messina[2], S. Bossolasco[2], A. Castagna[1,2], S. Nozza[1,2], V. Spagnuolo[2]

[1]Vita-Salute San Raffaele University, Milan, Italy, [2]Infectious Diseases, IRCCS San Raffaele Scientific Institute, Milan, Italy, [3]Facoltà di Medicina e Chirurgia, Università La Sapienza, Rome, Italy

Background: Sexually transmitted infections (STIs) are associated with an increased risk of HIV transmission, raising concerns for partners of people with HIV resistant to the drugs currently approved or under approval for pre-exposure prophylaxis (PrEP).
Our aim was to explore the incidence of STIs in men-who-have-sex-with-men with HIV (MSMWH) and resistance (R) to tenofovir/emtricitabine (TXF/FTC) and/or cabotegravir (CAB).
Methods: Retrospective, cohort study on MSMWH on antiretroviral treatment (ART) with ≥1 genotyping resistance test (GRT) including integrase. Follow-up accrued from the date of the first GRT [at or after ART initiation; baseline (BL)] to death/loss-to-follow-up/freezing date (February 28th, 2024). MSMWH who developed TXF/FTC- and/or CAB-R during the follow-up were excluded from the analysis.
TXF/FTC-R was defined as at least intermediate resistance to TXF or FTC, CAB-R as at least intermediate resistance to CAB.
The following STIs were included in the analysis: Neisseria gonorrhoeae, Chlamydia trachomatis, Mycoplasma/Ureaplasma spp. (only if symptomatic), early syphilis (primary, secondary, or early latent), and mpox infections.
Descriptions by median (interquartile range) or frequency (%).
Poisson regression modeled incidence rates (IR) and 95% confidence intervals (95%CI).
Results: Overall, 638 MSMWH [554 (86.8%) without TXF/FTC- or CAB-R, 71 (11.1%) with either TXF/FTC- or CAB-R, and 13 (2.0%) with TXF/FTC- and CAB-R] evaluated: baseline characteristics reported in Table 1.
During a median follow-up of 9.6 (7.3-11.7) years 307/638 (48.1%) individuals developed ≥1 STI (Figure 1). Specifically, 744 STIs were diagnosed during 5908 person-years of follow-up (PY) for an IR of 12.6 (95%CI=11.7 -13.5)/100 PY; 23/744 (3.1%) STIs occurred at viral load (VL) ≥200 copies/mL.
Notably, 60/744 (8.1%) STIs were diagnosed in 29/71 (40.8%) MSMWH with either TXF/FTC- or CAB-R [1/60 (1.7%) at VL ≥200 copies/mL], for an IR of 8.2 (95%CI=6.2-10.5)/100 PY, and 4/744 (0.5%) STIs in 3/13 (23.1%) MSMWH with TXF/FTC- and CAB-R [0/4 (0%) at VL ≥200 copies/mL], for an IR of 2.9 (95%CI=0.8-7.3)/100 PY.
Conclusions: In our cohort of MSMWH, STI incidence was high, even in presence of TXF/FTC- and/or CAB-R. Discussion of resistance test results in these individuals is important, even in light of potential HIV transmission uncontrolled by PrEP.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_271.jpg

Sexual health and love's labours

SC 10 APPLYING IANS CONSENSUS GUIDELINES FOR ANAL CANCER SCREENING TO MEN WHO HAVE SEX WITH MEN LIVING WITH HIV: A FOCUS ON THE HRA REFERRAL RATE

M.G. Donà[1], M. Benevolo[2], F. Rollo[2], E. Giuliani[1], M. Giuliani[1], P. Giorgi Rossi[3], C. Stingone[1], L. Gianserra[1], M. Zaccarelli[1], A. Latini[1]

[1]San Gallicano Dermatological Institute IRCCS, Rome, Italy, [2]IRCCS Regina Elena National Cancer Institute, Rome, Italy, [3]Epidemiology Unit, Azienda Unità Sanitaria Locale-IRCCS di Reggio Emilia, Reggio Emilia, Italy

Background: Recently, the International Anal Neoplasia Society (IANS) has developed consensus guidelines for anal cancer (AC) prevention. IANS identified MSM living with HIV (MSM-LWH) aged ≥35 years as a priority group for AC screening. Strategies with acceptable performance are: i) cytology as a standalone test or with triage by high-risk (hr)HPV test; ii) hrHPV test as a standalone test or with cytology triage; iii) co-testing with cytology and hrHPV test. Detection of HSIL, AC precursor, relies on high-resolution anoscopy (HRA) and HRA-guided biopsies. Given the limited HRA availability, the burden of HRA referrals needs to be considered in centers involved in the management of MSM-LWH. A retrospective study was conducted to estimate HRA referral rates of these screening strategies if applied to MSM-LWH attending the STI/HIV center of the San Gallicano Dermatological Institute (Rome, Italy).
Materials and methods: We retrieved anal cytology and HPV test results of MSM-LWH ≥35 ys who attended the center from May/09 to March/23. Those with a valid result for both cytology (liquid-based, interpreted following the Bethesda system, blinded to the HPV test result) and the Linear Array HPV Genotyping test were included. MSM were considered as hrHPV+ when positive for at least one of 16/18/31/33/35/39/45/51/52/56/58/59/66/68. HSIL/ASC-H were always considered for immediate HRA referral, regardless of the HPV test results, as per IANS guidelines. The cases indicated by the IANS as HRA at the provider's discretion were considered as "repeat screening", as this is acceptable by the IANS. As with this approach co-testing has the same referral rate of the triage strategies, co-testing was not evaluated.
Results: Of the 1,400 MSM attending the center during the study period, 244 MSM-LWH were included [median age: 45 ys (IQR: 40-51); median time since HIV diagnosis: 6.5 ys, (IQR: 2.8-12.9); median counts of nadir and baseline CD4+: 308 (IQR: 201- 400) and 610 cells/mm3 (IQR: 441-804), respectively]; 231 MSM (94.7%) were on cART, and 200 of them (86.6%) had undetectable HIV-RNA. We found 128 ASC-US+, with an HRA referral rate for cytology alone of 52.4%. Using HPV testing as a triage for ASCUS/LSIL, the MSM to be referred to HRA were 108 (96 hrHPV + ASCUS/LSIL and 14 HSIL/ASC-H) (44.3%). Moreover, 182/244 MSM were hrHPV+, leading to a referral rate of 74.6% for HPV testing alone. Sixty-six individuals (27.0%) tested HPV16+ (the only MSM referred to HRA in a setting with insufficient HRA capacity). Triaging hrHPV+ with cytology, HRA referral rate went down to 44.3%.
Conclusions: HPV testing alone led to the highest HRA referral rate due to the high prevalence of hrHPV anal infections in MSM-LWH. The impact of a high referral rate on the centers with limited HRA capacity should be considered if using an HPV-based screening. Triaging hrHPV+ MSM with cytology had the same immediate referral rate of cytology with HPV-triage. Nevertheless, this strategy cannot give the same reassurance of HPV-based strategies given their high negative predictive value.

Sexual health and love's labours

SC 11 INADEQUATE COMPLIANCE WITH STIS VACCINATIONS AMONG INDIVIDUALS ATTENDING A SEXUALLY TRANSMITTED INFECTION CLINIC

G. Cavazza[1,2], N.B. Bana[1,2], F. Peracchi[1,2], E.D. Gennaro[1,2], A. Mulè[3], L. Denti[4], C. Baiguera[1], M.C. Moioli[1], A. Raimondi[1], M. Merli[1], R. Rossotti[1], M. Puoti[1,2]

[1]Department of Infectious Diseases, ASST Grande Ospedale Metropolitano Niguarda, Milan, Italy, [2]Department of Health Science, University of Milano-Bicocca, Milan, Italy, [3]Department of Clinical and Experimental Sciences, Unit of Infectious and Tropical Diseases, University of Brescia and ASST Spedali Civili di Brescia, Brescia, Italy, [4]Unit of Infectious and Tropical Diseases, University of Sassari, Sassari, Italy

Background: Vaccines play a crucial role in reducing sexually transmitted infections (STIs), primarily targeting viral ones like HAV, HBV, and HPV. The vaccine against Neisseria meningitidis group B (4CMenB) also offer partial protection against gonorrhea. Plus, due to invasive meningococcal disease outbreaks in the men who have sex with men (MSM) community, the recommendation for 4CMenB and meningococcal groups A, C, W-135, Y conjugate vaccination has been reinforced. In Italy, STI vaccinations are provided for free through the National Health Service for eligible individuals. However, some eligible individuals fail to complete or significantly delay their vaccination, reducing its efficacy. This study aims to describe the rates of delay and lack of completion of vaccination courses for STIs, as well as to understand the factors contributing to incomplete or delayed vaccination among individuals attending our STI clinic.

Material and methods: A retrospective analysis was conducted on people living with HIV (PLWH), pre-exposure prophylaxis (PrEP) users and subjects receiving routine STI screening who started at least one among HAV, HBV, HPV, 4CMenB and meningococcal conjugate tetravalent immunization courses at our STI Clinic from January 2017 to February 2024. Data on demographic, clinical, and vaccination details were collected. Delayed administration was defined as inoculation later than 24 weeks (48 weeks for HAV) from the expected date, while incomplete vaccination was defined as failure to complete the full course within 24 weeks (48 weeks for HAV) from the previous injection. Descriptive statistic characterized the study population, and nonparametric tests assessed associations between subgroups. Poisson regressions analyzed factors influencing incomplete or delayed vaccination, adjusting for relevant variables.

Results: The study included 901 individuals, predominantly men (94.0%). HPV vaccination was most common (68.2%), followed by HAV (38.4%) (table 1). Completion rates varied significantly among vaccines, with non-completion highest for HBV (40.2%, p<0.001). Incomplete vaccination was associated with starting HAV (IRR 1.55, 95% CI 1.06-2.29, p=0.025) and HBV (IRR 1.50, 95%CI 1.01-2.24, p=0.045) courses, while being male was a protective factor (IRR 0.51, 95%CI 0.30-0.88 p=0.015). The majority (88.0%) completed vaccinations without delays. The number of prescribed vaccines (IRR 1.53%, 95%CI 1.01-2.32, p=0.046) and HPV vaccination (IRR 1.82, 95%CI 1.02-3.29, p=0.044) resulted associated to a deferred administration.

Conclusion: While most individuals completed vaccination schedules, higher non-completion rates were observed for HAV and HBV vaccines, potentially due to varying perceptions of vaccine importance. Efforts to improve STI vaccination coverage, particularly for HAV and HBV, are essential. Understanding perceptions and addressing barriers to vaccinations are crucial for enhancing public health interventions against STIs.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_42.jpg

Sexual health and love's labours

SC 12 DOXYCYCLINE POST-EXPOSURE PROPHYLAXIS (DOXYPEP) REAL-LIFE EFFECTIVENESS IN A COHORT OF MEN WHO HAVE SEX WITH MEN IN MILAN, ITALY

A.R. Raccagni[1], S. Diotallevi[2], R. Lolatto[2], E. Bruzzesi[1], G. Catalano[1], I. Mainardi[1], C. Maci[1], C. Candela[1], C. Muccini[1], A. Castagna[1,2], S. Nozza[1,2]

[1]Infectious Diseases Unit, Vita-Salute San Raffaele University, Milan, Italy, [2]Infectious Diseases Unit, IRCCS San Raffaele Scientific Institute, Milan, Italy

Background: Aims are to evaluate the uptake of doxycycline post-exposure prophylaxis (DoxyPEP) among men who have sex with men (MSM), its effectiveness against bacterial sexually transmitted infections (bSTIs) [syphilis (Tp), chlamydia (Ct) and gonorrhea (Ng)] and its use within this population.

Material and methods: Retrospective study on MSM in care for HIV or HIV pre-exposure prophylaxis (PrEP) at the Infectious Diseases Unit of San Raffaele Hospital, Milan, Italy, who received DoxyPEP counselling and prescription between August 2022 (first DoxyPEP prescription, baseline-BL) and March 2024 (freeze date). DoxyPEP counselling and prescription was offered to people with an STI history or who reported condomless sex with ≥1 partners. DoxyPEP with doxycycline 200mg within 72h from potential exposure was suggested for intense sexual activity (≥5 partners). All individuals with ≥1 follow-up visit after BL and ≥1 before BL were included. DoxyPEP uptake was self-reported during routine visits (users: ≥1 intake). 4CMenB vaccination status was assessed given the potential protection on Ng. Among DoxyPEP users, %-changes in incidence rate (IR; 95% confidence interval, 95%CI) of bSTIs (Tp, Ct, Ng) before and after DoxyPEP prescription were estimated with a pre-post intra-patient analysis based on a mixed-effect Poisson regression (with random slope). DoxyPEP use was quantified as days of therapy (DOT) per 1000-patient-days (1000-PD).

Results: Overall, 444 MSM (67 PLWH, 377 PrEP users) received DoxyPEP counselling and prescription; during follow-up 121 (27.5%) individuals reported DoxyPEP uptake. Median months of follow-up in DoxyPEP users were 14.3 (IQR=10.3-16.9) and 9.11 (7.04-11.6) before and after prescription, respectively. Users were more likely to have a previous STI (108, 89.3% vs 229, 70.9%; p<0.001) or a concurrent STI at BL (35, 28.9% vs 58, 18%; p<0.016) compared to non-users. 4CMenB was recorded among 29 (24%) users. Comparison of characteristics by DoxyPEP uptake is shown in Tables 1-2.

bSTIs among non-users were 540 (IR=0.08, 95%CI=0.07-0.09): Tp IR=0.01 (95%CI=0.01-0.01), Ct IR=0.03 (95% CI=0.03-0.03), Ng IR=0.04 (95%CI=0.03-0.04). Among users, 247 bSTIs (Tp 39, Ct 83, Ng 125) were detected before BL and 88 (Tp 14, Ct 19, Ng 55) after.

Regression models among users showed a significant reduction of -79% (IRR=0.21, 95%CI=0.16-0.27, p<0.001) in the IR of bSTIs after DoxyPEP prescription compared to before: Tp -78% (IRR=0.22, 95%CI=0.12-0.4, p<0.001), Ct -86% (IRR=0.14, 95%CI=0.08-0.23, p<0.001), Ng -74% (IRR=0.26, 95%CI=0.19-0.36, p<0.001), even among individuals not vaccinated with 4CMenB [Figure1]. The overall DOT per 1000-PD was 4.02 (median DOT=2.79) among users.

Conclusions: DoxyPEP uptake among MSM was relatively low but more frequent among those at higher STIs risk. A reduction in all expected bSTIs was observed among DoxyPEP users. With proper counselling, low-level DoxyPEP use retained prophylactic effectiveness.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_313.png

PrEParing for the future of prevention

SC 13 IMPACT OF PREP COST ON PROPHYLAXIS INITIATION IN AN ITALIAN CENTRE

S. Venturelli[1], L. Mezzadri[2], N. Bana[2], L. Comi[1], F. Borghi[1], A. Ouabou[1], D. Ripamonti[1]

[1]Infectious Diseases Unit, ASST Papa Giovanni XXIII, Bergamo, Italy, [2]School of Medicine and Surgery, University of Milano-Bicocca, Monza, Italy

Background: Cost of pre-exposure prophylaxis (PrEP) is known to be a potential barrier for eligible users. In Italy, PrEP was not reimbursed by the National Healthcare System until May 2023, even though its prescription was allowed at full cost for users since 2017. We investigated how PrEP cost may have influenced its initiation and uptake modality in our cohort.

Methods: Ongoing PrEP users, who initiated PrEP from June 2018 up to 1st February 2024 at our Bergamo clinic have been consecutively interviewed (in person or by email) about the impact of PrEP cost on its initiation and uptake modality. We divided the responders in two groups: the group who started PrEP in the full-cost price period ("not free") and the group who started prophylaxis in the free of charge period ("free"). We evaluated the association between the cost impact on PrEP initiation and age and level of education, using the Pearson correlation coefficient.

Results: Annual enrolments at Bergamo PrEP clinic gradually increased from 6 in 2018 to 21, 23, 44, 76 and 142 persons in 2019, 2020, 2021, 2022 and 2023, respectively. A total of 158 PrEP users completed the interview (out of 283 ongoing users), 98% were men and 2% transgender women. Among male users, 98% were MSM. Median age was 36 years (IQR 31-44). On interview date, 96 users (61%) were on "on-demand" regimen. Out of 143 users with available data on education level, 10% had middle school diploma, 45% high school diploma and 45% University degree.

Among the participants, 103 belonged to the "not free PrEP" group and 55 to the "free PrEP" group. A high percentage of users of both groups thought that past PrEP cost had represented a barrier for initiation (88% and 94%) as reported in Table1.

However, only 30% of the "not-free PrEP" users answered the cost had been a barrier for themselves (e.g. a few users started later than they had wished), while a higher percentage of "free PrEP" users (42%) stated they waited for free PrEP to initiate, despite risk exposure (Table 1).

In both groups, younger age correlated with cost impact (p value <0.001), while only in the "not free PrEP" group, lower level of education was associated with cost impact (p value <0.001).

When asked whether current free PrEP influenced uptake modality, 21 (30%) of the 69 users of the "not free PrEP" group who were on "on-demand" regimen declared they increased the use frequency or switched to daily regimen. Only 4 (14%) of the 28 "free PrEP" users who chose the daily regimen declared the decision was driven by the no-cost.

Conclusions: The past PrEP cost has represented a barrier to implementation by a large number of PrEP users. This was confirmed by the sharper increase in enrolments in 2023. Free PrEP did not significantly affect the modality of uptake, which remained mainly based on personal risk assessment. These findings confirm the importance of free access to overcome barriers to PrEP implementation from a Public Health perspective.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_251.jpg

PrEParing for the future of prevention

SC 14 **5 YEARS ACTIVITY OF THE BERGAMO FAST TRACK CITY NETWORK: FROM 2019 LOOKING TOWARD THE FUTURE**

I. Mercurio[1], M. Bonomi[1], P. Meli[2], D. Meli[2], F. Maggiolo[3], C. Pellegris[4], E. Zanetti[4], R. Carissoli[5], N. Butta[5]

[1]Croce Rossa Italiana - Comitato di Bergamo, Italy, [2]Cooperativa Don Giuseppe Monticelli, Italy, [3]Bergamo Fast-Track City, Italy, [4]Associazione Comunità Emmaus, Italy, [5]Arcigay Bergamo Cives, Italy

Background: Since 19 March 2019 Bergamo Fast Track City Initiative has been active in Bergamo and its province and in the first 5 years of activity has promoted awareness about the importance to take care of sexual health through information and tests for STIs.
The Network offers fast, anonymous and free tests for HIV, HCV and Syphilis in a physical place open once a week (Check Point), during events on the territory (Mobile Test) and in organizations on the territory that deal with specific key populations (homeless, sex workers, IDU, migrants…) (Widespread Test).
Material and methods: During testing activity, people answered to an anonymous questionnaire of the international network Cobatest, composed by general information about the individual and some risk behaviours regarding sexually transmitted infections. Through the analysis of the answers we delineated the characteristics of the clients referring to our services with the aim to represent what has been done in the past and what still need to be done to achieve the WHO's objectives 95-95-95.
Results: During testing activities, 7645 people were tested for HIV, HCV and Syphilis and from November 2021 5202 Cobatest questionnaires were collected (Table A). During the 81 Mobile Test services, 25 municipalities of the Province of Bergamo (composed of 244 municipalities) were reached.
80% of the people declared to do to the test to "check their health" and only 20% to control a risk behaviour. Analysing the possible risk, 46% of people said they hadn't used condoms during the last time they had sex, without difference between males and females (Table B), 60% of people said they had sex with people of different gender and 40% of males said they were MSM.
85 persons received a new diagnosis (1.11%), 24 for HIV (0.31%), 31 for HCV (0.44%) and 30 for Syphilis (0.43%). Since November 2021 when we start using the Cobatest questionnaire, for HIV 7 subjects declared that they were sex workers, 2 MSM, 2 migrants and 2 homeless.
Conclusions: The increase of the testing initiatives over the years allowed the population to raise the adhesion to testing facilities and to take care of their health and especially sexual health.
Our data seem to confirm that very often the people do not have a propensity to recognize in their behaviour a risk for their health even if, however, carrying out the test they make a kind of health control on themselves.
Data demonstrate the importance of promoting the test among the general population and young people with an educational and promotional purpose. At the same time, it is essential to reach specific key populations with the aim of promoting early diagnosis and bringing the undeclared to light.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_182.jpg

PrEParing for the future of prevention

SC 15 HOW THE PERCEPTION OF PREP HAS CHANGED IN THE PREP POINT PLUS (PPP) USER GROUP

S. Mattioli, S. Cecere, S. Maugeri

Plus – Persone LGBT+ Sieropositive – aps, Italy

Background: MSM people on PrEP often experience discrimination and judgment both from the general population and within the community. A sensitive issue that often affects perceptions of PrEP and can delay or undermine its use.

Materials and methods: The Bologna PrEP Point follows several dozen MSM in PrEP who fill out a questionnaire quarterly. The questionnaires are saved in a secure database from which we compared data pertaining to the years 2021 and 2023. The purpose of the research is to assess whether perceptions of PrEP have changed over time.

Results: The fear of being judged or considered HIV positive decreased from 35.28% in 2021 (133 responses out of “quite/very/very much”), to 30.52% in 2023 (170 responses), while the “little/not at all” values increased from 64.72% in 2021 to 69.48% in 2023.

The statement "I will benefiting from taking PrEP" in 2021 received 98.67% responses of positive sign (371 responses out of “quite/very/very”), in 2023 it increased to 98.56% (549 responses). Expectations about the effectiveness of PrEP remain stable with 100% responses of positive sign in both years.

About the question on the difficulty of being regular in taking PrEP on a daily basis, in 2021 93.66% answered a “little/not” at all (347 responses) rising to 91.2% in 2023 (508 responses).

Regarding the perception of the cost of PrEP, to the statement “I will continue/start taking PrEP only if free” in 2021 89.66% answered No, Yes 3.71%, Don't Know 6.63% (337, 14, 25 responses respectively), in 2023 78.28% answered No, Yes 8.98%, Don't Know 12.75%.

The cost of the drug in 2021 was considered excessive for 70.29% (265 responses) in 2023 it is 76.3% (425 responses).

In 2021, 75.82% (251 responses) felt that PrEP had changed their sexual habits, specifically 80% (265 Yes responses) felt that taking PrEP led them to use condoms less; in 2023, the perception of sexual behavior modification changes to 77.89% (398 Yes responses) and the decline in condom use to 77.5% (396 responses).

Conclusions: PrEP is slowly gaining acceptance in the MSM community as reflected by the decline in fear of being judged or believed to be HIV+. Perceptions of efficacy and of benefiting from PrEP are steadily very high. Recently AIFA has made PrEP medication free of charge, however, the data show us that cost was an element of discomfort for our sample who, however, were largely willing to continue treatment despite the cost being considered excessive. It is also interesting to note that the sample is aware that they wear condoms less often precisely because of PrEP. This is a point that should be explored further, but makes us think about the importance of sexual pleasure in the lives of MSM and how much the spread of PrEP could affect the reduction of new diagnoses in this key population.

PrEParing for the future of prevention

SC 16 FACTORS ASSOCIATED WITH PREP START AFTER NPEP CONCLUSION. A RETROSPECTIVE ANALYSIS

N.B. Bana[1,3], G. Cavazza[1,3], E. Di Gennaro[1,3], F. Peracchi[1,3], C. Baiguera[1], A. Raimondi[1], F. D'Amico[1], A. Nava[2], D. Fanti[2], M. Puoti[1,3], R. Rossotti[1]

[1]Department of Infectious Diseases, ASST Grande Ospedale Metropolitano Niguarda, Milan, Italy, [2]Department of Clinical Microbiology, ASST Grande Ospedale Metropolitano Niguarda, Milan, Italy, [3]School of Medicine and Surgery, University of Milano Bicocca, Milan, Italy

Background: Pre-Exposure Prophylaxis (PrEP) was introduced in Italy in 2018 after the availability of generic emtricitabine/tenofovir. According to the Italian guidelines, previous nonprofessional Post-Exposure Prophylaxis (nPEP) course is one of the criteria considered for PrEP eligibility. Aim of this study is to describe new PrEP prescriptions trend over time and to evaluate factors associated with PrEP start among a cohort of previous nPEP users.

Material and methods: This retrospective monocentric observational study evaluated the start of PrEP in individuals who had a previous nPEP course between January 2018 and February 2024. Demographic, clinical and behavioural data were collected. Descriptive statistic and nonparametric tests were used to describe study population. Cochran-Armitage analysis was performed to describe trend of new PrEP initiations over time, while adjusted binary regression analysis was performed to test factors influencing PrEP start after nPEP conclusion.

Results: A total of 412 individuals were included. Among them, 87 (21.1%) decided to start PrEP following nPEP conclusion. Their main features are listed in Table 1: the median age was 35 (IQR 29.8-41.0) years old, 72 (82.8%) subjects were born in Italy, most of them were male (96.7%), including 83 (95.4%) MSM, with only 3 (3.4%) women and no transgender woman (TGW) reported. New PrEP prescriptions trend was stable over time (p=0.696, Figure 1). At a multivariate binary regression analysis, being MSM (aOR 12.93, 95%CI 3.77-44.35, p<0.001), older age (per 10 years increase, aOR 1.40, 95%CI 1.05-1.85, p=0.021), previous HIV testing (aOR 10.92, 95%CI 1.42-83.94, p=0.022), reported Chemsex practices (aOR 3.51, 95%CI 1.51-8.12, p=0.003), and 2019 (aOR 2.88, 95%CI 1.07 -7.74, p=0.036), 2020 (aOR 4.10, 95%CI 1.36-12.36, p=0.012), 2021 (aOR 4.81, 95%CI 1.64-14.14, p=0.004) calendar years were significantly associated with higher probability of starting PrEP (Figure 2).

Conclusions: Our study found that only one fifth of those who needed nPEP after an exposure at risk of HIV acquisition decided to start PrEP. Being MSM was significantly associated to PrEP start, underlining the difficulty in reaching women and TGW. PrEP prescription rate decreased after 2021, but this could be due to the overwhelmed condition of our local clinic that was forced to reduce PrEP offer for resources constraint. These data suggest that PrEP services should be implemented to ease prophylaxis access even in those who already had a contact with the clinic for nPEP.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_345.jpg

PrEParing for the future of prevention

SC 17 INTEREST FOR LONG-ACTING PREP USE IN THE ITALIAN LGBTQIA+ COMMUNITY: A MULTICENTRIC SURVEY

M. Stizioli[1], A. Tavelli[2], F. Leserri[1], L. del Negro[1], P. Vinti[3], M. Barracchia[1], M. Falaguasta[4], V. Mazzotta[5]

[1]Plus Roma, Rome, Italy, [2]Fondazione Icona, Milan, Italy, [3]Milano Check Point ETS, Milan, Italy, [4]Anlaids Padova, Padua, Italy, [5]UOC Immunodeficienze virali, INMI Lazzaro Spallanzani IRCCS, Rome, Italy

Background: Oral PrEP is currently the only option available in Italy. Nevertheless, long-acting drugs have been approved by EMA and will be available in the future. Our aim is to explore the interest and acceptability of long-acting PrEP (LA PrEP) among key populations and characteristics possibly correlated with this interest.
Material and methods: The survey was designed by Plus Roma with the support of the collective PrEP in Italia, to investigate interest in LA PrEP among people already on PrEP or intending to start it. It was distributed through the network and social media channels of the two organizations, the website gay.it and the Grindr app. These channels were chosen to reach members of key populations within the LGBTQIA+ community. The survey was administered online through Google Forms. Both current and prospective PrEP users were included. Demographic characteristics of participants were described and compared among those interested in LA PrEP or not interested, by Chi-square test. A univariable and multivariable binary logistic regression model was used to analyse possible predictors of higher interest in LA PrEP among all participants and among those already on PrEP.
Results: 1419 individuals belonging to the LGBTQIA+ community completed the survey. Of the participants, 199 (14%) were under 25 years old, and 707 (50%) came from Northern Italy. 1372 (96.7%) were male (sex assigned at birth), 1297 (91.4%) identified as male (cis or trans). 756 (53.3%) reported having a university or higher degree. 378 (27%) were currently on PrEP. The demographics of respondents are reported in Table 1 and LA PrEP interest by PrEP users' characteristics in Table 2.
In the overall population, being already on PrEP (AOR 2.71, 95%CI 1.96-3.73, p<.001), knowing about U=U (AOR 1.43 95%CI 1.11-1.84, p=0.005) was associated with a significantly higher probability of being interested in LA PrEP; by contrast, not having a regular job decreased this probability (AOR 0.72 95%CI 0.52-0.98, p=0.039). Among current PrEP users, people struggling to find time to attend visits for PrEP had a lower probability of being interested in LA PrEP (QOR 0.55 95%CI 0.31-0.98, p=0.044).
Conclusions: LA PrEP is currently more desirable among people informed about HIV prevention. Increasing awareness of PrEP, especially among undocumented migrants and those reporting a state of social and employment insecurity, could be a tool to raise HIV prevention awareness and increase interest in innovative drugs. Furthermore, facilitating and simplifying access to PrEP is crucial to scale up its use among those who can benefit from it.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_154.jpg

PrEParing for the future of prevention

SC 18 **WHAT ABOUT A CHANGE? A SURVEY IN PREP USERS ABOUT INTEREST IN INJECTABLE LONG-ACTING AGENTS**

A. Bianchi[1,3], A. Tavelli[1], R. Rossotti[1,2], E. Caruso[1], D. Calzavara[1], P. Testoni[1,3], P. Vinti[1], A. De Bona[1,4], A. Soria[1,5], D. Moschese[1,6], D. Tesoro[1,4], C. Muccini[1,7], A. Cingolani[8], M. Cernuschi[1,3,7]

[1]Milano Check Point ETS, Milano, Italy, [2]ASST Grande Ospedale Metropolitano Niguarda, Milano, Italy, [3]ASA ODV, Milano, Italy, [4]ASST Santi Paolo e Carlo, Milano, Italy, [5]IRCCS San Gerardo dei Tintori, Monza, Italy, [6]ASST Fatebenefratelli Sacco, Milano, Italy, [7]IRCCS Ospedale San Raffaele, Milano, Italy, [8]IRCCS Fondazione Policlinico Universitario Gemelli - Università Cattolica del sacro Cuore, Roma, Italy

Background: The 2022 WHO guidelines stated that long-acting injectable cabotegravir (CAB-LA) might “be preferred by people who find it difficult to take tablets or do not want to do so”. CAB-LA could ease treatment burden and manage HIV prevention concerns more effortlessly. Aims of the study are: (i) to estimate the proportion of PrEP users interested in injectable long-acting PrEP (ILAP); (ii) to evaluate aspects of pill fatigue associated with increased interest in ILAP.

Methods: In Mar2024 a survey was sent by email to all Milano Checkpoint PrEP users. The survey was composed by a question about interest on ILAP and reasons for decline, and the PrEP Pill & Psychological Burden (PrEP-PPB) questionnaire. This tool was derived from the HIV Treatment & Diseases Burden (HIV-TDB). The PrEP-PPB was composed by 17 items divided in 4 domains: medications (4 questions), bother for medications (2), limitation of role and social activity (6), physical and mental exhaustion (5).

Descriptive statistics and non-parametric tests were used to depict study population. For each domain, a 0-100 standardization was applied to calculate the PrEP-PPB domains score for all respondents. Univariable/multivariable linear regression models were used to evaluate whether PrEP-PPB domains were associated interest in ILAP. To address potential collider bias, models were weighted according to the inverse of the probability of being sampled for responding the survey (IPW).

Results: The survey collected information from 419 respondents, mainly male (411, 98.1%), MSM (406, 96.9%), born in Italy (352, 84.0%), with a University degree (300, 71.6%). Median age was 42.5 (SD 10) years. The majority (314, 74.9%) stated to be interested in ILAP even though 223 admitted having no information about it (53.2%). Those who stated to be interested in ILAP were more commonly taking the daily schedule (51.9% vs 40.4%, p=0.041) (Tab 1) The main reasons for not being interested in ILAP were taking only event-driven PrEP (56.5%) and finding inconvenient to reach the clinical site for injections every 2 months (23.9%). PrEP-PPB scores were generally low (Tab 2) except for the item "feeling dependent to a pill to have sex". PrEP-PPB scored significantly different between interested and non-interested respondents in medications and bother for medication domains (Tab 3;Fig 1).

Multivariable regression model found that standardized score for medications (beta +14.48, 95%CI 7.54-21.42, p<0.001) and bother for medications (beta +9.25, 95%CI 1.08-17.43, p=0.027) domains were higher in users interested in ILAP.

Conclusions: The survey shows that, although little known, 75% of respondents are interested in ILAP. The desire for change seems to be related to logistical aspects, such as the fatigue related to taking the drug and its supply (as assessed in medication domain), as well as to psychological aspects, such as feeling dependent to a pill to have sex (as assessed in bother for medication domain).

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_394.png

HIV associated comorbidities: interplaying matters

SC 19 LIPIDS, WEIGHT GAIN AND BODY MASS INDEX IN ARV EXPERIENCED PLWH TREATED WITH DORAVIRINE-BASED TREATMENTS: A COMPARISON BETWEEN DUAL OR TRIPLE REGIMENS VS BICTEGRAVIR BASED TRIPLE REGIMEN

A. Masiello[1], V. Iodice[1], B. Menzaghi[2], L. Taramasso[3], R. Bellagamba[4], C. Molteni[5], G.F. Pellicanò[6], N. Squillace[7], E. Sarchi[8], F. Lagi[9], A. Cascio[10], M.A. Carleo[11], B.M. Celesia[12], E. Salomoni[13], S. Ferrara[14], E. Pontali[15], G.V. De Socio[16], G. Madeddu[17], M. Franzetti[18], S. Martini[19], K. Falasca[20], G. Orofino[21], O. Bargiacchi[22], D. Fiordelisi[23], G. Angioni[24], G. Cenderello[25], L. Calza[26], A. Di Biagio[27], P. Bonfanti[28], P. Maggi[1], for the CISAI Study Group

[1]Infectious Diseases Unit, AORN Sant'Anna e San Sebastiano, Caserta, Italy, [2]Unit of Infectious Diseases, ASST della Valle Olona – Busto Arsizio (VA), Italy, [3]Infectious Diseases Unit, Ospedale Policlinico San Martino - IRCCS per l'Oncologia, Genoa, Italy, [4]National Institute for Infectious Diseases Lazzaro Spallanzani Institute for Hospitalization and Care Scientific, Roma, Lazio, Italy, [5]Unit of Infectious Diseases, A. Manzoni Hospital, Lecco, Italy, [6]Unit of Infectious Diseases, Department of Human Pathology of the Adult and the Developmental Age 'G. Barresi', University of Messina, Messina, Italy, [7]Infectious Disease Unit, Fondazione IRCCS San Gerardo dei Tintori, Monza, Italy, [8]Infectious Diseases Unit, S.Antonio e Biagio e Cesare Arrigo Hospital, Alessandria, Italy, [9]AOU Infectious and Tropical Diseases, Careggi Hospital, Florence, Italy, [10]Unit of Infectious Diseases, Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties, University of Palermo, Palermo, Italy, [11]Infectious Diseases and Gender Medicine Unit, Cotugno Hospital, AO dei Colli, Naples, Italy, [12]Unit of Infectious Diseases, Garibaldi Hospital, Catania, Italy, [13]SOC 1 USLCENTRO Firenze, Unit of Infectious Diseases, Santa Maria Annunziata Hospital, Florence, Italy, [14]Unit of Infectious Diseases, Department of Clinical and Experimental Medicine, University of Foggia, Foggia, Italy, [15]Department of Infectious Diseases, Galliera Hospital, Genoa, Italy, [16]Unit of Infectious Diseases, Santa Maria Hospital, Perugia, Italy, [17]Unit of Infectious Diseases, Department of Medicine, Surgery and Pharmacy, University of Sassari, Italy, [18]UOC Malattie Infettive, ASST Ovest-Milanese, Ospedale Nuovo di Legnano, Legnano, Italy, [19]Infectious Disease Unit, University Hospital Luigi Vanvitelli, Naples, Italy, [20]Clinic of Infectious Diseases, Department of Medicine and Science of Aging, G. D'Annunzio University, Chieti-Pescara, Chieti, Italy, [21]Division I of Infectious and Tropical Diseases, ASL Città di Torino, Italy, [22]Unit of Infectious Diseases, Ospedale Maggiore della Carità, Novara, Italy, [23]Department of Biomedical Sciences and Human Oncology, Clinic of Infectious Diseases, University of Bari "Aldo Moro", Bari, Italy, [24]Infectious Diseases Unit, SS Trinità Hospital, Cagliari, Italy, [25]Infectious Diseases Department, Sanremo Hospital, Sanremo, Italy, [26]Department of Medical and Surgical Sciences, Clinics of Infectious Diseases, S. Orsola-Malpighi Hospital, "Alma Mater Studiorum" University of Bologna, Bologna, Italy, [27]Department of Health's Sciences, University of Genoa, Genoa, Italy, [28]University of Milano-Bicocca, Monza, Italy

Background: Doravirine (DOR) is a newly approved antiretroviral belonging to the class of non-nucleoside reverse transcriptase inhibitors (NNRTI), well tolerated and leading to an improved lipid profile in antiretroviral experienced people living with HIV (PLWH). We aimed to evaluate the lipid profile and body mass index (BMI) in experienced people with HIV starting therapy with two DOR-based regimens dolutegravir (DTG)/DOR or lamivudine (3TC) /tenofovir disoproxilfumarato (TDF)/DOR. Data were compared with those obtained from a third group treated with emtricitabine (FTC)/tenofovir alafenamide (TAF)/ bictegravir (BIC).

Methods: We analysed data from the SCOLTA (Surveillance Cohort Long-Term Toxicity Antiretrovirals) prospective database, including all experienced PLWH who started treatment with DTG/DOR, 3TC/TDF/DOR.

Since the BIC cohort was larger than the DOR cohort, to obtain a comparable sample, subjects on FTC/TAF/BIC were matched by sex, age (±1 year), dyslipidemia and statin use (at least one of these two criteria) with those on 3TC/TDF/DOR.

We collected demographical information, risk factors for HIV infection, viro-immunological data, and cause of treatment interruption.

Results: Among 392 PLWH, mean age was 50.8 (standard deviation, SD 11.4), and men represented 74% of the sample. At baseline (T0), persons treated with FTC/TAF/BIC showed more frequently unknown risk factor, detectable HIV-RNA, were more frequently shifted from INSTI-based regimens, had a lower body weight (while BMI was comparable among the three groups), a better lipid profile and lower CD4 cell count; diabetes was less frequent in persons treated with DOR in the triple regimen. Not unexpectedly, persons treated with triple regimens were more frequently HBsAg-positive (Table 1).

After 6 months (T1), compared to PLWH on 3TC/TDF/DOR, those on FTC/TAF/BIC showed significant increase in body weight, and a not statistically significant increased BMI. TC and LDL-c decreased in all groups, more markedly in 3TC/TDF/DOR, whereas the triglycerides decrease was similar in all regimens (Figure 1).

During the first year of observation, 20 (5.1%) PLWH interrupted the cohort drug, in similar proportions (3.1% DOR/DTG, 6.1% 3TC/TDF/DOR, 4.9% in FTC/TAF/BIC) and mainly because of adverse or clinical events (n=13), with 4 lost to follow-up and 3 simplifications (FTC/TAF/BIC).

Conclusions: The three groups were well tolerated in terms of lipid profile, body weight and BMI. Persons treated with DOR-based regimens showed a better lipid and body weight profile, especially those in triple regimens.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_27.jpg

HIV associated comorbidities: interplaying matters

SC 20 DYSLIPIDEMIA AND REAL-LIFE PRESCRIPTION OF STATINS AMONG PEOPLE LIVING WITH HIV ENROLLED IN ARCHI PREVALEAT COHORT

B.M. Celesia[1], S. Martini[2], E.D. Ricci[3], L. Galli[4], A. Masiello[5], C. Muccini[4], S. Zacà[6], S. Ferrara[7], G. Di Filippo[8], M.S. Paternò Raddusa[1], A. Tartaglia[9], R. Basile[10], D. Angiletta[6], A. Castagna[4], P. Maggi[2,5]

[1]Unit of Infectious Diseases, Department of Clinical and Experimental Medicine, ARNAS Garibaldi Hospital, University of Catania, Catania, Italy, [2]Department of Mental Health and Public Medicine, Section of Infectious Diseases, University of Campania, Luigi Vanvitelli, Naples, Italy, [3]Fondazione ASIA Onlus, Milan, Italy, [4]Clinic of Infectious Diseases, San Raffaele Scientific Institute, Vita-Salute San Raffaele University, Milan, Italy, [5]AORN Sant'Anna e San Sebastiano of Caserta, Caserta, Italy, [6]Department of Emergency and Organ Transplantation, University of Bari School of Medicine, Bari, Italy, [7]Department of Medical and Surgical Sciences, Section of Infectious Diseases, University of Studies of Foggia, Foggia, Italy, [8]Department of Medicine and Surgery, Section of Infectious Diseases, University Federico II of Naples, Napoli, Italy, [9]Azienda Ospedaliera di Foggia, Foggia, Italy, [10]Section of Infectious Diseases, Grande Ospedale Metropolitano, Bianchi Melacrino Morelli, Reggio Calabria, Italy

Background: Coronary heart disease is a growing concern among individuals treated with antiretroviral therapy (cART). To manage dyslipidemia remains crucial when we want to approach preventive cardio vascular diseases (CVD) strategies. In accord with EACS guidelines, "statins should be used by all those with established vascular disease and in persons who are not at LDL-c goals considering their level of CVD risk".
Archi Prevaleat is a multicenter, nationwide, prospective cohort study, including 8 Italian centres, aimed to evaluate the prevalence of carotid intima□media thickness (IMT) and plaques in people living with HIV (PLWH). Aim of the study was to evaluate the concordance between guidelines indications and real-life prescriptions of statins among PLWH enrolled in this cohort.
Methods: Cross sectional study: sex, age, BMI, clinical stage, use of statins and laboratory tests including fasting total, LDL and HDL cholesterol were recorded at the time of enrollement. The 10-year coronary heart disease (CHD) risk was evaluated with ACC-AHA score. Subjects with high CVD risk (score >10) should have an LDL-goal below 70 mg/dl.
Results: Data of 1457 PLWH were analyzed; 1170 (80.3%) were male, median age 52 (IQR 45.9-58) years, median time from HIV diagnosis 17.8 (IQR 6.5-22.3) years, 276 (18.9%) had a diagnosis of AIDS, 598 (41%) a previous diagnosis of dyslipidemia. Median BMI was 24.6 (IQR 22.5-27.1). 147 (9.6%) had BMI >30. Median total cholesterol (TC) was 187 (IQR160-214) mg/dl, 556 (38.1%) had a value of TC >200 mg/dl; median LDLc was 115 (IQR 95-142) mg/dl, 1069 (92%) had a value of LDLc >70 mg/dl, 412 (35.5%) >130 mg/dl.
Globally, 416 (31.5%) subjects were on treatment with statins: respectively, 68% of PLWH with a previous diagnosis of dyslipidemia, 24.6% with a BMI>30, 28% of PLWH with TC >200 mg/dl, 28% with LDLc >130 mg /dl e 30.4% with LDLc >70 mg/dl. Finally 11.5% of 376 with high CVD risk had LDLc <70 mg/ml. Only 42.3% of those with statin indication were on treatment.
Conclusion: Although coronary heart disease prevention is a growing concern, a low percentage of PLWH with indication to use statins were reported to be on treatment in this cross sectional analysis. More stringent criteria regarding LDLc level below 70 mg/dl are so far from full application. It is noteworthy that in real life setting many patients could prefere to avoid statins refusing or delaying the prescription to avoid the risk of potential side effects; at the meantime PLWH starting lipid lowering treatment could not continue the treatment due to non-renewal of prescriptions by general practioners. Finally a more stringent reconciliation between indications and real life prescriptions of statins is desirable in all our clinical setting.

HIV associated comorbidities: interplaying matters

SC 21 THE DANGEROUS LIAISONS: CORRELATION BETWEEN LIPID PROFILE, SUBCLINICAL ATHEROSCLEROSIS, HEPATIC STEATOSIS AND HEPATIC FIBROSIS IN PLWH

A. Masiello[1], S. Ferrara[2], A. Tartaglia[3], V. Iodice[1], F. Laguardia[4], A. Boccia[4], I. Capriglione[4], F. Simeone[1], A. Iodice[1], P. Maggi[1]

[1]Infectious Diseases Unit, AORN Sant'Anna e San Sebastiano, Caserta, Italy, [2]Unit of Infectious Diseases, Department of Clinical and Experimental Medicine, University of Foggia, Foggia, Italy, [3]ASL Foggia, Italy, [4]Infectious Disease Unit, University Hospital Luigi Vanvitelli, Naples, Italy

Introduction: Cardiovascular Diseases have emerged as a leading cause of morbidity and mortality in patients HIV positive (PLWH). Several studies have reported higher carotid Intima Media Thickness (c-IMT), a measure of subclinical atherosclerosis, in these patients and a correlation with hepatic steatosis (HS). Only few studies have evaluated the interaction between c-IMT and hepatic fibrosis (HF).

Patients and methods: We enrolled 128 patients, 33 females and 95 males. We divided the patients in 2 groups based on cIMT: A) (#85) with normal cIMT(<1.3 mm) and B)(#43) with pathologic cIMT (>1.3 mm). Patients were submitted to measurement of carotid intima-media thickness (cIMT) with high resolution B mode Doppler USG and evaluation of HF using a process based on vibration-controlled transient elastography (Fibroscan) and HS by an ultrasonic controlled attenuation parameter (CAP). The cut-off value for defining the presence of c-IMT is 1,3 mm, for significant HS is CAP > 260 dBm and for liver fibrosis is > 7 kPa. For each group we also considered CD4, CD4 nadir, CD4/CD8 ratio, years of HAART, type of ART, total, HDL and LDL cholesterol and triglycerides levels. For statistical analysis we used t-student and X-square tests.

Results: Results are shown in table 1. No significant differences emerged between the two groups regarding CD4 and HDL values. A significant difference emerged for nadir CD4, CD4/CD8 ratio, triglycerides, total cholesterol, HDL and LDL. Patients with c-IMT>1,3 have been associated with higher steatosis levels (p<0,004) and with tendentially higher fibrosis (although not statistically significant, p 0,09).

Conclusions: These data show a correlation between liver and endothelial damage in PLWH in ART: patients with cIMT>1.3 mm more often show liver steatosis. Moreover, it would seem that the antiretroviral regimen plays a decisive role in the development of comorbidities based on the alteration of lipid metabolism. However, these data suggest the importance and need for broader diagnostic evaluation in PLWHs.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_28.JPG

HIV associated comorbidities: interplaying matters

SC 22 A 48-WEEK RANDOMIZED CONTROLLED STUDY OF A HOME-BASED, APP-MONITORED PHYSICAL EXERCISE INTERVENTION FOR OLDER PEOPLE WITH SARCOPENIA (GROW YOUR MUSCLE - GYM STUDY): PRELIMINARY RESULTS ON MUSCLE FUNCTION AND BODY COMPOSITION AT WEEK-12

F. Marmondi[1,2], L. Galli[1], C. Inzaghi[3], C. Cerizza[2], G. Annicchiarico[1], A. Baglivi[1], L. Della Torre[1], R. Vercesi[1,2], A. Castagna[1,4], C. Sciorati[5], L. Zagato[6], G. Banfi[3,4], M. Bonato[3,7], P. Cinque[1,2]

[1]IRCCS San Raffaele Scientific Institute, Unit of Infectious Diseases, Milan, Italy, [2]IRCCS San Raffaele Scientific Institute, Unit of Neurovirology, Milan, Italy, [3]IRCCS Istituto Ortopedico Galeazzi, Milan Italy, [4]Vita-Salute San Raffaele University, Milan, Italy, [5]IRCCS San Raffaele Scientific Institute, Unit of Innate Immunity and Tissue Remodeling, Milan, Italy, [6]IRCCS San Raffaele Scientific Institute, Unit of Genomics of Renal Diseases and Hypertension Unit, Milan Italy, [7]Università degli Studi di Milano, Department of Biomedical Sciences for Health, Milan, Italy

Background: Sarcopenia is a pathophysiological process of aging, caused by reduction of muscle strength, mass and function and it is associated with an increased risk of falls, fractures, physical disability and death. To date no controlled studies have assessed the efficacy of physical activity for treatment of sarcopenia. We present here the preliminary results at baseline (BL) and after 12 weeks (W12) of the Grow Your Muscle (GYM) randomized-controlled study, consisting of a 48-week home-based, app-monitored body-weight resistance training program that aims to improve muscle function and mass in sedentary elderly persons with sarcopenia.
Materials and methods: The study is enrolling 98 persons with HIV (PWH) >50-year-old and 98 persons of general population (GPP) >60-year-old with sarcopenia, as defined by low appendicular skeletal muscle mass index (ASMMI) by bioimpedentiometry (BIA) and/or low muscle strength by handgrip. Participants are randomized 1:1, separately in PWH or GPP group, to: 1) Exercise group (EG), performing a home-based, app-monitored resistance-training program of 4 session/week consisting of 5-min warm-up, 20-min body-weight exercise, 5-min cool-down with increasing number of repetitions and sets every 6 weeks; 2) Control group (CG), without exercise prescription. At BL, W12 and W48, participants are tested for muscle function (handgrip, chair-stand-test, right and left maximal isometric strength of knee extensors, Mini-BESTest, and 6-minutes walking test), body composition (fat mass, fat free mass and ASMMI) by BIA, blood lipids, and self-perceived health status assessment (SF-12). Results are presented as median and 25th-75th interquartile (IQR) range; changes between BL and W12 have been assessed by Wilcoxon matched pairs signed rank test.
Results: A total of 156/196 participants have so far been enrolled: 91/98 PWH (45 randomized to EG and 46 to CG) and 66/98 GPP (32 to EG and 34 to CG). Sixty-six PWH and 32 GPP have completed W12, and overall, 24 participants have dropped-out (16 PWH (17%) and 8 GPP (12%); 11 EG and 13 CG]. Among 91 PWH [49 males (74%), median age 62 (IQR 57-66)], significant improvements were observed in EG, but not in CG for measures of muscle function and body mass distribution, whereas the 6-minutes walking test performance improved in both EG and CG. Among the 66 GPP [17 males (26%), median age 73 (IQR 68-76); 16 EG and 16 CG], a significant improvement was observed only in muscle function tests in EG, but not in CG, and in left maximal strength of knee extensors in both EG and CG. No statistically significant changes were observed in the other analyzed variables. Table 1 shows the results of functional tests and body composition in PWH and GPP.
Conclusions: This home-based, app-monitored body-weight resistance program significantly improved measures of muscle strength and body composition in sedentary PWH>50 years and GPP>60 years with sarcopenia after the first 12 weeks of training.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_96.png

HIV associated comorbidities: interplaying matters

SC 23 CHANGES IN BONE MINERAL DENSITY IN ANTIRETROVIRAL THERAPY-NAIVE PEOPLE LIVING WITH HIV-1 AGED OVER 50 YEARS AND STARTING BICTEGRAVIR/EMTRICITABINE/TENOFOVIR ALAFENAMIDE

L. Calza, M. Giglia, V. Colangeli, F. Baldasso, M. Cantini, I. Grassi, A. Poma, S. Cretella, P. Viale

Unit of Infectious Diseases1, IRCCS S.Orsola Hospital, University of Bologna, Bologna, Italy

Background: The safety and efficacy of the single-tablet regimen bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) in antiretroviral therapy-naive people living with HIV infection (PLWH) were established in two phase-3 randomized trials, showing minimal percent reductions in mean hip and spine bone mineral density (BMD) during a 5-year follow-up. However, data from real-life on BDM change in PLWH starting B/F/TAF are still lacking.

Methods: We performed a retrospective cohort study of PLWH aged >50 years, naive to antiretroviral therapy and who initated B/F/TAF in our HIV Clinic between 2020 and 2022. The percentage changes from baseline in hip and lumbar spine BMD were assessed at month 12. Virological efficacy, safety and changes in immunological and metabolic parameters after 12 months of treatment were also evaluated.

Results: Inclusion criteria were met by 44 patients with median age of 56.2 years (range, 50-64): 37 (84%) men and 42 (95%) Caucasian. At baseline, mean HIV RNA was 4.68 log10, mean CD4 T lymphocyte count was 317 cells/mm3, and 19 (43%) patients had CD4 T lymphocyte count <350 cells/mm3. One or more comorbidities were present in 27 subjects (61%) and the most common comorbidities were hypertension and dyslipidemia. Osteopenia or osteoporosis was diagnosed in 11 subjects (25%). The mean percent change from baseline was -0.41% for spine and -1.22% for hip at month 12 (p=0.178 and p=0.096, respectively), and the number of patients with osteopenia or osteoporosis did not change during the follow-up. HIV RNA <50 copies/mL was obtained in 42 patients (95.4%) after 12 months and reasons for treatment failure were virological failure in one case (without resistance mutations at genotype testing) and adverse events (gastrointestinal symptoms) in one case. Overall, adverse events were reported in 12 cases (27%), were all of grade 1-2, and no serious events were described. The most common adverse events were diarrhea and gastrointestinal symptoms (in 13% of cases), headache (9%), and sleep disturbances (6%). At month 12, the median increase in CD4 T lymphocyte count was +161 cells/mm3. No significant changes in median value of lipids and creatinine were reported, and the median weight change was +2.1 Kg (no patients showed a >5% increase in body weight).

Conclusion: In this real-life cohort of naive PLWH aged over 50 years, B/F/TAF as initial regimen produced a minimal and not significant decrease in hip and lumbar spine BMD during the first year, and was associated with high virological efficacy and good tolerability.

HIV associated comorbidities: interplaying matters

SC 24 EVOLUTION OF ANAL HPV INFECTION AND HPV-RELATED SQUAMOUS INTRAEPITHELIAL LESIONS IN A COHORT OF PLWH: IS THERE A BENEFIT OF HPV VACCINATION?

A. Bailoni[1,2], M. Sambo[1,2], A. D'Antiga[1], F. Panza[1,2], E. Morelli[1,2], M. Zanchi[1,2], G. Giuliano[1,2], F. Mariani[3], S. Lazzi[1,4], F. Montagnani[1,2], M. Tumbarello[1,2], M. Fabbiani[1,2]

[1]Department of Medical Biotechnologies, University of Siena, Siena, Italy, [2]Infectious and Tropical Diseases Unit, Siena University Hospital, Siena, Italy, [3]General Surgery and Surgical Oncology Unit, Siena University Hospital, Siena, Italy, [4]Pathological Anatomy Unit, Siena University Hospital, Siena, Italy

Background: Anal HPV infection is common in people living with HIV (PLWH) and can be associated with the occurrence of premalignant squamous intraepithelial lesions (SIL), which can progress to anal squamous cell carcinoma (SCC). The clinical benefit of HPV vaccination in PLWH already infected by HPV is not yet fully defined. Therefore, it is relevant to investigate the dynamics of anal HPV infection and of anal cytology over time, exploring the impact of HPV vaccination receipt in patients already infected by HPV.

Material and methods: Single-centre retrospective study, including PLWH who performed longitudinal screening for anal dysplasia and HPV infection at the Siena University Hospital. Cytological abnormalities were classified according to the standard criteria as: normal, atypical squamous cells of undetermined significance (ASCUS), Low-grade SIL (LSIL), High-grade SIL (HSIL). HPV testing for multiple high-risk (HR) and low-risk (LR) HPV genotypes was also performed. Clinical and laboratory variables were retrieved by chart review. Kaplan Meier curves were used to estimate incidence of new cytological abnormalities, HPV clearance and HPV new infections.

Results: Overall, 110 PLWH (85.5% males, 54.5% MSM, 84.5% with HIV-RNA <50 copies/mL, median CD4 643 cells/mmc) were included. At the first screening (baseline, BL), anal HPV infection was observed in 95 (86.4%) patients (LR-HPV n=26, 23.6%; HR-HPV n=69, 62.7%) while abnormal cytology was demonstrated in 43 (39.1%) subjects (ASCUS n=7, 6.4%; LSIL n=34, 30.9%; HSIL n=2, 1.8%). Only 10 (9.1%) patients had already received HPV vaccine before BL. A total of 80 (72.7%) PLWH repeated screening during follow-up. Of these, 28 (35%) received HPV vaccination during follow-up. Over a median follow up of 35 months (IQR 20-49), no one case of anal carcinoma was observed. The incidence of (i) any new cytological abnormality was 20 per 100 person-year of follow-up (PYFU), (ii) new HSIL was 1.6 per 100 PYFU, (iii) worsening cytological abnormalities was 2.3 per 100 PYFU, (iv) clearance of any HPV was 24.9 per 100 PYFU, (v) clearance of LR-HPV was 15.1 per 100 PYFU, (vi) clearance of HR-HPV was 13.3 per 100 PYFU, (vii) any new HPV infection was 38.2 per 100 PYFU, (viii) new LR-HPV infection was 9.6 per 100 PYFU, (ix) new HR-HPV infection was 28.6 per 100 PYFU. HPV vaccination after BL was not associated with any of the overmentioned (i-ix) outcomes, even if vaccinated PLWH showed a trend toward an increased probability of clearance of HPV genotypes included in the 9-valent vaccine formulation (at 48 months: 100% versus 60.8% in non-vaccinated, p=0.079).

Conclusions: A high prevalence of anal HPV infection and HPV-associated SIL was observed. This highlights the importance of continuous screening for anal HPV infection/anal dysplasia in PLWH and of strengthening vaccination policies.

Factors affecting treatment success: from pharmacology to drug resistance

SC 25 THE IMPACT OF PHARMACOGENETICS ON LONG-ACTING CABOTEGRAVIR AND RILPIVIRINE PLASMA EXPOSURES IN THE CLINICAL SETTING

J. Cusato[1], M. Ferrara[2], M. Antonucci[2], T. Razvan Goldan[1], S. Soloperto[1], G. Di Perri[3], A. D'Avolio[1], A. Calcagno[3], S. Bonora[3]

[1]Laboratory of Clinical Pharmacology and Pharmacogenetics, Department of Medical Sciences, University of Turin, Amedeo di Savoia Hospital, Turin, Italy, [2]Amedeo di Savoia Hospital, ASL Città di Torino, Turin, Italy, [3]Unit of Infectious Diseases, Department of Medical Sciences, University of Turin, Amedeo di Savoia Hospital, Turin, Italy

Background: Large inter-individual variability in the pharmacokinetics of rilpivirine (RPV) and cabotegravir (CABO) has been reported in the first weeks after starting long acting injectable drugs (LAI) treatment. In addition, low RPV and/or CABO plasma trough concentrations combined with other risk factors (i.e. resistance-associated mutations, BMI≥30 kg/m2) have been associated with increased risk of virologic failure. However, data on the potential role of pharmacogenetics in affecting LAI pharmacokinetics and, possibly, the clinical outcome are lacking. Here, we aimed at evaluating the impact of genetic polymorphisms in affecting LAI drug concentrations in PWH.

Material and Methods: RPV and CABO concentrations were evaluated (by LC-MS/MS), both in plasma and in peripheral blood mononuclear cells (PBMCs), before starting therapy (oral administration, baseline) and at 1, 3, 5, 7, 9 and 11 months (M) of therapy with LAI administration. The 4×PA-IC90 were considered as the efficacy cut-off values, set at 50 and 664 ng/mL for RPV and CABO, respectively. Regression analyses was performed in order to evaluate which factors are able to predict the efficacy-related values of 50 ng/mL for RPV and 664 ng/mL for CABO at 3 months of therapy.

Variants in genes encoding enzymes and transporters involved in drug metabolism and elimination (CYP2C19, CYP3A4, CYP3A5, UGT1A1, ABCB1, ABCG2) were analyzed through real-time PCR.

Results: 177 PWH were enrolled: 85.3% males with median age of 50.7 years (IQR 43.3; 59.1). Median plasma and PBMC antiretroviral drug levels at different timings are reported in table 1. Following associations were found: baseline plasma RPV and ABCB1 3435 CT/TT (p=0.039) and UGT1A1 023 TT (p=0.028), 1M CABO intracellular levels and ABCB1 1236 CT/TT (p=0.047), M3 ratio CABO and CYP2C19 AA (p=0.025) and UGT1A1 023 CT/TT (p=0.009), M3 RPV plasma and CYP3A4*22 (p=0.035), M5 ratio CABO and ABCG2 421 CA/AA (p=0.020), M5 plasma CABO and UGT1A1 023 TT (p=0.010), M9 plasma RPV and CYP3A4*22 (p=0.046), M11 plasma RPV and ABCB1 1236 CT/TT (p=0.042), M11 intracellular RPV and ABCG2 421 CA/AA (p=0.012) and finally, 11M CABO plasma concentrations and CYP2C19 GA/AA (p=0.006).

Regression analyses reported that age and CYP3A4*22 were predictors of the RPV efficacy cut-off value of 50 ng/mL (34.5% of patients were below this level), whereas gender, CYP2C19*2 AA and ABCG2 421 AA were predictors of the CABO cut-off value of 664 ng/mL (7.9% of patients were below this level) at 3 months of therapy.

Conclusions: This is the first study reporting a potential impact of genetic variants in affecting LAI concentrations and the risk of suboptimal drug expsoure. Further research is needed to elucidate the complex interactions between genetics, drug metabolism, and treatment outcomes, ultimately paving the way for personalized and precision medicine approaches in HIV care.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_355.jpg

Factors affecting treatment success: from pharmacology to drug resistance

SC 26 THE CASE OF DOLUTEGRAVIR PLUS DARUNAVIR ANTIRETROVIRAL REGIMENS: IS IT ALWAYS USEFUL TO DOUBLE THE DRUG DOSES?

D. Cattaneo[1], A.L. Ridolfo[1], A. Giacomelli[1], A. Castagna[2], S. Antinori[1], C. Gervasoni[1]

[1]Department of Infectious Diseases, ASST Fatebenefratelli Sacco University Hospital, Milan, Italy, [2]Department of Infectious Diseases, IRCSS San Raffaele Scientific Institute, Milan, Italy

Background: It has recently been shown that dolutegravir trough concentrations are differently affected by antiretroviral drug combinations [doi:10.1097/QAD.0000000000003843]. Here, we focused on dolutegravir plus darunavir-based combinations, with the aim to investigate the effect of the booster and/or the timing of administration on drug plasma trough concentrations.

Materials and methods: This retrospective, observational study included consecutive PWH receiving dolutegravir plus darunavir antiretroviral regimens for at least 3 months, with at least 1 assessment of dolutegravir plasma concentrations. We considered true trough drug concentrations (i.e. blood samples taken 12 or 24 h after the last drug intake) or trough concentrations back-estimated by pharmacokinetic modeling taking into account the time interval between the last dose intake and the blood sample and the drug terminal half-life. Samples without clear information on the timing of the last drug dose and/or blood draw were excluded from the study. PWH concomitantly treated with strong drug inducers (i.e. rifampicin, carbamazepine, NNRTIs) were not included.

Results: 200 TDMs of dolutegravir from 116 PWH were included in the statistical analyses. The main demographic and clinical characteristics of the PWH clustered according to the different antiretroviral regimens are shown in Table 1. Dolutegravir and darunavir trough concentrations ranged, respectively, from 70 to 3648 ng/mL (inter-individual variability 60%) and from 102 to 11876 ng/mL (inter-individual variability 72%). As shown in Table 2, the antiretroviral drug combination associated with the highest dolutegravir trough concentration was dolutegravir plus darunavir/cobicistat, both given once daily (1410±788 ng/mL), whereas dolutegravir once daily plus darunavir/ritonavir twice daily had the lowest trough concentrations (686±481 ng/mL). Doubling the dose of dolutegravir did not result in a significant increase of drug trough concentrations compared to once daily regimens. Among the once daily regimens, the highest darunavir trough concentrations were measured with ritonavir (2850 ±1456 ng/mL, $p<0.05$ versus cobicistat-based regimens). Doubling the drug dose resulted in a significant increase of darunavir trough concentrations (4445±2926 ng/mL, $p<0.05$).

Conclusions: Dolutegravir trough concentrations were significantly reduced in PWH receiving darunavir/ritonavir twice daily. This is likely related to the inductive effect of ritonavir (but not of cobicistat) on the enzymes (glucuronosyltransferase) and/or drug transporters involved in the regulation of dolutegravir disposition [doi:10.1093/jac/dkx055]. Doubling the dose of dolutegravir did not result in a significant increase in the drug trough concentrations. This evidence should be carefully considered in clinical conditions that require higher dolutegravir exposure, such as in presence of DDIs with medications known to reduce dolutegravir bioavailability or in highly experienced PWH.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_25.JPG

Factors affecting treatment success: from pharmacology to drug resistance

SC 27 COMPARATIVE ANALYSIS OF ISLATRAVIR AND TENOFOVIR IN VITRO ACTIVITY IN NRTI RESISTANT HIV-1 HARBORING THE M184V/I MUTATION

N. Bartolini[1], C. Paletti[1], F. Giammarino[1,2], F. Saladini[1], I. Vicenti[1], L. Fiaschi[1], C. Biba[1], I. Varasi[1], M. Fabbiani[1,3], R. Riccardi[4], R. Lolatto[5], V. Spagnuolo[5], A. Castagna[5,6], M. Zazzi[1]

[1]Department of Medical Biotechnologies, University of Siena, Siena, Italy, [2]Division of Infectious Diseases, Department of Medicine Huddinge, Karolinska Institutet, Stockholm, Sweden, [3]Infectious and Tropical Diseases Unit, Azienda Ospedaliero-Universitaria Senese, Siena, Italy, [4]Infectious Disease Unit, IRRCS, Policlinico Sant' Orsola, Department Medical Surgical Science, University of Bologna, Bologna, Italy, [5]Infectious Diseases, IRCCS San Raffaele Scientific Institute, Milan, Italy, [6]Vita-Salute San Raffaele University, Milan, Italy

Background: The HIV-1 RT M184V/I resistance mutation significantly reduces the activity of the NRTI lamivudine and emtricitabine and modestly decreases susceptibility to abacavir. By contrast, M184V slightly increases susceptibility to tenofovir. Previous in vitro studies have shown that M184V/I together with other NRTI resistance mutations negatively affects susceptibility to the first-in-class nucleoside RT translocation inhibitor islatravir (ISL). Since ISL is currently under clinical investigation for the treatment of multidrug resistant HIV-1, this study aimed to compare the in vitro susceptibility to ISL and tenofovir alafenamide (TAF) in NRTI resistant isolates harboring the M184V/I mutation.

Materials and Methods: Recombinant viruses expressing clinically derived PR-RT were generated from 23 samples collected from heavily treatment experienced (HTE) people living with HIV (PLWH) enrolled in the Italian PRESTIGIO Registry and harbouring virus with multiple NRTI mutations including M184V/I, except for one case with M184V only. All but three viruses included also NNRTI mutations. In vitro susceptibility to ISL and TAF was determined through a TZM-bl-based assay and fold-change (FC) values were calculated with respect to the IC50 value obtained with the wild-type NL4-3 strain. Genotypic and phenotypic susceptibility to TAF were compared using the HIVdb Stanford algorithm v9.5.1 and the Monogram phenotypic clinical FC cut-off values (lower/upper cut-off 1.4/4.0).

Results: Globally, the median FC values of ISL and TAF were 7.3 [IQR 3.9-13.7] and 2.7 [IQR 1.3-4.5], respectively ($p<0.0001$, Wilcoxon signed rank test). Although neither the number of TAMs nor that of NRTI mutations correlated with ISL FC, the mutational pattern M184I + 9 NRTI mutations was associated with the highest ISL FC (37.8), while the virus collected from the same PLWH at a different time point without K70Q showed a lower FC (5.4). Interestingly, the presence of the NNRTI mutation V106I was associated with the third largest ISL FC (22.6), confirming a possible cooperative effect between M184V and V106I in reducing susceptibility to ISL (Aulicino et al., J Antimicrob Chemother 2024). The presence of K65R was associated with two among the highest FC values for TAF (7.7 and 4.9). When excluding samples with K65R, TAF FC values positively correlated with the number of NRTI RAMs and TAMs ($p=0.012$ and $p=0.0004$, respectively, Spearman's rank test). Genotypic susceptibility to TAF was in fair agreement with phenotypic susceptibility, however there were both cases of over- and under-estimation of genotypic resistance.

Conclusions: Based on crude FC values, HTE PLWH harbouring the M184V/I virus may benefit more from TAF than ISL, however the association between ISL FC and in vivo effectiveness remains to be defined. Since TAF and ISL are both likely to be the candidate NRTI in HTE PLWH, phenotypic testing may contribute to define their role in the context of complex mutational patterns.

Factors affecting treatment success: from pharmacology to drug resistance

SC 28 EVALUATION OF HIV-1 DRUG RESISTANCE IN NEWLY DIAGNOSED INDIVIDUALS IN ITALY ACCORDING TO SUBTYPE OVER THE PERIOD 2017-2023

A.C. Ka'e[1,2], F. Bassani[3,4], O. El Khalili[1], A. Bezenchek[5], F. Carli[6], A. Pupo[7], E. Gentilini Cacciola[7], L. Pezzati[3], L. Duca[1], I. Vicenti[8], W. Gennari[9], F. Lombardi[10], A. Shallivari[5], F. Saladini[8], V. Micheli[11], A. Cozzi-Lepri[12], A. Lai[4], M.M. Santoro[1], S. Rusconi[3,4]

[1]Department of Experimental Medicine, University of Rome Tor Vergata, Rome, Italy, [2]Chantal Biya International Reference Centre for research on HIV/AIDS Prevention and Management (CIRCB), Yaounde, Cameroon, [3]Infectious Diseases Unit, Ospedale di Legnano, ASST Ovest Milanese, Legnano, Italy, [4]Department of Biomedical and Clinical Sciences (DIBIC), University of Milan, Milan, Italy, [5]InformaPRO SRL, EuResist Network GEIE, Rome, Italy, [6]Infectious Diseases and Hepatology Unit, Azienda Ospedaliera-Universitaria di Parma, Parma, Italy, [7]Infectious Diseases Unit, La Sapienza University, Rome, Italy, [8]Department of Medical Biotechnology, University of Siena, Siena, Italy, [9]Clinical Microbiology Unit, University Hospital of Modena, Modena, Italy, [10]Virology Lab, Cattolica University of Rome, Rome, Italy, [11]Clinical Microbiology, Virology and Bioemergencies Diagnosis, L. Sacco University Hospital, Milan, Italy, [12]Centre for Clinical Research, Epidemiology, Modelling and Evaluation (CREME), Institute for Global Health, University College London, London, UK

Background: HIV drug resistance (DR) in newly diagnosed individuals is still a critical aspect for the management of individuals living with HIV-1. Thus, its evaluation is crucial to optimize HIV care. An increase of HIV-1 non-B diagnoses has been observed in Italy from 2005. According to these considerations we aimed at evaluating the prevalence of DR from 2017 to 2023 according to subtype.

Materials and methods: 1,188 genotypic resistance tests (GRT) obtained from naive people with HIV (PWH) between 2017 and 2023 and collected in the ARCA database were analyzed. All the mutations (such as major, accessory, and other polymorphic) reported in the Stanford database algorithm (version 9.5.1) for the evaluation of the genotypic susceptibility score (GSS) have been considered for the analysis. Potential differences in the prevalence of DR were evaluated by Chi-squared test for trend. Maximum likelihood approach implemented in MEGA11 and IqTree programs was used to assign the subtype and define transmission clusters (TCs, containing at least 3 sequences).

Results: Most individuals were males (74.9%), with a median age of 40 (interquartile range IQR: 30-50) and Italian (Table 1). HIV-1 B subtypes accounted for 56.1% of the overall population (Table 1), and significantly decreased over time (58.2% in 2017-2019 vs 51.4% in 2020-2023; p=0.029). The most prevalent non-B subtypes were CRF02_AG (10.7%), F (6.7%), A (6.6%), C (3.5%). Phylogeny showed a presence of 95 TCs involving 740 PLWH (76.3% of analyzed strains); 23/95 (24.2%) were considered large TCs involving at least 10 individuals. A similar proportion of strains collected in the 2017-2019 and 2020-2023 were observed in TCs (76.4%, 528/691 and 76.0%, 212/279, respectively). DR to any drug class was 29.0% and showed a stable trend over time (Figure 1A). A similar trend was observed by considering HIV-1 B and non-B subtypes (Figure 1B & 1C). DR was mainly due to the presence of NNRTI mutations. A deeper analysis focused on major NNRTI-DR mutations (11.8%) showed a stable trend (p= 0.702) (Table 2). When we considered all mutations, we observed a stable trend during the 7 years for the other classes (INSTI-DR: 5.1%; NRTI-DR: 4.7%; PI-DR: 4.4%). The sub-analysis that considered just major mutations showed an overall prevalence of 15.8% (major INSTI-DR: 0.7%; major NRTI-DR: 4.6%; major PI-DR 1.7%) (Table 2).

Conclusions: The prevalence of DR in newly diagnosed individuals in Italy remains stable over the period 2017 -2023 overall and in PWH carrying B or non-B subtypes. DR was higher than that observed in recent studies, which generally included just surveillance mutations. Future analysis will need to focus on the DR prevalence in non-B subtypes, which are characterized by a solid increasing trend in recent years, and on TCs regardless of subtype.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_218.jpg

Factors affecting treatment success: from pharmacology to drug resistance

SC 29 RESISTANCE DETECTED IN PBMCS PREDICTS VIROLOGICAL REBOUND IN HIV-1 SUPPRESSED PEOPLE WITH HIV-1 SWITCHING TO MODERN ANTIRETROVIRAL REGIMENS

F. Lombardi[1], E. Gentilini Cacciola[2], F. Carli[3], F. Saladini[4], F. Bassani[5], I. Vicenti[4], W. Gennari[6], A. Pupo[2], L. Duca[7], A.C. Ka'e[8], C. Muscatiello[9], L. Pezzati[5], O. El Khalili[7], A. Shallvari[10], V. Micheli[11], A. Bezenchek[10], A. Cozzi-Lepri[12], S. Rusconi[5], M.M. Santoro[7]

[1]UOC Malattie Infettive, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy, [2]Department of Public Health and Infectious Diseases, "Sapienza" University of Rome, Rome, Italy, [3]UO Malattie Infettive ed Epatologia, Azienda Ospedaliero-Universitaria di Parma, Italy, [4]Department of Medical Biotechnologies, University of Siena, Siena, Italy, [5]S.C. Malattie Infettive, ASST Ovest Milanese, Legnano General Hospital and DIBIC, Università degli Studi di Milano, Italy, [6]Microbiology and Virology Unit, University Hospital, University of Modena and Reggio Emilia, Modena, Italy, [7]Department of Experimental Medicine, University of Rome, Tor Vergata, Rome, Italy, [8]Chantal Biya International Reference Centre for Research on HIV/AIDS Prevention and Management University of Yaoundé, Yaoundé, Cameroon, [9]Infectious Diseases Unit, Department of Medical and Surgical Sciences, University of Foggia, Foggia, Italy, [10]InformaPRO SRL, EuResist Network GEIE, Rome, Italy, [11]Laboratory of Clinical Microbiology, Virology and Bioemergencies, ASST Fatebenefratelli Sacco University hospital, Milan, Italy, [12]Institute for Global Health, Centre for Clinical Research, Epidemiology, Modelling and Evaluation, London, UK

Background: In people with HIV (PWH) under virological control, genotypic resistance testing (GRT) performed on peripheral blood mononuclear cells (PBMCs) may represent a valuable tool to define drug resistance profiles archived in proviral DNA.However, PBMC GRT is less sensitive than historical plasma virus GRT and its clinical significance is still debated. Here we investigate the impact of archived resistance on the virological rebound (VR) in suppressed PWH who undergo to a regimen switch.

Material and Methods: This retrospective study enrolled virologically suppressed PWH included in the ARCA database with one PBMC GRT performed close to the switch regimen date (baseline, BL) and with ≥1 plasma GRT pre-BL. Genotypic susceptibility score (GSS) from PBMC GRT (DNA-GSS) at BL and from previous cumulative plasma GRTs (cumRNA-GSS) was evaluated. Suboptimal activity of the therapy switch was defined as having a GSS of 2< vs. ≥2. Kaplan-Meier (KM) was used to assess probability of VR (i.e., two consecutive plasma HIV-1 RNA >50 cps/mL, or one >1000 cps/mL, or one >200 cps/mL followed by a therapy change) according to DNA-GSS and/or cumRNA-GSS. Cox-regression was used to assess the predictive role on VR of GSS and other potential factors.

Results: A total of 300 PWH were analyzed. Their characteristics and resistance at BL are reported in Table 1 and Fig. 1, respectively. A score ≥2 was found in 77%, 71.3% and 70% of participants when DNA-GSS, cumRNA-GSS and the combination of both GSS (DNA/cumRNA-GSS) were respectively considered (Table 2). By KM, at 12 months after therapy switch, the overall probability of experiencing VR was 14.4% (Fig. 2A). PWH showing DNA-GSS <2 had a slightly higher probability of experiencing VR than those with DNA-GSS ≥ 2 (20.2% vs 13%, p=0.079). After adjusting for age, sex, ethnicity, HIV-1 subtype, years of ART, baseline CD4 count and time under virological suppression before therapy switch, Cox regression confirmed that PWH with DNA-GSS <2 showed a higher adjusted hazard of experiencing VR (aHR 2.05, 95%CI, 1.03-4.05, p=0.040). Shorter time under suppression pre-switch was also associated with VR (per 1 month increase, aHR 0.86 95%CI, 0.78-0.95, p=0.004). cumRNA-GSS and the combination DNA-GSS/cumRNA-GSS did not impact on the probability of VR (Fig. 2B&C). However, Cox multivariable model showed that PWH with a score <2 in both DNA-GSS and cumRNA-GSS showed a higher adjusted hazard of VR (aHR 1.91, 95%CI, 0.93-3.91, p=0.076); a shorter time under suppression was confirmed to be a negative predictive factor of VR also in this analysis (per 1 month increase, aHR 0.85 95%CI, 0.77-0.95, p=0.003).

Conclusions: Our findings support the role of resistance detected in PBMCs in predicting virological rebound after therapy switch in virologically suppressed PWH. PBMC GRT can be a useful tool for tailoring treatment switch, especially if paired with information about previous cumulative resistance and previous virological history.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_322.jpg

Factors affecting treatment success: from pharmacology to drug resistance

SC 30 ULTRA-DEEP SEQUENCING OF NEAR FULL-LENGTH HIV-1 GENOMES FOR DETECTING NATURAL RESISTANCE TO LENACAPAVIR AND FOSTEMSAVIR

E. Lazzari[1], G. Rozera[1], R. Gagliardini[2], V. Mazzotta[2], L. Fabeni[1], F. Forbici[1], G. Berno[1], E. Girardi[3], A. Antinori[2], F. Maggi[1], I. Abbate[1]

[1]Laboratory of Virology, National Institute for Infectious Diseases Lazzaro Spallanzani – IRCCS, Rome, Italy, [2]Clinical Department, National Institute for Infectious Diseases Lazzaro Spallanzani – IRCCS, Rome, Italy, [3]Scientific Direction, National Institute for Infectious Diseases Lazzaro Spallanzani – IRCCS, Rome, Italy

Background: New anti-HIV drugs are coming into use, but little is known about natural resistance to these new compounds, especially as minority variants of the viral quasispecies. The study aimed to detect the presence of amino acid variants related to lenacapavir (LEN) and fostemsavir (FTR) genotypic resistance in the viral quasispecies of antiretroviral naïve primary HIV infections sustained by different HIV-1 subtypes and circulating recombinant forms (CRFs).

Methods: HIV-1 RNA, from the plasma of 9 naïve to treatment primary HIV infections (Fiebig II n=3, IV n=4, V n=1 and VI n=1), was detected at a median load of 7.2 log copies/ml (IQR: 5.8-7.5). Five subjects harbored HIV subtype B, the remaining ones were infected with subtype F1, CRF02_AG, CRF03_AB, and CRF20_BG. Retro-transcription was carried out with pan-subtype oligonucleotides. Next-generation sequencing of the near-full-length HIV genome was performed on the Illumina platform by fragmentation and sequencing of two long amplicons of 5.5 kilobases (kb) and 3.7 kb generated using pan-subtype primers. Genome reconstruction was obtained with a resequencing strategy using an ad hoc workflow built on the CLC workbench software (Qiagen). HIV variants in the capsid p24 protein (CA) and gp120 coding regions were examined, using the HXB2 amino acid sequence as a reference.

Results: Near full-length genomes were obtained from nucleotide 781 to 9,174, with a median coverage of 3,524 (IQR: 930-6,520) (Figure 1): for gag and env regions, the median coverage was 1,710 (IQR: 750-6,063) and 1,768 (IQR: 871-5,270), respectively. All reconstructed CA encoding regions did not reveal amino acid (aa) mutations in positions known to be related to the emergence of LEN genotypic resistance (i.e., L56, N57, M66, Q67, K70, N74, A105, and T107). Regarding gp120 encoding regions, among the aa positions known to be involved in FTR genotypic resistance in treated subjects (i.e., S375, M426, M434, and M475), we found the M426R variant at a 100% frequency in two HIV subtype B genomes. Such a variant is known as polymorphism, different from the M426L variant, which is associated with high-level drug resistance. Broadening the search to other aa positions associated with low in vitro susceptibility to FTR, we found, in one of the two subjects showing the M426R, the A204T variant at a frequency of 100%.

Conclusions: Ultra-deep sequencing revealed that, even at the quasispecies level, there exists a strong conservation of the CA aa sequence among different HIV subtypes and CRFs, probably due to the key functional role exerted by this protein. Although the binding region for FTR overlaps the domain involved in CD4 recognition, aa conservation in gp120 was slightly lower. The knowledge of aa motives, which are more prone to mutate in nature, could help in the timely recognition of emerging drug resistance during new drug therapy administration. Clinical data in drug-exposed populations should confirm this model information.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_63.jpg

COVID-19 Unmasked: role of immunity and early treatment

SC 31 SARS-COV-2 VACCINATION INFLUENCE IN DEVELOPMENT OF LONG-COVID CLINICAL PHENOTYPES

M. Antonacci[1], P. Pasculli[1], M.A. Zingaropoli[1], F. Dominelli[1], Y.C. Fosso Ngangue[1], G.M. Masci[2], F. Iafrate[2], V. Panebianco[2], C. Catalano[3], G. Galardo[4], P. Palange[1], C.M. Mastroianni[1], M.R. Ciardi[1]

[1]Department of Public health and infectious diseases, Sapienza University of Rome, Rome, Italy, [2]Department of Department of Human Neurosciences, Sapienza University of Rome, Rome, Italy, [3]Department of Radiological, Oncological and Pathological Sciences, Policlinico Umberto I, Sapienza University of Rome, Rome, Italy, [4]Medical Emergency Unit, Sapienza University of Rome, Policlinico Umberto I, Rome, Italy

Background: Although SARS-CoV-2 vaccination reduces hospitalization and mortality, its long-term impact in reducing Long-COVID remains to be elucidated. The aim of the study was to describe and compare Long-COVID among vaccinated and unvaccinated patients.

Materials and Methods: A retrospective study of unvaccinated and vaccinated COVID-19 patients was performed at a postCOVID-19 clinic. Clinical and demographic characteristics and self-reported Long-COVID symptoms were assessed for each patient, who were stratified into distinct clinical phenotypes of Long-COVID. Pulmonary and cardiologic evaluations and, if necessary, chest tomography (CT) scan were performed. For hospitalized patients during acute stage of COVID-19 (in-patients), a further stratification based on required respiratory support (oxygen/ventilation) was performed.

Results: From May 6, 2020, to February 19, 2024, 593 patients were enrolled. Information on vaccination status was available for 582 patients (272 females/310 males; median age [IQR]: 58 [49-66]). The vaccinated group (at least one anti-SARS-CoV-2 vaccine dose) included 157 patients (88 females/69 males; median age [IQR]: 57 [45-65]), meanwhile the unvaccinated group included 425 individuals (184 females/241 males; median age [IQR]: 58 [49-67]). Vaccination status was significantly associated with the avoidance of hospital admission (OR=14.26, CI:91.116 to 22.31, p<0.0001), especially those patients fully vaccinated (3 or more doses) (OR= 0.3491, CI:0.1543 to 0.7584, p=0.0108). Additionally, vaccinated patients needed a less invasive respiratory support compared to the unvaccinated counterpart (OR=8.345, CI:5.276 to 13.41, p<0.0001). No statistical significance was found between vaccination status and onset of symptoms in Long-COVID (OR=0.6303, CI:0.3430 to 1.117, p=0.1650). However, neuropsychiatric disorders (OR= 1.548, CI:1.038 to 2.328, p= 0.0430) and cardiorespiratory symptoms (OR=0.3067, CI:0.2034 to 0.4579, p<0.0001) were most likely to be observed in the unvaccinated group. Intriguingly, the vaccinated group showed a higher disposition to develop cardiological alterations when compared to the unvaccinated one (OR=3.458, CI:2.294 to 5.212, p<0.0001). Consistently, hospitalization was associated with worse CT severity score (median values and [IQR]: 0 [0-1.750] for out patients and 3 [0–8] for in-patients, p<0.0001), with vaccinated patients showing a lower score compared to unvaccinated patients (median values and [IQR]: 0 [0-1] and 3 [0–8], respectively; p<0.0001). Cardiological alterations too were observed mostly in hospitalized patients of the vaccinated group (OR=0.3210, CI:0.1467 to 0.6977, p=0.0053), but not for the unvaccinated group (OR=1.360, CI:0.7513 to 2.517, p=0.3279).

Conclusions: Our data suggest a protective role of SARS-CoV-2 vaccination in development of neuropsychiatric and cardiorespiratory Long-COVID symptoms as a possible result of a less severe condition during the acute phase.

COVID-19 Unmasked: role of immunity and early treatment

SC 32 A MACHINE LEARNING TOOL TO OPERATIONALIZE INTRINSIC CAPACITY IN PREDICTING RECOVERY FROM POST-ACUTE SEQUELAE COVID-19

V. Guidetti[1], F. Motta[1], J. Milic[2], A. Tili[3], V. Todisco[3], M. Pellegrino[3], A. Gallerani[3], G. Cuomo[3], M. Menozzi[3], G. Mancini[3], M. Cesari[4], F. Mandreoli[1], G. Guaraldi[2,3]

[1]Department of Physical, Computer and Mathematical Sciences, University of Modena and Reggio Emilia, Modena, Italy, [2]Department of Surgical, Medical, Dental and Morphological Sciences, University of Modena and Reggio Emilia, Modena, Italy, [3]Department of Infectious Diseases, Azienda Ospedaliero-Universitaria, Policlinico of Modena, Modena, Italy, [4]Department of Ageing and Life Course, World Health Organization

Background: Frailty and Intrinsic Capacity (IC) are two constructs that depict a comprehensive health measure in older people. While Frailty Phenotype (FP) has often been used to describe health status of people with post-acute sequelae COVID-19 (PASC), IC has never been used to assess the physical and mental capacities a person can draw on in this clinical setting.
This study aims to define an intrinsic capacity index (ICI) for people with PASC starting from validated questionnaires (DASS, EQ-5D-5L, ISI, CD-RISC, and SF-36) that describe the IC 5 health domains including locomotion, sensory, vitality, cognitive and psychosocial. The secondary objective is to demonstrate that our ICI has good sensitivity and, thus, clinical utility to predict PASC recovery within 2-years after infection.
Methods: Assuming that the sub-domains explored by the above-mentioned questionnaires were equally important, we leveraged a majority judgment algorithm to rank the patients with respect to their scores. We then constructed a synthetic ICI, by identifying the elementary indicators judged most relevant to describe the clinical condition and resilience of patients with PASC. These variables were then combined via a symbolic regression machine learning algorithm to find an aggregation function satisfying patients' ranking while also being intelligible and parsimonious.
The consistency of the resulting synthetic ICI was tested in relation with other measures of health and well-being, like the Frailty Phenotype and SPPB. The predictive power of ICI with respect to patients' recovery was studied via a univariate logistic regression. PASC recovery was based on a medical judgment based on a composite of symptoms improvement/resolution, or a clinical management evaluation which did not require a PASC-specific multidisciplinary model of care.
Results: A total of 660 people were included, mean age was 65 years, 43.8% were women, 14% were fit, 60% pre-frail and 26% frail.11 out of the chosen 19 variables were relevant to the formulation of the ICI shown in Figure 1 panel A.
ICI showed a modest (although significant) correlation with frailty phenotype and SPPB underlying the non-redundancy of ICI with other pre-existing health indices. The univariate logistic model showed that ICI was a significant predictor of PASC recovery (OR [5%-95%]=2.53 [1.87-3.43], p-value<0.001) with good predictive power (F1 score = 73.6%).
Conclusions: We successfully described PASC by means of the IC construct in the framework of healthy aging, overcoming the disabling cascade described by frailty. Upon providing a rigorous framework to define IC, we also developed a formula (ICI) to be used in clinical and research settings to predict PASC recovery.
FIgure 1 legend:
Panel A) ICI formula; B) Features importance scores for ICI; C) ICI distribution within the population under study.; D) Scatter plot depicting the relation between IC ranking (from validated questionnaires) and ICI.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_473.jpeg

COVID-19 Unmasked: role of immunity and early treatment

SC 33 MICRORNAS IN SARS-COV-2 INFECTION: A COMPARATIVE ANALYSIS IN IMMUNOCOMPROMISED VERSUS NON-IMMUNOCOMPROMISED PATIENTS

C. Siniscalchi, A. Di Fraia, M. Starace, C. Minichini, S. Imbriani, C. Ricozzi, K. Geloshi, R. Astorri, A. Russo, C. Sagnelli, M. Pisaturo, N. Coppola

Infectious Diseases Unit, Department of Mental Health and Public Medicine, University of Campania "Luigi Vanvitelli", Naples, Italy

Background: SARS-CoV-2 infection has posed a serious threat to global health, manifesting with symptoms ranging from mild to severe. MicroRNAs are important post-transcriptional regulators involved in a wide range of cellular functions, including the complex molecular interaction that occurs during viral infection. Previous validation studies have demonstrated the interaction between miR-29 a-3p and miR-15b-5p and the transcripts of N and SPIKE genes, highlighting their ability to inhibit viral expression. [Siniscalchi et al., 2021].

Aim: to evaluate the expression levels of two human microRNAs, miR-29a-3p and miR-15b-5p in immunocompromised patients positive for SARS-CoV-2 compared to virus-positive but non-immunocompromised patients. In our analyses, we focused on the omicron variant of SARS-CoV-2, which has been predominant and has shown the most significant results in in vitro experiments.

Patients and Methods: In order to better understand the involvement of microRNAs in immunosuppression during viral infection, this study analyzed the expression levels of miR-29a and miR-15b in a cohort of virus-positive immunocompromised patients (7 patients), in comparison to virus-positive but non-immunocompromised patients (6 patients); clinical characteristics are shown in Tables 1,2. Nasopharyngeal swabs of enrolled patients were collected and analyzed using Q-PCR with specific TaqMan probes for the two microRNAs.

Results: The results indicate a significant difference in the expression levels of both microRNAs between immunocompromised and non-immunocompromised subjects. MiR-29a shows an increased expression in immunocompromised subjects (23.40% difference compared to non-immunocompromised), as well as miR-15b (109% difference) (Fig. 1 a, b). These data suggest a possible involvement of miR-29a and miR-15b in immunosuppression and interaction with the virus. Furthermore, there is a significantly higher expression of miR-29a than miR-15b (p-value <0.05) in both groups (Fig. 2 a, b), confirming findings from different studies conducted on COVID-19 patients [Farr et al., 2022; Garnier et al.,2022]. This study contributes to understanding the molecular mechanisms involved in the immune response to SARS-CoV-2, suggesting new potential therapeutic opportunities and/or prognostic biomarkers based on microRNAs.

Bibliography:

Siniscalchi C. et al; Human MicroRNAs Interacting With SARS-CoV-2 RNA Sequences: Computational Analysis and Experimental Target Validation. Front Genet. 2021 Jun 7;12:678994. doi: 10.3389/fgene.2021.678994.

Farr RJ et al; Detection of SARS-CoV-2 infection by microRNA profiling of the upper respiratory tract. PLoS One. 2022 Apr 5;17(4):e0265670. doi: 10.1371/journal.pone.0265670.

Garnier N. et al; Lille COVID Research Network (LICORNE); Szunerits S, Poissy J, Engelmann I. Altered microRNA expression in severe COVID-19: Potential prognostic and pathophysiological role. Clin Transl Med. 2022 Jun;12(6): e899. doi: 10.1002/ctm2.899.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_267.jpg

COVID-19 Unmasked: role of immunity and early treatment

SC 34 IMPACT OF EARLY ANTIVIRAL THERAPY ON TIME TO SARS-COV-2 CLEARANCE IN HIGH-RISK COVID-19 PATIENTS: A PROPENSITY SCORE MATCHING STUDY

M. Colaneri[1,2], F. Fama[1], F. Fassio[3], D. Holmes[1], G. Scaglione[1], A. Lai[4], A. Gori[1,2,4], A. Riva[5], M. Schiavini[1], for the Ospedale Luigi Sacco "COVID -19 Hotspot" study group

[1]Infectious Diseases and Immunopathology, Department of Clinical Sciences, Università di Milano, L. Sacco Hospital, Milan, Italy, [2]Centre for Multidisciplinary Research in Health Science (MACH), University of Milano, Milano, Italy, [3]Department of Public Health, Experimental and Forensic Medicine, Unit of Biostatistics and Clinical Epidemiology, University of Pavia, Pavia, Italy, [4]Department of Biomedical and Clinical Sciences, University of Milan, Milano, Italy, [5]Institute of Infectious Diseases & Tropical Medicine, III Division, ASST Fatebenefratelli Sacco, Luigi Sacco Hospital, Milan, Italy

Background: As the focus of COVID-19 pandemic shifts towards managing high-risk subjects and addressing long-term consequences, currently there is a critical need for early and effective treatments to mitigate disease progression and reduce the burden on healthcare systems.
The primary outcome of this study was to assess whether early therapies against SARS-CoV-2 reduced the length of SARS-CoV-2 viral shedding in high-risk individuals compared to those not treated. The secondary outcome was to evaluate the clinical effectiveness of being treated with early treatment compared to not receiving any treatment.
Methods: A single-centre, retrospective observational study was conducted at Luigi Sacco Hospital in Milan from December 2021 to March 2023. The study enrolled hospitalized and non-hospitalized adults with a confirmed SARS-CoV-2 infection who were at high-risk of disease progression. An unadjusted negative binomial regression model and a multivariable one was implemented; a prior comparison was done with a Poisson model. Moreover, a Random Forest regression model was implemented and SHapley Additive exPlanations (SHAP) values were calculated to evaluate feature importance and direction. In a second step, a subset of our dataset was used to implement a model on matched data for propensity to being treated or not. The 1:1 matching was done.
Results: 518 subjects were included in the study, 90 untreated and 428 treated.
The crude and adjusted negative regression model revealed a significant reduction in SARS-CoV-2 viral shedding duration among those who received early treatment compared to untreated individuals (Exponentiated coefficient 0.63, 95CI 0.95-0.71,p<0.001). This finding remained consistent after propensity score matching and multivariable regression analyses (Exponentiated coefficients 0.59, 95CI 0.51-0.67, < 0.001), and similarly, the Random Forest regression model utilizing all clinical and demographic variables, reaffirmed these findings (Figure 1).
Finally, early treatment significantly reduced the risk of COVID-19-related hospitalization and pneumonia development.
Interestinlgy, subgroup analysis identified chronic obstructive pulmonary disease as a potential factor influencing the effectiveness of early treatments.
Conclusions: In conclusion, early treatments play a crucial role in reducing SARS-CoV-2 viral shedding and preventing disease progression among high-risk individuals. Beyond individual health benefits, shorter viral shedding duration contributes to improved healthcare resource utilization and infection control measures.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_275.jpg

COVID-19 Unmasked: role of immunity and early treatment

SC 35 EFFICACY AND SAFETY OF SOTROVIMAB VS ORAL ANTIVIRALS IN OMICRON WAVES: A RETROSPECTIVE ANALYSIS

C. Cacace[1], G. Granata[1], A. Russo[1], M. Pisaturo[1], E. Allegorico[2], A. Troise[2], M. Vanni[2], F.G. Numis[2], N. Coppola[1]

[1]Department of Mental and Physical Health and Preventive Medicine, University of Campania "Luigi Vanvitelli", Naples, Italy, [2]Emergency Unit, PO Santa Maria delle Grazie, Pozzuoli, Italy

Objetives: The aim of this study is to conduct a retrospective observational analysis from 01/01/2022 to 29/02/2024, to evaluate the effectiveness of early therapies with Sotrovimab compared to other oral antivirals such as Molnupinavir or Nirmatrelvir/Ritonavir in clinical and virological terms for patients affected by high-risk COVID-19.
Methods: We performed a retrospective study involving the Infectious Disease Unit of University of Campania, Naples, and the Emergency Unit of Santa Maria delle Grazie Hospital, Pozzuoli. All adults (>18 years old) patients who performed an early antiretroviral treatment for COVID-19.
Results: 436 patients who performed any early antiretroviral treatment for COVID-19 were included in this study. The patients were divided in two groups: the first group included 326 patients treated with Sotrovimab, the second one included patients treated with other antivirals rather than monoclonal antibodies (Molnupinavir or Nirmatrelvir/Ritonavir). The two groups were compared with the time from symptom onset to first drug administration dose, the gender, and for the patients that had received anti-SARS CoV-2 vaccine, and no statistical differences were founded. The patients who received all the advised doses of vaccine, were higher in the other antiviral group, 55,4% vs 72,5%, p=0.002 (Table 1). Considering the comparison of risk factors, the patients in the Sotrovimab group included higher proportion of patients with more than 65 y/o (51,5% vs 34,2%, p=0.002), they were more frequently affected by cronic
kidney disease (10,7% vs 3,7%, p=0.009) but less from innate or acquired immunocompromission (21,8% vs 32,4%, p= 0.024) (Table 1). The two groups showed no differences in adverse events, hospitalization, or any other cause of interruption of treatment (Table 1). Considering outcomes the median time-to-negative swab and the death showed no statistical difference between two groups (Table 1).
Conclusions: Our observational retrospective study about 436 patients who underwent early treatment for COVID -19 infection showed that the treatment with Sotrovimab compared to Other Antivirals such as Molnupinavir or Nirmatrelvir/ritonavir was indifferent for the mortality of patients (0,9% vs 1,8%) and the median of time-to-first negativization (13 vs 13).

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_294.jpg

COVID-19 Unmasked: role of immunity and early treatment

SC 36 SARS-COV-2-SPECIFIC NEUTRALIZING ACTIVITY AND CYTOKINE PROFILE IN NEWBORNS OF VACCINATED AND/OR INFECTED AND VACCINATED MOTHERS

C. Vanetti[1], M. Stracuzzi[2], M. Garziano[1,3], M. Micheloni[2], M.L. Murno[1], G.V. Zuccotti[4], M. Clerici[3,5], V. Giacomet[2], D. Trabattoni[1]

[1]University of Milan, Department of Biomedical and Clinical Sciences, Milan, Italy, [2]Ospedale L. Sacco, Paediatric Infectious Disease Unit, Milan, Italy, [3]University of Milan, Department of Pathophysiology and Transplantation, Milan, Italy, [4]Ospedale dei Bambini V. Buzzi, Department of Paediatrics, Milan, Italy, [5]IRCCS Don Carlo Gnocchi Foundation, Milan, Italy

Background: Similarly to other pathogens, such as pertussis and influenza, it is important to explore the role of maternal immunization in relation to the risk of acquiring SARS-CoV-2 infection in infants. Herein, we analysed neonatal protection against SARS-CoV-2 passively acquired after mother vaccination and/or infection (hybrid immunity).

Methods: Forty newborns of mothers vaccinated with BNT162b2 mRNA vaccine before pregnancy were enrolled in the study. Infants were stratified based on the anamnestic lack/presence of COVID-19 maternal infection: 20 infants from SV (SARS-CoV-2 Vaccinated) mothers and 20 from SIV (SARS-CoV-2 Infected and Vaccinated) women. SARS-CoV-2-specific neutralizing antibody activity (NA) in plasma was assessed by virus neutralization assay (vNTA) against the SARS-CoV-2 Omicron strain (Omi, B.1.1.529) at delivery (T0) and 3 months after birth (T3). As a secondary aim, we also evaluated the immune profile of newborns in terms of plasma cytokine and chemokine production at T0 and T3 by multiplex immunoassay.

Results: At birth, infants of SV mothers displayed significantly lower NA compared to SIV mothers ($p< 0.01$). However, NA declined equally in both groups after delivery at T3. Next, we divided our patients based on the number of immunization events experienced by the mothers, considering both the number of received vaccine doses and the presence of a previous SARS-CoV-2 infection as an immunizing event. Our data show that infants from mothers with less immunization events displayed significantly lower NA compared to newborns of mothers that experienced more events ($p<0.01$). Most of plasma cytokines and chemokines showed a trend to higher level at T0 compared to T3 in all 40 newborns. By stratifying our cohort based on a previous infection, a significantly lower concentration of IL-5 and IL-8 (p value <0.05) from T0 to T3 was found in the SIV group only.

Conclusions: Herein we show that: 1) the number of immunization events confers greater protection at birth; 2) neutralizing activity drops rapidly overtime independently of previous maternal infection, and 3) a proinflammatory profile was observed in all newborns at birth. Our results indicate that, regardless of previous SARS-CoV-2 infections, a booster dose should be recommended during pregnancy to confer long-lasting protection to the newborn.

Hot topics in the epidemiology of relevant chronic and respiratory viral infections

SC 37 HIV INFECTION AMONG MIGRANTS PRESENT IN ITALY FROM 2012 TO 2022: INCIDENCE AND CHARACTERISTICS

V. Regine, L. Pugliese, B. Suligoi
Istituto Superiore di Sanità, Rome, Italy

Background: In Italy, the proportion of migrants among new HIV diagnoses has been stable around 28% for several years. However, the presence of migrants in Italy is constantly increasing. In fact the last data of ISMU (Iniziative e Studi sulla Multietnicità) Foundation report shows an increase from 4.625.000 in 2012 to 5.756.000 in 2022. The objective of this study is to estimate the incidence of HIV infection among migrants in Italy and to assess trend over time.

Material and methods: Data on HIV infection among migrants aged ≥ 18 present in Italy were obtained from the National HIV Surveillance System, from 2012 to 2022. Data on migrants present in Italy were obtained from the last estimates published by ISMU in the same period. The incidence among migrants older than 18 years was calculated as the number of new HIV diagnoses (numerator) by the number of migrants present in the same period (denominator) per 100,000. The main characteristics such as: age, gender, nationality, mode of transmission and CD4 cell count at diagnosis were analyzed.

Results: From 2012 to 2022, 17,040 new HIV diagnoses were notified, of these 9,846 (29.6%) were migrants. The highest proportion were Sub-saharan Africans (41.2%), one fourth Latin Americans and the Caribbean (24.1%), 13.4% Eastern European. The distribution for country of origin was changed over time: Sub-Saharan Africans decreased (from 41.2% in 2012 to 32.8% in 2022), while increased Latin Americans (from 22.4% to 26.9%) and Eastern European (from 7.2% to 10.9%). Males were 60.6% without changes over time. The median age was 34 years (Interquartile range 27-42), similarly by gender and it increased to 38 years (Interquartile range 31-48) in the last two years. The most common transmission was heterosexual (60.9%: 34.3% females and 26.6% males), followed by MSM (24.0%). Heterosexual transmission decreased from 61.1% in 2012 to 55.2% in 2022, while MSMs increased from 20.3% in 2012 to 29.0% in 2022. More than half (59.2%) had a CD4 cell count of less than 350 cells per mm3 and this proportion was similar over time. Overall, the HIV incidence estimated among migrants was 15.8 per 100,000. The incidence decreased over time from 24.4 new diagnoses per 100,000 in 2012 to 10.0 per 100,000 in 2022.

Conclusions: For the first time, HIV incidence among migrants present in Italy has been estimated and in 2022 it resulted three fold higher to the incidence calculated on the total of new HIV diagnoses in Italy. Though migrants present has increased in the last ten years was observed a substantially decrease of HIV incidence during the study period probably attributable to changes in the composition of migrant population present in Italy as well as changes among migrants with new HIV diagnosis.

Hot topics in the epidemiology of relevant chronic and respiratory viral infections

SC 38 HIGH RATES OF ANAL POLYOMAVIRUSES AND HPV CO-INFECTION AMONG PEOPLE LIVING WITH HIV

M. Fracella[1], S. Passerini[2], G. Bugani[2], F. Frasca[1,2], A. D'Auria[1], E. Coratti[1], L. Santinelli[2], D. Benvenuto[3], E.N. Cavallari[2], C.M. Mastroianni[2], G. Antonelli[1,4], A. Pierangeli[1], G. d'Ettorre[2], V. Pietropaolo[2], C. Scagnolari[1]

[1]Laboratory of Virology, Department of Molecular Medicine, Sapienza University of Rome, Rome, Italy, [2]Department of Public Health and Infectious Diseases, Sapienza University of Rome, Rome, Italy, [3]Infectious Diseases Institute, Department of Safety and Bioethics, Università Cattolica del Sacro Cuore, Rome, Italy, [4]Microbiology and Virology Unit, Sapienza University Hospital "Policlinico Umberto I", Rome, Italy

Background: Viral persistence is a crucial prerequisite for high-risk (HR) HPV-associated tumor growth, such as anal squamous cell carcinoma (SCC). People living with HIV (PLWH) are more likely to be co-infected with HPV. HIV may alter epithelial integrity, thereby favoring not only HPV but also Polyomaviruses (HPyVs) infections, including JCPyV, BKPyV and the oncogenic Merkel Cell Polyomavirus (MCPyV). Hence, our study aimed to evaluate whether women living with HIV (WLWH) and men living with HIV (MLWH) with anal HPV infection are also co-infected with HPyVs.

Material and methods: One-hundred and fifty patients attending the proctological clinic and the Department of Infectious Diseases of the Policlinico Umberto I, Sapienza University Hospital in Rome (Italy), were enrolled in this study. Anal canal cells were collected with a brush from both female and male anal mucosa and processed for total DNA extraction. A 450 bp fragment from the L1 HPV region was amplified using the consensus primers MY09 and MY11, whereas HPV genotyping was performed by Sanger sequencing. The presence and viral load [genome equivalents (gEq)/ml] of MCPyV, JCPyV, and BKPyV were assessed by quantitative PCR assays targeting the Small T Antigen (sTAg), Large T Antigen (LTAg) and Viral Protein (VP1) regions, respectively. Values of $p<0.05$ were considered statistically significant. Statistical analysis was performed using JASP software.

Results: Anal specimens from 150 patients were examined in this study. Among them, 58/150 (38.7%) were women (mean age 49.1 years, SD 15.4) and 92/150 (61.3%) were men (mean age 47.4 years, SD 12.7). Out of the 150 participants, 76 (50.7%) were positive for HPV, whereas 59 (39.3%) were positive for at least one HPyV (MCPyV, n= 49/150, mean viral load= 4.3x105 gEq/mL; JCPyV, n= 12/150, mean viral load= 7.5x102 gEq/mL; and BKPyV, n= 3/150, mean viral load= 3.1x102 gEq/mL). All PLWH (49/150; 32.7%) were on Anti-Retroviral Therapy (ART) and virologically suppressed. To identify potential risk factors for HPV, HIV and HPyVs infections and/or co-infections, odds ratios were calculated using gender as the exposure parameter, suggesting that men are more likely to contract HPV anal infection [OR 8.7 (95%CI: 4-19; $p<0.001$)]. Moreover, increased MCPyV viral load was found in MCPyV/HPV/HIV co-infected patients compared to MCPyV/HPV co-infected and MCPyV-positive participants ($p<0.0001$; Kruskal-Wallis test with Dunn's multiple comparisons tests). Notably, differences were observed between MCPyV-infections and MCPyV/HPV co-infections (14.8 vs. 32.7; $z=3.578$; $p<0.001$), and even more between MCPyV-infections and MCPyV/HPV/HIV co-infections (14.8 vs. 38.5; $z=4.724$; $p<0.001$).

Conclusions: Our findings underscore the need for effective HPV prevention strategies and targeted interventions to manage co-infections, including the oncogenic MCPyV, especially in high-risk populations such as PLWH.

Hot topics in the epidemiology of relevant chronic and respiratory viral infections

SC 39 TRENDS OF TOXOPLASMA ANTIBODY PREVALENCE IN NAIVE PEOPLE LIVING WITH HIV IN ITALY. DATA FROM THE ICONA COHORT

G. Bozzi[1], M. Giotta[2], A. Ranzani[3], F. Conti[4], A. Raimondi[5], D. Tesoro[6], A. Giacomelli[7], A. Tavelli[8], M.C. Moioli[5], N. Bobbio[9], G. Toti[10], A. Gori[11], A. Di Biagio[12], A. Bandera[1], A. d'Arminio Monforte[8], on behalf of the ICONA cohort

[1]Clinic of Infectious Diseases, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy, [2]School of Medical Statistics and Biometry, Department of Interdisciplinary Medicine, University of Bari "Aldo Moro", Bari, Italy, [3]IRCCS "San Gerardo dei Tintori", Monza, Italy, [4]Infectious Diseases Unit, Alessandro Manzoni Hospital, Lecco, Italy, [5]Department of Infectious Diseases, ASST Grande Ospedale Metropolitano Niguarda, Milan, Italy, [6]Unit of Infectious Diseases, ASST Santi Paolo e Carlo, Milan, Italy, [7]III Infectious Diseases Unit, ASST FBF-Sacco, Milan, Italy, [8]ICONA Foundation, Milan, Italy, [9]Department of Infectious Diseases, Galliera Hospital, Genoa, Italy, [10]Infectious Diseases Department SOC 1, USL Centro Firenze, Santa Maria Annunziata Hospital, Florence, Italy, [11]Department of Biomedical and Clinical Sciences L. Sacco, University of Milan, ASST FBF-Sacco, Milan, Italy, [12]Infectious Diseases Clinic, IRCCS Policlinico San Martino Hospital, Genoa, Italy

Background: Toxoplasmosis is the most common opportunistic infection affecting the CNS in AIDS, resulting from reactivation of latent infection. Around 30% of T. gondii-seropositive PWH with CD4 T cell counts <100/mcL, not receiving effective prophylaxis and antiretroviral therapy, develops neurotoxoplasmosis. T. gondii-seroprevalence, in turn, depends on geographical region, age, and nutritional habits. A 2017 metanalysis found that pooled prevalence of HIV and T. gondii co-infection is 26.3% in high-income countries. Prevalence in Italy, though, is yet to be thoroughly described. We aimed at assessing prevalence of latent T. gondii infection in patients with HIV (PWH) in a large Italian multicenter cohort, investigate its temporal trends, and evaluate associated factors; prevalence of neurotoxoplasmosis was also evaluated.

Methods: Retrospective observational cohort study including all participants to the ICONA cohort between 1997 and 2022. Primary objective was to describe the changes by calendar period in prevalence of T. gondii Ab at enrollment. Characteristics of Toxo-Ab positive and negative PWH were compared (Chi-square test or Mann-Whitney test, which appropriate). Temporal trends were evaluated through Cochran Armitage test. Variables associated with risk of being Toxo-Ab positive were studied with a multivariable logistic regression model. Prevalence of neurotoxoplasmosis among PWH with CD4<200/cmm and factors associated by multivariable logistic regression model were also evaluated.

Results: Positive T. gondii serology was observed in 5308/12619 (42%) patients; PWH positive for T.gondii Ab were older, born outside Italy, intravenous drug users (IDU), with heterosexual transmission, and with lower CD4 T cell count at enrolment (Table 1). Quinquennial prevalence of Toxo-Ab positivity decreased significantly, from 49% in 1997-2001 to 34% in 2017-2021 (p<.001). In the multivariable logistic regression model, participants with older age, born outside Italy, and other than MSM had higher risk of being Toxo-ab positive. Participants with higher CD4 T cell counts at enrolment (by 100/mcL), showed lower risk of being Toxo-Ab positive (Table 2). Temporal trends of neurotoxoplasmosis in PWH with CD4 T-cell counts < 200/mcL also decreased significantly, from 6% in 1997-2003 to 2% in 2017-2022, p=.0007. Among participants with CD4 T-cell counts < 200/mcL, multivariable analysis showed higher odds of neurotoxoplasmosis for participants born outside Italy and with intravenous drug use (IDU).

Conclusions: T gondii latent infection is decreasing among PWH, likely due to better life conditions. Neurotoxoplasmosis is also decreasing accordingly. Several groups, such as PWH born outside Italy and IDU, should be monitored closely to prevent neurologic disease.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_289.png

Hot topics in the epidemiology of relevant chronic and respiratory viral infections

SC 40 EPIDEMIOLOGICAL EVOLUTION OF HEPATITIS C VIRUS INFECTION AND TREATMENT OUTCOMES IN TUSCANY (ITALY): A COMPREHENSIVE ANALYSIS SPANNING THE DIRECT-ACTING ANTIVIRAL ERA AND THE IMPACT OF THE COVID-19 PANDEMIC

M.P. Tramonti Fantozzi[1], L. Ceccarelli[2], E. De Vita[1], D. Petri[1], P. Colombatto[3], C. Stasi[4], B. Rossetti[5], M. Brunetto[6], C. Bianco[7], D. Redi[7], D. Tacconi[7], A. Agostini[1], F. Panza[8], M. Fabbiani[8], S. Modica[9], S. Moneta[9], S. Iacopini[9], S. Luchi[9], S. Chigiotti[5], G. Ottaviano[5], C. Nencioni[5], A.L. Zignego[10], E. Mariabelli[11], P. Pierotti[11], P. Blanc[11], R. Berni[12], C. Silvestri[12], L. Tavoschi[1]

[1]Department of Translational Research and of New Surgical and Medical Technologies, University of Pisa, Pisa, Italy, [2]Infectious Diseases Unit, Department of Medical and Surgical Science, Hospital S. Orsola-Malpighi, University of Bologna, Bologna, Italy, [3]Hepatology Unit, Pisa University Hospital, Pisa, Italy, [4]Careggi University Hospital, Florence, Italy, [5]Division of Infectious Diseases, AUSL Toscana Sud Est, Grosseto Hospital, Grosseto, Italy, [6]Department of Clinical and Experimental Medicine, University of Pisa and Hepatology Unit, Pisa University Hospital, Pisa, Italy, [7]Division of Infectious Diseases, Arezzo Hospital, Arezzo, Italy, [8]Infectious and Tropical Diseases Unit, Siena University Hospital, Siena, Italy, [9]Division of Infectious Diseases and Hepatology San Luca Hospital, AUSL Toscana Nord Ovest, Lucca, Italy, [10]Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy, [11]Division of Infectious Diseases 1-2, AUSL Toscana Centro, Florence, Italy, [12]Epidemiology Unit, Tuscany Regional Health Agency, Florence, Italy

Background: Hepatitis C virus (HCV) infection poses a global health threat, with significant morbidity and mortality. This study investigated the evolving landscape of HCV in Tuscany, Italy, from 2015 to 2022, considering demographic shifts, clinical profiles, treatment regimens, and outcomes, including the impact of the COVID-19 pandemic.

Material and methods: A multicenter retrospective study was conducted on 6882 HCV patients, with data collected on demographics, clinical history, and HCV risk factors. The analysis encompassed three different temporal eras: the period before and the period after the universal availability of direct-acting antivirals (DAA), and the COVID-19 era. The treatment's effectiveness was evaluated by the achievement of the Sustained Virological Response (SVR12), which was assessed 12 weeks after the treatment's conclusion. Outcomes included SVR12, non-SVR12, and cases of lost to follow-up. Statistical analysis was conducted by ANOVA, Kruskal-Wallis test, and multinomial logistic regression.

Results: In the pre-DAA era, people with chronic HCV infection were older than those characterizing the subsequent periods (I: 61.12±12.23, II: 57.61±14.84%, III: 57.71±15.68%; $F(2,6876)=48.265$, $p<0.001$). While HBV coinfection rate was stable over time ($\chi2(2)=3.315$, $p=0.0191$), the pre-DAA era showed higher prevalence of HCV patients with genotype 1 (I: 62.5%, II: 54.7%, III: 48.7%; $\chi2(2)=66.865$, $p<0.001$), HIV co-infection (I: 5.8%, II: 3.6%, III: 1.8%, $\chi2(2)=33.957$, $p<0.001$) and cirrhosis (I: 50.8%, II: 14.5%, III: 24.4%; $\chi2(2)=902.958$, $p<0.001$). During the COVID-19 era, all the HCV patients were treated with HCV therapy of third generation and the loss to follow-up rate reached higher values (I: 0.3%, II: 0.3%, III: 5.6%, $\chi2(2)=194.383$, $p<0.001$). The overall SVR12 remained stable over time ($\chi2(2)=0.357$, $p=0.837$), while facilitating factors influenced the non-SVR12 (male gender: Odds Ratio (OR)=2.134, $p=0.006$; cirrhosis: OR=1.713, $p=0.040$; HIV co-infection: OR=3.251, $p=0.005$) or lost to follow-up (DAA treatment, third generation: OR=4.187, $p=0.006$) outcomes.

Conclusions: The study provides a comprehensive view of the HCV landscape, revealing demographic shifts, treatment patterns, and outcomes. The COVID-19 pandemic impacted service delivery, causing delays in diagnosis and treatment, and influencing patient follow-up. Despite challenges, the region maintained high SVR12 rates, emphasizing the importance of sustained efforts in HCV care. This study highlights the dynamic nature of HCV management in Tuscany, emphasizing the need for continuous adaptation to public health challenges. As the region strives to meet WHO elimination targets, ongoing screening efforts and multidisciplinary interventions are crucial. The study underscores the resilience of HCV care during the pandemic and provides insights for future public health strategies.

Hot topics in the epidemiology of relevant chronic and respiratory viral infections

SC 41 CASES OF UNTYPED INFLUENZA A VIRUS IN NORTHERN ITALY

I. Giberti[1], F. Stefanelli[2], N. Randazzo[2], B. Galano[2], G. Garzillo[1], G. Guarona[1], V. Chessa[2], R. Qosja[2], S. Varesano[1], B. Giusto[2], V. Ricucci[2]

[1]Department of Health Sciences (DiSSal), University of Genoa, Genoa, Italy, [2]Hygiene Unit, IRCCS Ospedale Policlinico San Martino, Genoa, Italy

Background: Influenza viruses are among the major players in the current season: because of their pandemic potential, early case detection, subtype definition and variant surveillance are crucial.
The regional reference Hygiene laboratory of the IRCCS San Martino Hospital in Genoa is involved in the aetiological diagnosis of respiratory infections and, in particular, monitors the spread of influenza viruses to detect possible changes in their genome. As a few samples, positive for Influenza A, could not be subtyped into H1 or H3 by the reference molecular method, further investigation was conducted to better characterize these cases.
Material and Methods: In the current 2023-2024 season, all nasopharyngeal swabs were tested by the diagnostic CE-IVD RT-PCR kit that detects Influenza A or B viruses and subtypes the A virus into H1 or H3. Positive cases that could not be subtyped by this kit were tested by home-made RT-PCR. Subsequently, the Hemagglutinin (HA) region of the Influenza A positive samples was sequenced by Sanger sequencing (SS). Consensus sequences were aligned using MEGA software and compared with those of the same clade and collection period registered in the international Global Initiative on Sharing All Influenza Data (GISAID) database.
Results: From September 29th, 2023, date of the first seasonal identification at our laboratory, to March 31st, 2024, 295 positive samples for Influenza virus were identified. Among these, 3 were type B-Victoria, 259 H1N1 and 33 H3N2. Focusing on Influenza A, 15 cases could not be subtyped by the diagnostic kit in use, but were successfully identified as H1 by home-made RT-PCR. Out of these, 7 were eligible for SS, which was performed on a total of 40 H1 positive samples. Nextclade analysis of the HA sequence identified 21 samples belonging to the 6B.1A.5a.2a clade and 20 samples, including the not subtypeable ones, to the 6B.1A.5a.2a.1 clade. Phylogenetic analysis inferred with Makimum Likelihood method confirmed that all mutated sequences clustered together (Figure 1). Sequence analysis highlighted some nucleotide changes present only in the not-subtyped sequences. Precisely, in a range of less than 30 nucleotides, 3 silent mutations were found in position c.1005 T>C, c.1010 A>G, c.1031 T>C of the HA gene (Reference: MW626062) (Figure 2).
A comparison of the mutated sequences with those of the same clade in the GISAID database showed that these 3 mutations were found with a prevalence of the 5.7 % (345/6005) of all sequences collected worldwide and 7.4% (323/4348) of the European ones during the study period (not shown).
Conclusions: As the Influenza virus is spreading during the season, it is also changing over time. The accuracy of routinely used diagnostic tests could be affected by nucleotide mutations in a nearby site of the target region used to determine virus subtyping. Further research is needed to understand how these mutations may affect diagnosing and surveillance of influenza A viruses.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_108.jpg

Hot topics in the epidemiology of relevant chronic and respiratory viral infections

SC 42 RESPIRATORY SYNCYTIAL VIRUS VIRAL LOAD AND CO-INFECTION IN A VERY LARGE COHORT OF PEDIATRIC PATIENTS, WHICH ROLE IN THE DISEASE SEVERITY?

R. Scutari[1,2], V.C. Di Maio[2], L. Colagrossi[2], L. Forquè[1,2], G. Linardos[2], L. Coltella[2], S. Ranno[2], E. Galeno[2], M. Pisani[3], A.C. Vittucci[3], A. Villani[3], C. Russo[2], C.F. Perno[1,2]

[1]Multimodal Research Area, Microbiology and Diagnostics of Immunology Unit, Bambino Gesù Children's Hospital IRCCS, Rome, Italy, [2]Microbiology and Diagnostic Immunology Unit, Bambino Gesù Children's Hospital IRCCS, Rome, Italy, [3]Department of Emergency, Acceptance and General Pediatrics, Bambino Gesù Children's Hospital, Rome, Italy

Background: Respiratory syncytial virus (RSV) is a common cause of acute respiratory infection (ARI) of the lower respiratory tract in young children, with a particularly high burden of disease in individuals <2years of age. Despite this, the clinical impact of co-diagnosis of RSV with other respiratory viruses is not well understood. We aimed to explore the frequency of RSV in mono and co-infection and clinical outcomes associated with RSV infection in paediatric population.

Material and Methods: A retrospective analysis of paediatric patients admitted at Bambino Gesù Children's Hospital in Rome who had a RSV positive respiratory sample screened by The Alleplex Respiratory Panel assay (Seegene) between January 1, 2022, and December 31, 2023 was performed.

Results: Among 13,952 samples collected during the study period, 492 (3.5%) were RSV-positive. Of these, 466 belonged to paediatric patients (Median [IQR] age: 0.4 [0.1-2.1] years) with ARI diagnosis at hospital admission. Four hundred and five (86.9%) involved the lower-respiratory tract, while only 61 (13.1%) involved the upper-respiratory tract. Viral co-infections were mainly observed in the upper-respiratory tract infections (71.7%) with respect to the lower (68.6%), (P=0.071). However, considering clinical manifestation, in the lower-respiratory tract the RSV co-infection was mainly observed in patients with pneumonia (21.0%) while RSV mono-infection mainly characterized bronchiolitis (89.4%) (P=0.021). Notably, RSV cycle-threshold (CT) value was significantly lower in mono-infection (median [IQR]: 21.3 [17.7-25.0]) than in co-infection (23.1 [19.1-29.0]) (P=0.003). Logistic regression showed that the highest CT value was positively associated with RSV co-infection (adjusted odds ratio, AOR [95%CI]: 1.07 [1.00 -1.13], P=0.008), while a negative association was observed with bronchiolitis (AOR [95%CI]: 0.32 [0.17-0.57], P<0.001).

Conclusions: These results showed that RSV mono-infection with high viral load mainly characterized bronchiolitis. Conversely, a lower viral load and pneumonia were observed when RSV was in co-infection, thus suggesting that the presence of another virus can potentially reduce the replicative capacity (and perhaps pathogenicity) of this virus. RSV co-infection is associated with low viral load, and a specific clinical outcome. Therefore, the quantitative study of RSV is important in combination with virus-virus interactions dynamics.

Bridging innate and adaptive immunity in viral infections

SC 43 MODULATION OF CYTOMEGALOVIRUS (CMV) T CELLS RESPONSE IN PLWH AFTER SWITCHING TO LONG-ACTING (LA) CABOTEGRAVIR PLUS RILPIVIRINE

M. Guardiani[1], E. Tortellini[1], A. Carraro[1], M.A. Zingaropoli[1], F. Dominelli[1], C. Falvino[1], S. Garattini[1], P. Zuccalà[2], R. Marocco[2], G. Mancarella[2], F. Mengoni[1], O. Turriziani[3], V. Vullo[1], C.M. Mastroianni[1], C. Del Borgo[2], M. Lichtner[2,4]

[1]Sapienza University of Rome, Department of Public Health and Infectious Diseases, Rome, Italy, [2]Sapienza University of Rome, Infectious Diseases Unit, SM Goretti Hospital, Latina, Italy, [3]Sapienza University of Rome, Laboratory of Virology, Department of Molecular Medicine, Rome, Italy, [4]Sapienza University of Rome, Department of Neurosciences, Mental Health, and Sense Organs, NESMOS, Rome, Italy

Background: Cytomegalovirus (CMV) infection and CMV-specific response has been associated with increased morbidity and mortality due to AIDS and non-AIDS events. in people living with HIV(PLWH), but recent data showed that polyfunctional CMV-specific CD4+ T-cells are protective for persistent CMV reactivation.
Methods: We conducted a longitudinal evaluation of anti-CMV IgG titers, and specific T-cell response to CMV epitopes in a group of PLWH in good immunovirological status after switching to long-acting cabotegravir plus rilpivirine(CAB/RPV LA).
Evaluation was done before first injection (T0), and after 28 weeks of follow-up(T1). T-cell responses were assessed after stimulation of heparinized whole blood with a pool of pp65 and IE-1 CMV peptide libraries. IFNg,IL2 and TNFa production was assessed in supernatants with an automatized ELISA platform. Furthermore, an intracellular cytokine flow cytometry assay was performed to assess CD4 and CD8 specific production. Through Boolean gating, we identified T-cells producing all possible combinations of IFNg, IL2 and TNFa, defining those producing any of them as responding T-cells and those simultaneously producing all 3 as polyfunctional T-cells.
Anti-CMV IgG titer was detected by chemiluminescence immunoassay (CLIA) (DiaSorin S.p.A, Italy).
Result: We enrolled 32PLWH, 28% female(sex assigned at birth), median age 49 years[35-56]. No HIV virological failure occurred(Table1). During observation, CD8+ T-lymphocyte showed a significant decrease at T1(T0: 39%[18-44] and T1:35%[16-44]; p=0.0249),while no differences was observed in CD4+.
The results showed that all PLWH had undetectable CMV DNA at both time points and anti-CMV IgG titers did not differ over seven months(median:139.0 VS 136.0 U/mL p=0.172). About T-cell responses, an increase in the production and release of IFNg,IL2 and TNFa at T1 was observed, although not significant, and both CD4 and CD8 T-cells seems to contribute to the production of such cytokines (Fig.1).The longitudinal evaluation of polyfunctional T-cells showed a significant increase at T1 compared with T0 for both CD4 and CD8 T-cells (CD4: p=0.0134 and CD8: p=0.0080, respectively). (Fig.2).
Finally, regarding the quality of T-cell response in PLWH at T0 a heterogeneous distribution of T-cell cytokines producers was found; while at T1 the response seems to be predominantly monofunctional (Fig.3).
Conclusion: In this study, a modulation of CMV T cells response in PLWH after switching to CAB/RPV LA together with absence of CMV or HIV blips, suggesting a beneficial effect of the therapy in inducing a better control of chronic CMV coinfection. The decrease in CD8 cells could lead to a reduction of immunosuppressive function on polyfunctional cells. Further studies with longer follow-up and a deeper viral analysis are needed to better understand this phenomenon and the implication in clinical practice.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_362.png

Bridging innate and adaptive immunity in viral infections

SC 44 T CELLS PROFILE IN PERSONS LIVING WITH HIV (PLWH) WITH PROGRESSIVE MULTIFOCAL LEUCOENCEFALOPATHY (PML)

E. Cimini[1], M. Chiuchiarelli[2], E. Tartaglia[3], S. Notari[1], R. Casetti[1], A. Mondi[4], F. Cecilia[4], F. Frondizi[2], E. Matteini[2], C. Torti[2,5], G. Matusali[3], F. Maggi[3], A. Antinori[4], A. Cingolani[2,5], C. Pinnetti[4]

[1]Laboratory of Cellular Immunology and Pharmacology, INMI-IRCCS Lazzaro Spallanzani, Rome, Italy, [2]Dipartimento di Scienze Mediche e Chirurgiche, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy, [3]Laboratory of Virology, INMI-IRCCS Lazzaro Spallanzani, Rome, Italy, [4]Clinical and Research Infectious Diseases Department, INMI-IRCCS Lazzaro Spallanzani, Rome, Italy, [5]Dipartimento di Sicurezza e Bioetica - Sezione di Malattie Infettive, Università Cattolica del Sacro Cuore, Rome, Italy

Background: PML is a demyelinating disease caused by JC virus (JCV) reactivation in advanced HIV persons. No specific treatment has demonstrated efficacy in improving outcomes. Recent findings showed conflicting evidence on the response of PML lesions after treatment with checkpoint inhibitors, including pembrolizumab (PEM), based on immune reconstitution and associated with potentially improving the anti-JCV-specific response. We analyzed CD4 and CD8 T-cell profiles associated with JCV-specific T response in PLWH with PML treated with PEM to investigate predictive markers of response.

Methods: We included 6 PLWH with a diagnosis of PML admitted at two main clinical centers in Rome between 2022 and 2024. We used PEM at a dosage of 2 mg/kg administered intravenously every 4 weeks with cART for treatment of PML, given on a compassionate-use basis. At each PEM administration, clinical evaluation and MRI were performed. We assessed laboratory testing, including CD57, CD28, PD-1, and the differentiation profile of CD4 and CD8 T-cells (analyzed by multiparametric flow cytometry). HIV-RNA and JCV-DNA in cerebrospinal fluid (CSF) /plasma pairs were measured. The JCV-specific T-cell response was analyzed by measuring the IFN-γ production by Elispot assay after viral peptidic stimulation.

Results: Six PLWH: 4 male, median age 50.5 years (41-69), median of CD4 and CD8 T-cells count 91 (IQR 9-109) and 711 (IQR 562.3-920.3), respectively. The median JCV-DNA and HIV-RNA in CSF/plasma pairs was 5049.5/<30 cps/mL and 51/1074 cp/mL, respectively. Overall, patients received an average of 4 doses of PEM; here, the preliminary results up to the second dose were shown. Circulating CD4 and CD8 T-cells showed an effector phenotype (p=0.01) as well as in CFS (p=0.01) (figure 1, panel B-C), and higher expression of CD57 (p=0.01) and PD-1 (p=0.01) markers (figure 1, panels D-E). Low production of IFN-γ was observed in all PML patients (figure 1, panel E). After treatment, we observed JCV-DNA and PD-1 reduction (figure 1, panel F) both in CSF and in whole blood compared to baseline. Five out of the subjects showed stability or improvement of clinical picture and neuroimaging, while one died.

Conclusions: In this study, we underlined CD4 and CD8 T-cell immunological profiles in PLWH and PML before treatment with pembrolizumab to identify immunological predictors of response. Results showed severe T cell exhaustion and senescence-associated with poor functionality. These features were partially restored by the use of Pembrolizumab, suggesting a potential role of anti-PD1 in controlling PML, even though further studies are needed on this topic.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_356.jpg

Bridging innate and adaptive immunity in viral infections

SC 45 COMPARING T-SPOT AND IN-HOUSE IGRA FOR ASSESSING SARS-COV-2-SPECIFIC CELL-MEDIATED IMMUNITY

L. Benedetti[1], L. Ferrari[2], A. Ruggiero[3], N. Braccialarghe[1], L. Piermatteo[5], L. Sarmati[1,2], A.M. Geretti[1,2,4], M. Iannetta[1]

[1]Department of Systems Medicine, University of Rome Tor Vergata, Rome, Italy, [2]Infectious Diseases Unit, Fondazione PTV, University of Rome Tor Vergata, Rome, Italy, [3]Department of Neuroscience, Biomedicine and Movement Sciences, University of Verona, Verona, Italy, [4]School of Immunity and Microbial Sciences, King's College London, London, United Kingdom, [5]Department of Biology, University of Rome Tor Vergata, Rome, Italy

Background: Different approaches can be used to assess SARS-CoV-2-specific cell-mediated immunity (CMI) as a tool to improve COVID-19 prevention and care in immunocompromised patients, such as people living with HIV. Here we compare our in-house interferon (IFN)-γ release assay (IGRA) with a commercial T-spot assay (Oxford Immunotec).

Materials and Methods: Whole blood samples were collected from adults with HIV and healthcare workers. For the IGRA, blood was stimulated overnight with partially overlapping peptides covering the Spike (S) and Nucleocapsid (N) proteins of SARS-CoV-2 in two separate assays. IFN-γ production in supernatants was assessed with the ELLA platform, offering automated and highly sensitive quantification. For the T-spot assay, PBMCs were isolated and stimulated with partially overlapping peptides covering S and N proteins. Antigen specific IFN-γ producing T-cells were counted in an elispot reader; the positivity cutoff was the formation of ≥8 spots. Both methods included negative (NS) and positive (PHA) controls. The assay turn-around time was 24 hours for IGRA and 48 hours for T-spot (including PBMC isolation). The two assays were evaluated in ROC analyses and by the Spearman's correlation test.

Results: We enrolled 24 participants with HIV (15 males and 9 females) with a median age of 57 years (IQR 42-61), median nadir CD4 count of 124 cells/μL (32-420), median current CD4 count of 705 cells/μL (404-967), and median CD4/CD8 ratio of 0.9 (0.5-1.4); all were on antiretroviral treatment and 20/24 (83%) had HIV-RNA <50 copies/mL. All were vaccinated with the BNT162b2 vaccine; 1/24 (4%) received 2 doses; 17/24 (70%) 3 doses and 6/24 (25%) 4 doses; 10/24 (42%) had received a prior diagnosis of SARS-CoV-2 infection. Median time from last vaccination or documented infection was 18 months (IQR 14-22). Five vaccinated (three BNT162b2 vaccine doses) healthcare workers (1 male and 4 females) with a median age of 35 years (33-43) were also enrolled. The number of spots in T-spot assay correlated with the level of IFN-γ production in the IGRA (Spearman's rho 0.65 [p<0.001] for S and Spearman's rho 0.6 [p<0.001] for N, respectively) (Fig 1). ROC analysis confirmed the association between the two tests (S: area 0.8, p=0.007; N: area 0.9, p=0.004). Applying the Youden's J method, two cutoffs for the IGRA were identified, whereby IFN-γ levels >89 pg/mL and >69 pg/mL after S and N stimulation, respectively, were associated with a positive T-spot result (Fig 1).

Conclusions: Our study demonstrated a strong association between our in-house IGRA and the T-spot assay for measuring SARS-CoV-2 specific CMI, with comparable performance in healthy subjects and people living with HIV. The ultrasensitive detection of IFN-γ production in supernatants with the ELLA platform, coupled with the accessibility and rapidity of the assay, enhances the relevance of IGRA for the routine assessment of SARS-CoV-2-specific CMI.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_332.png

Bridging innate and adaptive immunity in viral infections

SC 46 VΔ2 T CELLS EFFECTOR RESPONSE IN PLWH AND PLWOH UP TO THREE MONTHS FROM MPOX INFECTION

E. Cimini[1], E. Tartaglia[2], A. Coppola[1], S. Notari[1], V. Mazzotta[3], G. Matusali[2], R. Casetti[1], G. Grassi[1], A. Mondi[3], A. Oliva[3], S. Gili[1], F. Cristofanelli[1], M. Tempestilli[1], G. Prota[4], E. Girardi[5], F. Maggi[2], A. Antinori[3]

[1]Laboratory of Cellular Immunology and Pharmacology, INMI-IRCCS L, Spallanzani, Rome, Italy, [2]Laboratory of Virology, INMI-IRCCS L. Spallanzani, Rome, Italy, [3]Clinical Department, INMI-IRCCS L. Spallanzani, Rome, Italy, [4]Biological bank, INMI-IRCCS L. Spallanzani, Rome, Italy, [5]Scientific Direction, INMI-IRCCS L. Spallanzani, Rome, Italy

Background: The first evidence that Orthopoxviruses induced the in vivo expansion and the recall of effector Vδ2 T-cells was described in a macaque model. Although, it was analysed an engagement of αβ T-cells specific response in patients infected with human monkeypox (mpox), little is known about the role of γδ T-cells during mpox infection. IFN-γ-producing γδ T-cells in innate resistance to poxviruses may play a key role in inducing a protective type 1 memory immunity by influencing the effectiveness of vaccines. In this study, we analysed the kinetics of Vδ2 T-cells from symptoms onset (FSO) up to three months after mpox infection.
Material and methods: 9 MSM subjects, with confirmed mpox, were enrolled in a longitudinal study from May to July 2022, and blood samples collected in the early phase of infection (T1, T2) and at 3 months (T3M) FSO. Four were PLWH, all on ART with good viro-immunological status (CD4 count median: 653). Vδ2 T-cells profile (CD45RA/CCR7), activation/exhaustion markers expression (CD38/HLA-DR/CD57/PD-1/TIM-3), cytokines production (IFNγ/TNFα) and CD107a expression after non-peptidic antigen stimulation, were assessed by multiparametric flow cytometry. Kinetics of Vδ2 T-cell response were compared with 13 healthy donors (HD) matched by sex and age. Mann-Whitney and Wilcoxon tests were used for statistics.
Results: At T1, Vδ2 T-cells frequency was lower than HD ($p<0.01$, figure 1 panel A); in addition, an expansion of Effector Memory Vδ2 T-cells was observed ($p<0.002$, figure 1 panel B), paralleled to a decrease of Central Memory Vδ2 T-cells ($p<0.0001$, figure 1 panel B), reaching HD values after T3M FSO. Activation/exhaustion markers were significantly increased at T1 (figure 1 panels C-G) and resulted lower after T3M. HLA-DR expression was higher in PLWH than PLWoH. No differences were observed for the other markers according to PLWH/PLWoH stratification. Vδ2 functionality decreased at T1 when compared to HD (figure 1 panels H-L), and it was associated with a CD38 higher expression ($p<0.02$, figure 1 panel M). At T3M, Vδ2 T-cells response was restored and seems linked to TIM-3 expression ($p<0.009$, figure 1 panel O).
Conclusions: The presence of effector/activated Vδ2 T-cells in the early stages of infection and their capability to activate quickly, producing pro-inflammatory cytokines may be useful to enhance the early adaptive response to human mpox for the maintenance of the protective memory/effector T-cells response.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_117.jpg

Bridging innate and adaptive immunity in viral infections

SC 47 ARE NEUTRALIZING AUTOANTIBODIES TO TYPE I INTERFERON NOVEL DISEASE DETERMINANTS IN PEOPLE LIVING WITH HIV?

G. Bugani[1], F. Frasca[1,2], A. D'Auria[2], M. Fracella[2], L. Maddaloni[1], L. Santinelli[1], G. Ceccarelli[1], C.M. Mastroianni[1], A. Pierangeli[2], O. Turriziani[2], G. Antonelli[2], G. d'Ettorre[1], C. Scagnolari[2]

[1]Department of Public Health and Infectious Diseases, Sapienza University of Rome, Italy, [2]Virology Laboratory, Department of Molecular Medicine, Sapienza University of Rome, Italy

Background: Neutralizing autoantibodies (NABs) to type I interferon (IFN-I) have recently emerged as disease determinants in several viral infections, including West Nile virus, Influenza virus and SARS-CoV-2. Given the detrimental role of type I IFNs in HIV-1 infection and the effects of NABs on the IFN response, it is imperative to investigate anti-IFN NABs and associated IFN-I pathway modulation in people living with HIV (PLWH) and those with HIV-1 and SARS-CoV-2 co-infection. Therefore, the aim of this study was to examine anti-IFN-I NABs prevalence in PLWH including those vaccinated with the anti-Spike mRNA vaccine and those hospitalized for severe COVID-19, and to characterize the relationship between anti-IFN-I NABs and the IFN-I signature.

Methods: PLWH hospitalized for COVID-19 (n=8) and anti-Spike vaccinated PLWH (n=70) were enrolled in this study. Blood samples were collected: i) at the time of hospitalization (T0) for the first group of patients; ii) before initiation of the anti-Spike vaccination regimen (T0), at the time of second dose (T1), 1 year after the second dose (T2) and 1 year later (T3) for the second group of patients. Serum samples for anti-IFN-I subtypes (IFN-α and IFN-ω) NABs were explored using a bioassay based on IFN-induced inhibition of virus cytopathic effect on human cells in culture (EMC virus and A549 cells). IFN-stimulated gene 15 (ISG15) transcript levels were analyzed in peripheral blood mononuclear cells (PBMCs) from NABs positive PLWH by RT/real time PCR.

Results: We found that 62.5% (5/8) and 37.5% (3/8) of PLWH hospitalized for severe COVID-19 had high serum titres of NABs against IFN-ω and IFN-α, respectively. Of these, 2 patients who were positive for anti-IFN-I NABs had lymphoma and died. At the same time, 5.71% (4/70) of vaccinated PLWH developed NABs to IFN-α at one year after the second dose (T2) and were negative for anti-IFN-ω NABs. Most of these NAB-positive patients (3/4) were infected with SARS-CoV-2 twice during the vaccination schedule. They also had a history of AIDS-related events. Reduced ISG15-mRNA expression was associated with the presence of high anti-IFN-I NAB titres ($p<0.05$).

Conclusions: These results indicate that anti-IFN NABs can be detected in PLWH and that a high titer of anti-IFN α/ω NABs may contribute to greater susceptibility and severity of SARS-CoV-2 infection. Anti-IFN NABs may also identify those patients at high risk of experiencing severe outcomes of HIV-1 infection, suggesting the importance of evaluating anti-IFN NABs as novel disease determinants in PLWH.

Stigma, awareness and education

SC 48 STIGMA ON SCREEN: A SYSTEMATIC REVIEW OF CINEMA'S HIV NARRATIVE BETWEEN 2016 AND 2023

A. Colpani[1], G. Moi[1], L. Cutzu[2], G. Madeddu[1], A. De Vito[1,3]

[1]Unit of Infectious Disease, Department of Medicine, Surgery and Pharmacy, University of Sassari, Sassari, Italy, [2]Università degli Studi di Sassari, DUMAS, Sassari, Italia, [3]PhD School in Biomedical Science, Biomedical Science Department, University of Sassari, Sassari, Italy

Background: Nowadays, among the main issues related to HIV we have to face stigma and discrimination. Detrimental campaigns from the first decades of the pandemic are still making themselves felt, influencing societal attitudes and perceptions. Mass media often mirror society and could have the power to shape it. Amidst these, cinema plays a crucial role. This study delves into how cinematic works from 2016 to 2023 have portrayed HIV.
Methods: We screened “IMDb” and “Themoviedb” databases, using the tags “AIDS” and “HIV” and the Wikipedia category pages “Films about HIV/AIDS” in all languages. We included full-length movies(at least one hour) about HIV or in which HIV was mentioned. Only movies in English or in which English subtitles were available were included. We excluded documentaries and shorts.
Besides general information, we collected the following variables: number of people with HIV, genre, risk factor for HIV, presence of AIDS, AIDS-defining conditions, HIV-related deaths, discrimination/stigmatisation in the movie or by the movie itself, if PrEP, PEP, and U=U were represented, and the scientific reliability of the movie.
A descriptive analysis of qualitative and quantitative variables was performed using proportions and central tendency/variability indicators.
Results: From an initial pool of 3,060 films, we refined our selection by removing duplicates, documentaries, and shorts, leaving 526. Further exclusion of 71 films unrelated to HIV and 388 released before 2016 resulted in the inclusion of 67 films. Of these, 17 were inaccessible in full lenght online, five were off-topic, and five were short, ultimately narrowing our study to 40 relevant movies (Figure 1). General information is reported in Table 1.
Cisgender women and transgender women were represented in only eight(20%) and four(10%) movies, respectively. Being MSM was the risk factor in 25(62.5%). AIDS was shown in 18 (45%) and in 16(40%) people with HIV(PWH) died.
Discrimination or stigmatization of people with HIV was shown in 37.5% and 47.5% of the films, respectively, while the films themselves were found to discriminate or stigmatize in 17.5% and 5% of cases (Figure 2).
Pre or post-exposure prophylaxis and U=U were mentioned in two (5%) movies; scientific reliability, contextualised within the film’s time setting, was confirmed in 23 (57.5%) movies.
Conclusion: Our review highlights a predominantly dramatic representation of HIV in cinema, with many films missing the opportunity to normalize living with HIV. The infection is still depicted as before the introduction of antiretroviral therapy, also in movies set in recent years. This may be due to filmmakers choosing AIDS as a narrative expedient for a dramatic touch to the movies. PEP and PrEP were mentioned in only two movies each, while U=U was just indirectly suggested in only two movies, underscoring the need for further discussion on cinema’s potential role in raising awarness and fighting HIV stigma.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_448.jpg

Stigma, awareness and education

SC 49 MINORITY STRESS AND STIGMATIZING ATTITUDES TOWARDS HIV: A CROSS-SECTIONAL STUDY AMONG MSM ON PREP, PEOPLE LIVING WITH HIV AND PEOPLE NOT LIVING WITH HIV IN ITALY

F.M. Nimbi[1,2], I. Pennini[2], L. Palla[3]

[1]Department of Dynamic and Clinical Psychology and Health Studies, Sapienza University of Rome, Italy, [2]Arcigay Associazione Italiana LGBT, Bologna, Italy, [3]Department of Public Health and Infectious Diseases, Sapienza University of Rome, Italy

Background: The literature points out that the adoption of sexual health behaviors is associated to many biopsychosocial factors such as minority stress and stigmatizing attitudes that may facilitate or hinder the adoption of more healthy behaviors. This study aims to explore possible differences in minority stress, stigmatizing attitudes, and psychological health in a group of MSM on PreP, compared with a group of MSM living with HIV (PLWHIV) and a group of MSM not living with HIV (PnLWHIV).

Material and methods: A total of 2,237 Italian MSM (140 on PreP, 180 PLWHIV, and 1,917 PnLWHIV) (mean age 36.95 ± 12.04 years, range 18-80) completed an anonymous web survey on mental and sexual health composed by ad hoc questions and validated measures of psychopathology (BSI-18), internalized sexual stigma (MISS-SF), HIV-related stigma (SATPLWHA) and minority stress (DHEQ). The survey was part of the "Game Over Stigma" project. The survey was sponsored on social networks and data were collected from May to June 2023 thanks to a non-conditional contribution from ViiV Healthcare SRL. Kruskal Wallis test followed by post-hoc Dunn test for multiple comparisons with Bonferroni correction were used to compare continuous measures across the 3 groups and chi square test for categorical variables.

Results: Most of the participants was cisgender (96.1%), gay (80.5%), single (47.2%), and reported a medium-high education level. Among PLWHIV, 99.4% were in HAART and 97.8% reported an undetectable viral load.

The three groups show different levels of vigilance with respect to minority stress (p=0.0029) with the PnLWHIV showing higher stress than PLWHIV. Other differences concern stigmatizing attitudes towards PLWHIV, measured only on the PrEP and PnLWHIV groups: the PrEP group generally shows more positive attitudes towards PLWHIV than the PnLWHIV (p=0.0002), mainly in the domains of "concerns about occasional encounters with PLWHIV" (p=0.0022), "non-discrimination of PLWHIW" (p=0.0027), and "confidentiality about serological status" (p=0.0001).

With respect to psychopathological symptoms, the PLWHIV group reported higher levels of somatization (p=0.0024) than the PrEP group. No differences were found in the levels of internalized sexual stigma between the groups. Notably, the PLWHIV and PrEP groups reported a higher frequency of chemsex behavior (chi2 = 133.639; p<0.0001) compared to PnLWHIV.

Conclusions: As this is a cross-sectional non representative study, it is not possible to draw causal inferences regarding the inter-group differences found. Interestingly, the group of people on PrEP and PLWHIV generally showed lower levels of minority stress and stigma than PnLWHIV. This could indicate a greater awareness of sexual health that drives the adoption of healthier behaviors (PrEP and HAART), but also the fact that being directed towards healthier behavior by health personnel helps to improve the quality of life related to minority stress impact.

Stigma, awareness and education

SC 50 EXPERIENCE OF A COMMUNITY-BASED CHEMSEX SERVICE: ANALYSIS OF REQUESTS FOR HELP DURING THE MDPV OUTBREAK

A. Bianchi[1], P.L. Vinti[1], A. Antonino[1], P. Testoni[1], F. Rossi[1], M. Manfredini[1], G. Fracca[1], D. Zagato[1], M. Cernuschi[1,2]

[1]ASA Onlus ODV, Milano, Italy, [2]San Raffaele Hospital, Milano, Italy

Background: Since 2017 ASA offers group and individual therapy sessions to address problematic chemsex. In 2023, the rapid spread of MDPV use sharply increased the frequency of requests for help received, which required a scale-up in service delivery and the establishment of a network with local addiction services. Peer workers first receive requests by phone and collect contact information, so that a psychotherapist can follow up on the request and schedule an interview, to assess the individual's needs and identify together the most suitable interventions.
Methods: Characteristics of clients and of their requests received between January 2023 and March 2024 were analysed to inform further prevention and care interventions for problematic chemsex. For each client sociodemographic characteristics were collected, and the following was investigated during interviews: behavioural and socio-psychological aspects of drug use, motivations for requesting help, history of drug use, history of pharmacological or psychological treatment, HIV status, frequency of condom use. Descriptive statistics and thematic analysis were used.
Results: 71 requests were received, and detailed characteristics are presented in Table 1. Clients were mostly male (97%), gay (94%), high school or university graduates (81%), aged 31-40 (42%), employees (68%), born in Northern Italy (51%), living in Milano (68%). Clients predominantly called because they felt they had lost control (39%) or a specific episode severely scared them (22%), and asking for help to quit drugs (81%).
Characteristics of clients' drug use are presented in Table 2. 93% used stimulant drugs, with the most frequently used being MDPV (80%). Most clients used drugs on a weekly (46%) or monthly basis (36%), and with occasional partners (53%). While 38% started with chemsex out of relationship problems or loneliness, 35% by emulating partners. 35% were not currently able to have sober sex. 35% never used drugs before starting with chemsex.
Clients' history of treatment is presented in Table 3. 19% had been hospitalized and 8% accessed the ER at least once to treat chemsex-related issues. 35% had accessed another health service before for problematic chemsex, 25% of them felt their issue was not understood and 12% felt judged. 20% are currently doing psychotherapy, but all of them do not feel free to talk about drug use.
79% reported never using condoms, and 36% were neither on ART or PrEP.
Conclusions: The frequency of requests for help and their complexity show the urgency to build a capacity of addiction services to address problematic chemsex, especially outside of metropolitan areas. Perceived or actual lack of this capacity and fear of judgement within health facilities are substantial barriers to access to potentially life-saving services. Raising awareness on the risks of MDPV use is needed to reduce its use by emulation. HIV and STI services need to be integrated with any chemsex service.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_72.jpg

Stigma, awareness and education

SC 51 CHEMSEX KNOWLEDGE AND USE AMONG PREP-USERS AND PWH: A SURVEY ON THE MILANESE SCENE

C. Fusetti[1], E. Caruso[2], F. Barone[1], D. Calzavara[2], F. Caruso[1], R. Repossi[2], R. Fattore[1], A. Giacomelli[1], M.V. Cossu[1], C. Atzori[1], A. Gori[1,3], M. Cernuschi[2], D. Moschese[1,2]

[1]Department of Infectious Diseases, Luigi Sacco University Hospital, Milan, Italy, [2]Milano Checkpoint ETS, Milan, Italy, [3]Centre for Multidisciplinary Research in Health Science (MACH), University of Milan, Milan, Italy

Background: Chemsex is the use of psychostimulant substances during sexual intercourses. The variability of drugs involved in chemsex sessions is influenced by local drug dealing hotspots and trafficking, which makes it difficult to determine the actual extent of the phenomenon.
A recent review of the literature estimated the prevalence in Europe as ranging from 9 to 21%.
We aimed to assess chemsex knowledge and use among people attending our STIs services in Milan.
Material and Methods: An anonymous questionnaire was administered from January to March 2024 in one community-based and one in-hospital STIs services in Milan in order to collect information on: age, gender identity, sexual orientation, HIV status or PrEP use, knowledge and practice of chemsex, chems use, and perception in personal and community's substance abuse over the years.
Results: A total of 417 people completed the survey (table 1), with 375 (90%) cisgender men of whom 369 (98.4%) were GBMSM. 367 (88%) were PrEP users while 50 (12%) individuals were living with HIV.
90% of participants had heard of chemsex, with similar percentage of awareness among PrEP users and PWH.
165 (40%) disclosed drug use, of whom 40% self-reported engaging in chemsex. 94 people (57%) showed a polydrug use, and only one person reported slamsex practices.
Among chemsex-specific substances, 28% of users reported the consumption of mephedrone, 19% of GHB/GBL, 14% of MDPV, and 6% of crystal methamphetamine. Even though not strictly considered chemsex drugs, alkyl nitrites (popper) and cocaine/crack were also consistently consumed, 65% and 30% respectively.
Overall self-perception of chems abuse was quite high, with 36 responders (22%) not perceiving themselves to be drug consumers, including 7 of whom consuming drugs other than cannabis and popper.
63 users (39%) did not reveal the consumption to their doctor: main reasons behind undisclosure were reported as not being asked about it or do not perceive it as relevant.
In addition, 202 out of 222 (91%) reported the perception of an increase in chems use by their community over the last five years, even if only 27% self-reported a personal increase.
No significant differences were found among the two STIs centers in terms of population's numerosity and characteristics (with the exception of HIV status and time on PrEP), and chems use/knowledge.
Conclusions: When compared to other national and international experiences, we found a higher prevalence (40%) of drug use among PrEP users and PWH attending our services in the city of Milan. Even when reduced to the sole chemsex-specific drug use (excluding recreational drugs) prevalence of consume remain relevant.
Although self-perception of drugs abuse was high, more than a third did not report it to their doctors.
These data underline the necessity of an increased medical attention and preparedness on the subject, in order to identify and manage problematic drug use and to provide adequate support.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_316.png

Stigma, awareness and education

SC 52 COMPREHENSIVE SEXUAL HEALTH EDUCATION IN ITALIAN SECONDARY SCHOOLS: PRELIMINARY RESULTS OF THE EDUFORIST NATIONAL PROJECT

A. Chinelli[1], D. Martinelli[2], G. Paparatto[1], L. Bonaldo[1], M. Di Nino[1], A. Musco[2], M. Ubbiali[3], M. Farinella[4], L. Mangieri[5], M. Rohani[6], I. Pennini[7], S. Bellini[8], R. Galipò[9], P. Meli[10], N. Catucci[11], M. Di Tullio[11], V. De Falco[12], P. Fallace[13], F. Rizzi[14], B. Suligoi[15], M.C. Salfa[15], P. Nardone[15], D. Pierannunzio[15], S. Donati[15], S. Ciardullo[15], L. Tavoschi[1]

[1]University of Pisa, Pisa, Italy, [2]University of Foggia, Foggia, Italy, [3]University of Verona, Verona, Italy, [4]Circolo di cultura omosessuale Mario Mieli, Roma, Italy, [5]Coordinamento Nazionale Comunità di Accoglienza (CNCA), Roma, Italy, [6]Arcigay, Bologna, Italy, [7]Arcigay, Padova, Italy, [8]Lega Italiana per la Lotta all'AIDS (LILA), Firenze, Italy, [9]Associazione Nazionale per la Lotta all'AIDS (ANLAIDS), Roma, Italy, [10]Coordinamento Italiano Case Alloggio HIV/AIDS (CICA), Bergamo, Italy, [11]Lega Italiana per la Lotta all'AIDS (CamaLILA), Bari, Italy, [12]Associazione Nazionale per la Lotta all'AIDS (ANLAIDS) Campania, Napoli, Italy, [13]ASL Napoli2 Nord, Napoli, Italy, [14]Arcigay Friuli, Udine, Italy, [15]Istituto Superiore di Sanità, Roma, Italy

Background: Sexually transmitted infections (STIs) are on the rise all over Europe, including Italy, affecting especially young people. Among the different interventions promoting STIs knowledge and healthier behaviours, comprehensive sexuality education (CSE) represents the best approach. However, in Italy, CSE is not yet included in the curriculum of any grade of school. In this study, we present the preliminary results of a CSE pilot intervention in Italian secondary schools. This initiative was conducted as an objective of EduForIST national project, funded by the Ministry of Health, coordinated by the University of Pisa, in collaboration with the Italian National Institute of Health, Universities of Verona and Foggia, several civil society organisations (CSOs) and three local health departments. In particular, we described the results in the levels of knowledge and satisfaction of students participating in the intervention, from December 2023 to May 2024.

Material and Methods: The pilot intervention targets secondary schools' students and consists of a 10-hour intervention of 5 modules covering topics such as: changes in adolescence, relationships, consent, sexual identity, STIs, unwanted pregnancy prevention and sexual health services. The students' evaluation consists in pre/post tests assessing knowledge and satisfaction that includes open-ended questions (e.g. sexuality definition; how to improve the intervention). A Solomon four-group design study was used to compare intervention and control classes. CSOs educators and local health unit personnel delivered the intervention in 26 secondary schools (13 lower) of 6 regions. A follow-up test will be conducted 4-6 months after the end of the activity.

Results: Between December 2023 and March 2024, a total of 789 students have completed the pre-tests, 596 the post-tests (including 383 from intervention group) and 351 the satisfaction questionnaires. Preliminary analysis on pre-post tests showed increase in correct answers among the intervention group. The activity was highly appreciated, especially the topics regarding changes in adolescence, emotions, relationships and methods to prevent STIs transmission. The vast majority of students (96% of upper secondary and 86% of lower secondary) considered schools to be the appropriate setting to receive comprehensive information on STIs prevention, preferably by external experts. Further analysis on qualitative and long-term results are ongoing and will aim to determine the impact of the intervention on students' knowledge retention in short/medium term and satisfaction levels.

Conclusions: The results from this study will contribute to assess the impact of CSE initiatives on sexual health knowledge and attitudes among Italian secondary schools students, and on the efficacy of these programs in fostering healthier behaviours. The evidence generated will inform and support advocacy for the introduction of CSE within the Italian school curricula.

Stigma, awareness and education

SC 53 FROM INFORMATION TO TEST: THE EXPERIENCE WITH HIGH SCHOOL STUDENTS

C. Pellegris[1], D. Meli[1], P. Meli[1], I. Mercurio[1], E. Zanetti[1], F. Maggiolo[2], A. Cambareri[3], S. Malvestiti[4], S. Zuppardo[5], F. Tognoli[6], I. Fontana[7]

[1]Cooperativa Don Giuseppe Monticelli – Bergamo, Italy, [2]Bergamo Fast-Track City, Italy, [3]IISS Ettore Majorana - Seriate, Italy, [4]ISISS Valle Seriana - Gazzaniga, Italy, [5]IIS Caterina Caniana – Bergamo, Italy, [6]Liceo Don Milani – Romano di Lombardia, Italy, [7]Ufficio Scolastico Territoriale di Bergamo, Italy

Background: Since October 2019, as part of the initiatives of the Bergamo Fast-Track City network, the Don G. Monticelli Cooperative has been implementing the #cHIVuoleconoscere project within the secondary schools of the province. Up to now, in its fourth edition, we have met 9460 students. Beside training on HIV and sexually transmitted infections, students are involved in competitions to create useful communication material and/or awareness events. The impact of the project is measured through the analysis of the surveys carried out with students before and after the course.(Table A)

Material and Methods: After a short experimentation in two institutes during the school year 21/22, in 2023 Prevention Days were organized in 6 institutes during which students had the opportunity to take rapid, anonymous and free tests for HIV, HCV and syphilis. Through a link, students and school staff could book their test. The proposal was made only to students over 18 years, given the legal limits still inforce in Italy.

Results: During the 7 days of screening, 350 people underwent the test, 89% were students and the remaining 11% were adult school staff members (teachers, educators, ATA and secretarial staff) (Table B); 48% were females, 52% males and 1 transgender. This was the first test for 93% of students and for 50% of adults (Table C) In the schools that allowed the organization of the day during school hours, the turnout was very high and it was not always possible to satisfy all the students' requests, sending them back to the City Checkpoint. Taking into consideration only the 3 institutions where we went during school hours, they counted for 1000 adult students, 246 were tested with a participation rate of 24.6% (one out of four students). The participation of teachers and auxiliary staff was also significant, and had a specific educational meaning. We found only one reactivity to HCV, who accessed the Papa Giovanni XXIII hospital for confirmation and care. (Table D)

Conclusion: The students, trained and stimulated, respond enthusiastically to the proposal to test themselves by putting themselves on the line and moving from the cognitive level of the training phase to the level of action. The value of this kind of events in schools lies not so much in the possibility of finding any reactivity, but in the powerful symbolic and educational value about sexual health. Undergoing the test for the first time at school normalizes the issue of sexual health screening which must become a routine, good practice: a young person who is tested at his/her sexual debut is more likely to become an adult who will take care of his sexual health throughout his life.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_325.jpg

People living with HIV: thinking of QoL

TD 1 EFFICACY, SAFETY AND METABOLIC CHANGES AT 6-MONTHS AFTER SWITCH TO LONG-ACTING INJECTABLE CAB/RPV: RESULTS FROM AN OBSERVATIONAL PROSPECTIVE MULTICENTER STUDY

C. Bartalucci[1,2], L. Taramasso[2], E. Ricci[3], A. De Vito[4], N. Squillace[5], S. Ferrara[6], E. Pontali[7], G. Cenderello[8], G.F. Pellicanò[9], E. Sarchi[10], F. Lagi[11], E. Salomoni[12], M.A. Carleo[13], O. Bargiacchi[14], G. Madeddu[4], A. Cascio[15], B. Menzaghi[16], G.V. De Socio[17], K. Falasca[18], P. Bonfanti[5], A. Di Biagio[1,2]

[1]Department of Health Sciences (DISSAL), University of Genoa, Genoa, Italy, [2]Department Infectious Disease Clinic, IRCCS Ospedale Policlinico San Martino, Genoa, Italy, [3]Fondazione ASIA, Milan, Italy, [4]Unit of Infectious Diseases, Department of Medicine, Surgery and Pharmacy, University of Sassari, Italy, [5]Infectious Disease Unit, Fondazione IRCCS San Gerardo dei Tintori, Monza - University of Milano-Bicocca, Monza, Italy, [6]Unit of Infectious Diseases, Department of Clinical and Experimental Medicine, University of Foggia, Foggia, Italy, [7]Department of Infectious Diseases, Galliera Hospital, Genoa, Italy, [8]Infectious Diseases Department, Sanremo Hospital, Sanremo, Italy, [9]Unit of Infectious Diseases, Department of Human Pathology of the Adult and the Developmental Age 'G. Barresi', University of Messina, Messina, Italy, [10]Infectious Diseases Unit, S.Antonio e Biagio e Cesare Arrigo Hospital, Alessandria, Italy, [11]AOU Infectious and Tropical Diseases, Careggi Hospital, Florence, Italy, [12]SOC 1 USLCENTRO FIRENZE, Unit of Infectious Diseases, Santa Maria Annunziata Hospital, Florence, Italy, [13]Infectious Diseases and Gender Medicine Unit, Cotugno Hospital, AO dei Colli, Naples, Italy, [14]Unit of Infectious Diseases, Ospedale Maggiore della Carità, Novara, Italy, [15]Unit of Infectious Diseases, Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties, University of Palermo, Palermo, Italy, [16]Unit of Infectious Diseases, ASST della Valle Olona – Busto Arsizio, Varese, Italy, [17]Unit of Infectious Diseases, Santa Maria Hospital, Perugia, Italy, [18]Clinic of Infectious Diseases, Department of Medicine and Science of Aging, G. D'Annunzio University, Chieti-Pescara, Chieti, Italy

Background: Injectable cabotegravir (CAB) and rilpivirine (RPV) long-acting (LA) is a new antiretroviral treatment (ART) for HIV-1 infection in virologically suppressed people with HIV (PWH). The study aims to describe outcomes at six months after switch to CAB/RPV and provide a specific subgroup analysis for PWH coming from tenofovir alafenamide (TAF)-containing regimens.

Material and methods: This was an observational prospective study from an Italian multi-center observational prospective database. PWH who started CAB/RPV LA injectable regimen from July 2022 to September 2023 were included. We assessed outcomes (efficacy, safety and metabolic variables including weight, renal, hepatic and blood-lipids changes) at six-months after switch, according to the previous regimen (TAF-based or not). Then an analysis of metabolic-variables changes in the group of PWH coming from TAF-containing regimens was performed, compared with all other groups. Statistical analysis was performed using the paired Student's t-test to evaluate changes from baseline to six-months follow-up; the analysis of variance was used to compare changes between different ART regimens. P<0.05 was considered statistically significant.

Results: 287 PWH were included, clinical and demographic variables at baseline are reported in Table 1, and previous ART regimens, in 126/287 (43.9%) TAF-based, in Table 2. Virological outcomes were presented in Table 3. After six months, we observed 273 (95%) cases of sustained viral suppression and 23 (8.0%) cases of treatment interruption. Metabolic-variables changes at 6-months were reported in Table 4. We observed a borderline statistically significant reduction in mean body weight of -0.57 kg (SD ± 4.84; [95% CI, 1.14 to .00]; p=0.0527), mean BMI of -0.25 kg/m2 (SD ± 1.80; [95% CI, -0.48 to -.03]; p=0.0283) and mean creatinine of -0.06 mg/dL (SD ± 0.12; [95% CI, -.01 to -.00]; p<.0001) with a statistically significant increase of estimated glomerular filtration rate (eGFR) of 6.29 ml/min (SD ± 20.20; [95% CI, 3.9 to 8.7]; p<.0001). Variance analysis showed no statistically significant results for metabolic-variables changes when comparing INSTIs-containing vs non INSTIs-containing previous regimens and NNRTIs-containing vs non NNRTIs-containing previous regimens. Finally, comparing TAF-containing vs non-TAF containing previous regimens (Table 5), no difference emerged, besides a decline of tryglicerides in PWH coming from TAF-cointaining regimens compared to those coming from non-TAF containing regimens (-5.8 vs +9.8 mg/dL, p=0.02).

Conclusions: Our real-life data show a favorable outcome of CAB/RPV LAinjectable regimen at six months after switch in terms of efficacy, safety and metabolic-variables changes, with an improvement in renal function and reduction in body weight and BMI. Moreover, interrupting a TAF-based regimen does not appear to be associated with significant changes in metabolic variables, except for a triglyceride reduction.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_447.jpg

People living with HIV: thinking of QoL

TD 2 PATIENT-REPORTED OUTCOMES (PROS) IN PEOPLE LIVING WITH HIV TREATED WITH LONG-ACTING INJECTABLE ANTIRETROVIRAL THERAPY (LAI-ART)

S. Arsuffi[1], C. Mazzi[2], S. Calza[3], G. Tiecco[1], R. Fazio[4], G.M. Piccardi[4], C. Anzoni[1], M. Di Gregorio[1], S. Rapino[1], I. Polesini[1], F. Castelli[1], E. Quiros-Roldan[1], E. Focà[1]

[1]Clinica di Malattie Infettive e Tropicali, Università degli Studi di Brescia e ASST Spedali Civili di Brescia, Italy, [2]Dipartimento di Scienze Cliniche e Sperimentali, Università degli Studi di Brescia, Italy, [3]Unità di Biostatistica e Biomatematica e Unità di Bioinformatica, Dipartimento di Medicina Molecolare e Traslazionale, Università degli Studi di Brescia, Italy, [4]Unità Operativa Farmacia Aziendale, ASST Spedali Civili di Brescia, Italy

Background: The introduction of LAI-ART could affect the life of PLWH and patient-reported outcomes (PROs) could be a fundamental instrument to explore this aspect. This study aims to evaluate the satisfaction with LAI-ART in a cohort of PLWH.

Methods: This is a monocentric prospective study. We enrolled PLWH who switched to Cabotegravir (CAB) and Rilpivirine (RPV) bimonthly LAI-ART at the Clinic of the Infectious and Tropical Diseases Clinic of the ASST Spedali Civili of Brescia from March 2023. PROs were evaluated through three questionnaires: Quality of Life and Health Status Scale (EQ-5D), Antiretroviral Therapy Satisfaction Scale (HIV-TSQs), and Resilience Scale (RS). These questionnaires were administered to all the subjects before the beginning of LAI-ART (T0) and after 6 (T1) and 12 months (T2).

Results: We included 51 individuals: 42 (82.35%) men, 48 (94.12%) Italian, with a mean age of 45.25 years (SD 11.2); 25 subjects completed T1 (one discontinued LAI ART due to worsening of depressive symptoms) and 10 completed T2 (one discontinued due to injection site reaction).

At T0, EQ-5D scores were very high (mean scoring between 1.0 and 1.28 for all the items) with a mean perception of health status of 82.28 out of 100. HIVTSQs questionnaire showed the lowest scores in the items related to the compatibility of ART with their lifestyle (mean 5.25 out of 6) and their willingness to continue the current ART (5.06 out of 6). Considering the RS questionnaire, the lowest scores were related to acceptance of unexpected events (5.47 out of 7), self-love (5.94 out of 7), and determination (5.96 out of 7).

At the follow-up visits, the overall satisfaction for LAI-ART at HIVTSQs was of 5.84 out of 6 at T1 and 5.9 out of 6 at T2. Side effects had a mean score of 5.68 out of 6 at T1 and 6.8 out of 6 at T2. We noticed a higher satisfaction regarding the commitment required, the convenience, the flexibility, and the adaptation of therapy to their lifestyle (Fig.1). Most of the participants would recommend LAI-ART to other people (average score of 6 out of 6 at T1 and 5.9 out of 6 at T2). They were contented with continuing injectable therapy (6 out of 6 at T1 months and 5.9 out of 6 at T2). Moreover, there was an increase in the perception of health status at EQ-5D (87.78 at T1, and 88.5 at T2). The scores in the quality of life did not significantly change, being already high at T0 (Fig.2). Regarding the Resilience Scale, the scores indicating agreement with the 10 items generally all increased at follow-up (Fig. 3).

Conclusions: We observed a very high scores of quality of life and resilience at baseline, with an additional increase in almost all the items when they switched to LAI-ART. Treatment satisfaction improved significantly and remained elevated even months after the start of injectable therapy.

In our analysis we showed the relevance of patient-reported outcomes to evaluate the patients' satisfaction of CAB/RPV LAI-ART.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_384.jpg

People living with HIV: thinking of QoL

TD 3 ENHANCING ADHERENCE AND TREATMENT SATISFACTION IN PEOPLE LIVING WITH HIV: THE IMPACT OF CABOTEGRAVIR PLUS RILPIVIRINE LONG-ACTING IN REAL LIFE

R. Schiavoni[1,2], V. Busin[4], D. Malucelli[5], L. Taramasso[1], L. Mezzogori[1,2], C. Bartalucci[1,2], L. Labate[1], S. Blanchi[1], S. Beltramini[4], F. Mina[4], M. Bassetti[1,2], A. Di Biagio[1,2]

[1]IRCCS Ospedale Policlinico San Martino, Genoa, Italy, [2]Department of Health's Sciences, University of Genoa, Italy, [3]Clinica Malattie Infettive, IRCCS Ospedale Policlinico San Martino, Genoa, Italy, [4]Pharmacy Unit, IRCCS Ospedale Policlinico San Martino - Genoa, Italy, [5]Deenova srl – Piacenza, Italy

Background: Cabotegravir plus rilpivirine long-acting (CAB+RPV LA) is the only complete long-acting regimen for treatment of virologically suppressed people living with HIV (PWH). CAB+RPV LA may mitigate adherence challenges associated with daily oral therapy. The aim of the study is to evaluate real world adherence and treatment satisfaction to CAB+RPV LA versus previous oral ART regimens.
Methods: We conducted a retrospective single centre cohort study using utilization of enterprise software systems for prescription management and drug distribution to patients. Our primary aim was assessing the timeliness of antiretroviral therapy (ART) withdrawal from September 1st, 2022, to January 24th, 2024. We enrolled PWH aged 18 years of age or older, who were on stable oral ART and switched to CAB+RPV LA (Table 1) from first injection. To resolve the issue of differing durations between oral and injectable therapies, an algebraic index (AI) was computed for each PWH, derived by factoring in the actual treatment duration and normalizing it against a theoretical one-year treatment period. Therefore, based on the AI, we defined a suitable range for LA treatment adherence as between -7 and +7 days (indicating good adherence), while exceeding 7 days was classified as a delay in adherence. For oral treatment, adherence was considered acceptable if the AI fell between 0 and +7 days, with delays considered beyond +7 days. To assess treatment satisfaction, data were collected from real-life app surveys, telephone interviews, and regular appointment. Using sliding scale 0-10 the participants were required to respond to the following questions: “how satisfied are you with your current antiretroviral treatment?” and "how satisfied were you with your previous treatment?".
Results: 56 PWH were identified during the study period. The administration schedule for CAB+RPV LA in all the individuals involved was every two months, without any lead-in therapy. Out of the 56 individuals included in our study, considering the LA therapy, 32 (57.1%) were within a range of -7 to +7 days, while 24 (42.8%) had delays exceeding +7 days in accessing their medication. Regarding their oral treatment, 23 (41,1%) experienced delays ranging from 0 to +7 days while 33 (58.9%) faced delays beyond +7 days (Figure 1). Considering the questionnaires regarding satisfaction with LA therapy compared to oral therapy 34/44 (77.2%) consider themselves very satisfied, and 30 (68.1%) improved satisfaction level with a score higher than oral therapy (Figure 2).
Conclusions: Although based on data from a single centre, we observed an improving trend in ART adherence and satisfaction with LA treatment compared to previous oral therapy. Additional data would be needed for a comprehensive evaluation.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_366.png

People living with HIV: thinking of QoL

TD 4

CLINICAL EXPERIENCE WITH DORAVIRINE: REAL-LIFE STUDY OF THERAPEUTIC EFFICACY AND INFLUENCE ON METABOLIC PROFILE OF DUAL VERSUS TRIPLE ANTIRETROVIRAL REGIMENS IN A TERTIARY HOSPITAL OF MILAN

R. Nardo, L. Gazzola, T. Bini, G. Marchetti

University of Milan, San Paolo Hospital, Milan, Italy

Background: Our study aims to evaluate the efficacy and impact on metabolic profile of doravirine-based regimens in a cohort of ART-experienced patients, comparing its use in dual versus triple drug regimens.
Methods: All ART-experienced patients starting a regimen containing doravirine at S.Paolo Hospital, Milan, were included. Demographic, HIV and comorbidities data were collected: metabolic syndrome was defined by at least three of the following: 1. waist circumference >102-88cm; 2. triglycerides≥150mg/dL; 3. HDL≤40-50mg/dL; 4. fasting glucose≥100mg/dL; 5. blood pressure ≥130/85mmHg (AHA/NHLBI definition). Lipids data (total cholesterol, HDL and LDL) were collected at switch (baseline) and after twelve months, change from baseline was analysed by Wilcoxon for paired test; p value<0.05 was considered significant.
The probability of treatment failure (TF), defined by virological failure (VF, two subsequent HIV viral load >50cp/ml or a single one >400cp/mL) or treatment interruption for any reason, was analysed by Kaplan Meyer curves.
Results: 134 patients were switched to a doravirine-based regimen: 66 patients (49%) to dual regimens (58 with INSTI and 8 with boosted-PI) and 68 patients (51%) to triple regimens (12 patients with TAF/FTC and 56 patients with TDF/3TC). Demographic characteristics are outlined in Table 1: patients starting dual-therapy were older, with a higher prevalence of females, a longer history of ART, compared to those on triple-ART; no difference in prevalence of metabolic syndrome and basal cardiovascular risk factors were observed.
Main reasons for switch were: 73% HAART optimization, 10% virological failure and 5% toxicity.
Analysing the impact on metabolic profile, after 12 months a reduction in total and LDL cholesterol was observed (Δtotal-col=-15,IQR +10;-46,p=0.001; ΔLDL-col=-8,IQR +11;-30,p=0.04). This reduction was more pronounced in patients on trilple regimens [Δtotal-col=-30, IQR -3;-51,p=0.001;ΔLDL-col=-13, IQR +2;-37,p=0.08) compared to those on dual ones [Δtotal-col=-8.5, IQR +19;-43,p=0.05; ΔLDL-col=-0.5, IQR+12.5;-25,p=0.27).
The probability of TF at 12 months was 3.2% (95%CI 1.3-5.1), with no statistically significant difference among the two groups: 3.8% for two-drug regimens and 2.6 for triple regimens (log-rank= 0.38). Survival analysis by Kaplan-Meier curve are represented in Figure 1. Overall, a total of 8 TF were recorded: 5 adverse reactions to therapy, 1 treatment discontinuation for pharmacological interactions with adjuvant chemotherapy, and 2 VF occurring in patients in dual therapy, with only one requiring therapy modification.
Conclusions: In our cohort of ART-experienced patients, Doravirine is equally used in dual and triple regimens. Regardless of the regimen, this drug proved safety and virological efficacy, with patients on Doravirine based three-drug regimens also benefiting from a slight improvement in lipid profile, particularly in a population burdened by metabolic comorbidities.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_260.jpg

People living with HIV: thinking of QoL

TD 5

RAPID ART INITIATION AND RETENTION IN CARE OF PEOPLE LIVING WITH HIV: A SIX-YEARS OBSERVATIONAL STUDY IN FOREIGNERS VERSUS ITALIAN-BORNE

L. Gazzola[1], R. Nardo[1], A. Tavelli[2], A. Maschi[2], T. Bini[1], G.C. Marchetti[1]

[1]University of Milan, Infectious Disease Unit, Milan, Italy, [2]University of Milan, Milan, Italy

Background: This study aims to assess the probability of rapid ART initiation, retention in care and re-engagement after lost-to-care in a cohort of foreign versus Italian people living with HIV (PWH).
Methods: Retrospective observational study conducted at S.Paolo Hospital, Milan, from Jan-2016 to Jun-2021, including all PWH attending at least one visit/blood test. Endpoints: 1) Probability of rapid ART (within 14 days from diagnosis, from 2017 year when rapid ART was incorporated in EACS Guidelines); 2) Incidence rate (IR) of Lost to care (LC): not having a visit or lab test for at least 12 months, excluding transfers; 3) probability of re-engagement in care.
Factors associated with rapid ART were identified by logistic regression analysis, differences in IR of LC and risk factors associated were analysed by Poisson and Cox regression models, respectively.
Results: 1600 patients were observed: 204 treatment-naïve (122 Italians and 82 foreigners) and 1396 ART-experienced (1062 Italians and 334 foreigners). Demographic and immunovirological characteristics detailed in Table 1.
In treatment-naïve people, the median time from diagnosis to ART initiation was 34 days (IQR 17-62): 31 in Italians and 42 in foreigners (p=0.047). Rapid ART was initiated in 20 (28.2%) Italians and 7 (13.7%) foreigners (p=0.058). At logistic regression multivariate analysis, adjusted for AIDS, CD4, HIV viral load, and year of diagnosis, a higher likelihood of rapid ART was observed in people with AIDS diagnosis (aOR 3.39,95%CI 1.29-12.1, p=0.016); foreigners had a lower likelihood of rapid ART than Italians, although not statistically significant (aOR 0.38,95%CI 0.13-1.09,p=0.071).
A total of 378 LC events were recorded in 348 patients: the overall LC incidence was 60/1000 person-years of follow-up (PYFU) (95%CI 55.9-68.5), with a higher incidence in foreigners (98/1000 PYFU,95%CI 82.3-116) than among Italians (49/1000 PYFU,95%CI 43.3-56), with an incidence rate ratio of 1.98 (95%CI 1.61-2.45,p=0.005). At multivariate Cox regression model, stratifying foreigners based on regions of origin, people from sub-Saharian Africa, Latin America and Eastern Europe showed a higher risk of LC, while MSMs were associated with a lower risk (Table 2).
Of the 378 LC, 130 were re-engaged after a median time of 1.3 years, 89 Italians and 41 foreigners, with no difference in the probability of re-engagement. Foreigners re-engaging showed more frequently a decline in CD4 below 350 cells/mm3 (25.7% versus 10.9%,p=0.056) and viral load above 200 copies/mL in (29.4% versus 16.9%, p=0.140) compared to Italians. Only 5 clinical events were observed, none AIDS-defining.
Discussion: Our cohort analysis revealed that foreigners PWH are less likely to initiate ART promptly and at a higher risk of LC events. These findings underline the vulnerability of such populations and highlight the need for targeted interventions to address these disparities and enhance clinical outcomes in this population.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_258.jpg

Antiretroviral therapy: thinking of durability

TD 6 DURABILITY OF DORAVIRINE-DOLUTEGRAVIR DUAL COMBINATION IN A MULTICENTER COHORT OF ELDERLY PEOPLE WITH HIV

M. Mazzitelli[1], C. Cozzolino[2], C. Gervasoni[3], S. Pagano[3], S. Reato[3], D. Ripamonti[4], L. Comi[4], G. Sterrantino[5], F. Lagi[5], A. Cascio[6], M. Trizzino[6], V. Iannone[7], D. Farinacci[7], V. Baldo[2], A. Cattelan[1]

[1]Infectious and Tropical Diseases Unit, Padua University Hospital, Padua, Italy, [2]Department of Cardiothoracic and Vascular Sciences and Public Health, Padua University, Italy, [3]Gestione Ambulatoriale Politerapie Outpatient Clinic and Department of Infectious Diseases, ASST Fatebenefratelli Sacco University Hospital, Milan, Italy, [4]Infectious Diseases Unit, ASST Papa Giovanni XXIII Hospital, Bergamo, Italy, [5]Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy, [6]Infectious Diseases Unit, ARNAS Civico-Di Cristina-Benefratelli Hospital, Palermo, Italy, [7]Institute of Clinical Infectious Diseases, Catholic University of the Sacred Heart, Policlinico Gemelli, Rome, Italy

Background: The use of dual therapy, either as switch or initial strategy, has long been endorsed by guidelines. However, despite not mentioned by them, real-life data began to emerge on the use of doravirine-dolutegravir (DODO) dual combination. We aimed to describe durability of DODO regimen in a multicenter Italian cohort of over 50' people with HIV (OPWH).

Methods: We included all OPWH who ever started DODO in (Bergamo, Firenze, Milano, Roma, Padova, and Palermo) and were followed up until treatment discontinuation (TD) for any reason (virological failure, VF, death, treatment interruption for other reasons) on 31rst March 2024. Descriptive statistics were used to describe the study population; Kaplan–Meier curves and Cox regression analyses were used to estimate incidence and associated predictors of time to TD.

Results: 157 patients were included; their main characteristics are reported in Table 1. Overall, 96 (61.1%) were males with a median age of 59 years (IQR 55 - 64), 75.2% had multimorbidity and 38.9% were on polypharmacy, 91.1% with HIV-RNA <50 copies/ml, 10 PWH from 50-200 and the remaining ones from 201 to 3200 copies/ml (full characteristics in table 1). 30/157 (20.4%) did not have a genotype resistance test available, while 27 (17.1%) had a pre-existing K103N mutation. The main reasons for starting DODO were high cardiovascular risk (51.6%), simplification (52.9%), and drug-interactions (25.5%), with 43.3% PWH with more than a reason to switch. During a median follow-up of 27.85 (IQR: 22.92-31.79) months, 8 (5.1%) male participants experienced TD (2 for toxicities, 2 for VF, 2 passed to long-acting treatment, 1 died and 1 moved to another centre). The incidence of TD was 2.27 per 100 person-years of follow-up (PYFU). Kaplan–Meier curve representing the probability of TD is shown in Figure 1. Multivariable Cox regression analyses did not show any factors as predictor of TD.

Conclusions: In this multicenter cohort of elderly PWH with clinical complexity, DODO showed a good durability over time, especially in women.TD probability is very low, and no significant factors seem to predict it, probably due to limited number and heterogeneity of cases of TD.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_33.jpeg

Antiretroviral therapy: thinking of durability

TD 7 COMPARING THE EFFICACY AND SAFETY OF DOLUTEGRAVIR+LAMIVUDINE VS BICTEGRAVIR/EMTRICITABINE/TENOFOVIR ALAFENAMIDE FUMARATE AS FIRST-LINE REGIMENS IN A MULTICENTER COHORT

A. Ciccullo[1], G. Baldin[2], A. Giacomelli[3], F. Lagi[4], D. Moschese[3], S. Rusconi[5], G. Sterrantino[4], A. Borghetti[6], S. Antinori[3], C. Mussini[7], S. Di Giambenedetto[2]

[1]UOC Malattie Infettive, PO San Salvatore, L'Aquila, Italy, [2]Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy, [3]Department of Infectious Diseases, ASST Fatebenefratelli Sacco University Hospital, Milan, Italy, [4]Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy, [5]Infectious Diseases Unit, ASST Ovest Milanese Ospedaledi Legnano, and DIBIC, University Milan, Legnano, Italy, [6]Infectious Diseases Unit, Azienda Ospedaliero Universitaria Pisana, Pisa, Italy, [7]Azienda Ospedaliero Universitaria di Modena, Clinica Malattie Infettive e Tropicali, Modena, Italy

Introduction: In this study, we aimed to compare the efficacy and safety of BIC/FTC/TAF and DTG+3TC in our cohort of treatment-naïve PLWHIV.
Methods: In a multicenter cohort of treatment-naive PLWHIV starting a first line regimen with either DTG+3TC or BIC/FTC/TAF, we evaluated time to virological failure (VF, defined as 2 consecutive HIV-RNA >50 copies/ml or a single determination above 1000 copies/mL) as well as time to treatment discontinuation (TD, defined as the discontinuation of one or both analyzed drugs). Changes from baseline were evaluated via linear mixed models for repeated measures. Linear regression analyses were performed to explore variables associated to significant changes in laboratory parameters.
Results: In our cohort, we analyzed 170 individuals: 66 started DTG+3TC (DTG group) and 104 started BIC/FTC/TAF (BIC group). PLWHIV in the BIC group had a significantly higher peak HIV-RNA but the two groups presented non-significant differences in median age, sex, baseline CD4+ cell count or HCV-coinfection rate. None of the analyzed PLWHIV had a M184V resistance mutation nor had an AIDS-defining illness at diagnosis. Full population characteristics are shown in Table1.
During follow-up, we observed 2 VF in the DTG group (rate of 1.7 per 100 PYFU) and 2 in the BIC group (1.7 per 100 PYFU). Estimated probability of remaining free from VF at week 144 was 95.9% in the DTG group and 95.2% in the BIC group, we no significant differences between groups (log-rank p=0.955). As to treatment tolerability, we registered 4 TD in the DTG group (3.4 per 100 PYFU): 2 (3% of PLWHIV in the group) due to virological failure, 1 (1.5%) due to pregnancy and 1 (1.5%) due to individual choice.
We observed 21 TD in the BIC group (17.6 per 100 PYFU): 12 (11.5%) due to switch to a 2DR, 3 (2.9%) due to tolerability issues, 2 (1.9%) due to pregnancies, 1 (0.9%) for VF and 3 (2.9%) for other/unknown reasons. Estimated probability of maintaining study regimen at week 144 was 90.3% in the DTG group and 70.0% in the BIC group; individuals in the BIC group had a higher probability of TD (log-rank p=0.003). No predictors of TD were found in either group.
In both the DTG and the BIC group, CD4+ count improved significantly during follow-up. Median change at week 144 was +282 cell in the DTG group (p<0.001) and +247 cell in the BIC group (p<0.001). Differences between groups resulted non-significant.
Conclusions: In conclusion, our study shows that both INI-based strategies are effective and safe as first line regimens in clinical practice, with few VF and a lower rate of TD in the 2DR group.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_408.jpg

Antiretroviral therapy: thinking of durability

TD 8 SIMILAR EFFICACY, SAFETY AND CD4 T CELL INCREASE UP TO WEEK 96 OBSERVED IN FOSTEMSAVIR (FTR) BASED REGIMENS FROM THE BRIGHTE STUDY AND DOLUTEGRAVIR (DTG) BASED REGIMENS FROM THE VIKING-3 STUDY IN MULTIDRUG RESISTANT (MDR) HIV-1 INDIVIDUALS

A. Castagna[1], N. Gregori[2], I. Marcon[2], F. Du[3], B. Li[3], M. Wang[3], B. Jones[4], M. Prakash[4], A. Clark[4]

[1]Vita-Salute San Raffaele University, Milan, Italy/ Infectious Diseases, IRCCS San Raffaele Scientific Institute, Milan, Italy, [2]ViiV Healthcare, Italy, UK, [3]GSK, Collegeville, PA, USA, [4]ViiV Healthcare, Brentford, UK

Background: Construction of suppressive regimens in individuals with MDR HIV-1 can be challenging and can impact long term outcomes. Optimal regimens can reduce relative risk of opportunistic infections and improve survival. For a regimen to be successful, it should have robust efficacy as well as a favourable drug interaction and safety profile. Here we assess similar populations with limited treatment options from the BRIGHTE study using FTR-based regimens and from the VIKING-3 study using DTG-based regimens.

Methods: BRIGHTE was a Phase III international registrational study 2016- ongoing [n= 371; randomised cohort (RC), n=272; Non-randomised cohort n=99], in adults who were failing their current ARV regimen (HIV-1 RNA >400 c/mL) with ≤2 fully active and approved ARVs. Participants with 1 or 2 active ARVs entered the RC and received open-label FTR + optimised background treatment (OBT) after an 8-day blinded placebo-controlled period. In BRIGHTE RC, the most common agent in the initial OBT was DTG (84%) with the majority taking it twice daily (64%). VIKING-3 (n=183) was a single-arm (2011-2015), open-label phase III study in which therapy-experienced adults with INI-resistant virus received DTG 50mg BID while continuing their failing regimen (without raltegravir or elvitegravir) through day 7, after which the regimen was optimized with ≥1 fully active drug and DTG continued. Virologic and immunologic responses were analysed by baseline (BL) demographics and disease characteristics.

Results: BRIGHTE participants were male (n= 290, 78%), median age 48 years and White (n=259, 70%). The observed antiviral response in BRIGHTE (RC) was 81% (<40 c/mL, n=128), and 88% (<400 c/mL, n=140). Mean CD4 increase from baseline was 204.7 cells/mm3, with a BL mean CD4 count 152.5 cells/mm3. VIKING-3 participants were predominantly male, (n=141, 77%), median age 48 years, and 71% (n=130) White. Antiviral response observed in VIKING-3 was 84% (<50 c/mL, n=101) and 93% (<400 c/mL, n=111) . Mean CD4 increase was 192 cells/mm3, with a BL mean CD4 count of 202 cells/mm3. Safety for participants across study populations were as follows BRIGHTE (RC); n=92 (34%) any serious adverse event (AE), n=57 (21%) any drug-related AE and n=7 (3%) AE leading to withdrawal or discontinuation; for VIKING-3, n=60 (33%) any serious AE, n=52 (28%) any drug-related AE and n=8 (4%) AE leading to withdrawal or discontinuation.

Conclusions: Despite limited treatment options in individuals with MDR HIV-1 these data demonstrate that over 96 weeks both DTG (BID) and FTR-based regimens provide a robust viral suppression and CD4 T-cell improvement. Although differences exist in the baseline characteristics, there is more profound immunosuppression in the BRIGHTE population. These agents were commonly used together in the BRIGHTE study, engaging their different mechanisms of action. This data provides further support for effective agents for individuals living with multidrug-resistant HIV-1.

Antiretroviral therapy: thinking of durability

TD 9 EXPLORING THE USE OF DARUNAVIR BOOSTED PLUS DOLUTEGRAVIR IN HIGHLY TREATMENT-EXPERIENCED HIV POPULATION: A RETROSPECTIVE COHORT STUDY

A. De Vito[1,2], G. Moi[1], M. Menozzi[3], A. Bezenchek[4], D. Stanev[5], N. Cuomo[6], A. Raddi[6], F. Stefanelli[7], M. Guardiani[8], E. Tortellini[8], M. Cerchiaro[9], G. Brucci[9], P. Fusco[10], S. Rotundo[10], G. Stella[11], A. Cozzi-Lepri[12], B. Rossetti[11], A. Di Biagio[9]

[1]Unit of Infectious Disease, Department of Medicine, Surgery and Pharmacy, University of Sassari, Sassari, Italy, [2]PhD School in Biomedical Science, Biomedical Science Department, University of Sassari, Sassari, Italy, [3]AOU Policlinico di Modena, University of Modena and Reggio Emilia, Modena, Italy, [4]IPRO-InformaPRO S.r.l., Rome, Italy; EuResist Network GEIE, Rome, Italy, [5]Gran Sasso Science Institute GSSI, L'Aquila, Italy, [6]UOC Microbiologia e Virologia, Azienda Ospedaliera dei Colli - Presidio "D. Cotugno", Napoli, Italy, [7]IRCCS Ospedale Policlinico San Martino, Italy, [8]Dipartimento di sanità pubblica e malattie infettive, Policlinico Umberto I, Italy, [9]Infectious Diseases Unit, San Martino Policlinico Hospital - IRCCS for Oncology and Neuroscience, Genoa, Italy, Department of Health Sciences (DISSAL), University of Genoa, Genoa, Italy, [10]AOU Renato Dulbecco, Magna Græcia University of Catanzaro, Italy, [11]Infectious Disease Department, USL SUDEST, Toscana, Misericordia Hospital, Grosseto, Italy, [12]Centre for Clinical Research, Epidemiology, Modelling and Evaluation (CREME) Institute for Global Health UCL, London, UK

Introduction: The combination of darunavir boosted (DRV/b) and dolutegravir (DTG) has a high genetic barrier to resistance, crucial for treatment-experienced people with HIV (PWH) for whom options may be limited. However, there is no clinical trial data and limited real-life evidence supporting its use. This study aims to fill this gap by exploring the demographic, clinical, and genotypic profiles of patients initiating this regimen.
Methods: This was an observational, retrospective study from the ARCA database, including PWH starting treatment with DRV/cobicistat(c) or DRV/ritonavir(r) plus DTG, who had at least one Genotypic Resistance Test (GRT). The analysis focuses on evaluating the participants' demographic, clinical, and historical genotypic characteristics. Statistical methodologies include descriptive statistics for demographic and clinical variables.
Results: A total of 500 PWH were included in the study, with a median age of 53 (IQR 48-58) years and a long history of HIV and antiretroviral treatment. The median number of previous regimens was 10 (IQR 5-14). Most initiated treatment with an undetectable viral load (60.8%). Among those with a detectable viral load, the median HIV-RNA level was 596 (IQR 131-6674) copies/mL. The characteristics of the population are detailed in Table 1. The variety of previous regimens was extensive, encompassing more than 100 different regimens, as depicted in Figure 1.
Among the 500 PWH, 270 (54%) started treatment with DRV/c, while 230 (46%) started with DRV/r. The median number of previous GRTs was 3 (IQR 1-4). Considering the historic genotype, 211 (42.2%) exhibited no resistance, 150 (30.0%) had resistance to one class, and 113 (22.6%) to two classes; among these, 88 (17.6%) had only protease inhibitors (PI) and integrase inhibitors (INSTI) as available treatment. A smaller group, 23 (4.6%), had resistance to three classes, and 3 (0.6%) were resistant to four classes.
Focusing on resistance within individual drug classes (Figure 2), for nucleoside reverse transcriptase inhibitor (NRTI), only 112 (22.4%) had no mutations, while 362 (72.4%) exhibited resistance to at least one drug; notably, 319 (63.8%) were resistant to lamivudine. Regarding non-NRTI, 157 (31.4%) had no mutations for this class, while 280 (56%) exhibited resistance to rilpivirine or doravirine. For PIs, 50 (10%) were resistant to DRV/b. Finally, for INSTI, only 53 (10.6%) carried a mutation; however, among these, only 10 (2%) were resistant to DTG or bictegravir (Figure 3).
Conclusion: Our analysis of a highly experienced PWH cohort highlighted how DRV/b + DTG is often preserved. Thus, approximately 60% of our population initiating the PI/b + INSTI regimen showed evidence of prior resistance. The selection of this regimen for the remaining portion may relate to factors of tolerability or other clinical considerations rather than resistance. However, further studies are essential to fully elucidate the regimen's efficacy, safety, and durability.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_383.jpg

Antiretroviral therapy: thinking of durability

TD 10 REAL-WORLD DATA ON THE EFFECTIVENESS AND SAFETY OF BICTEGRAVIR/EMTRICITABINE/TENOFOVIR ALAFENAMIDE (B/F/TAF) IN PEOPLE WITH HIV (PWH): 24-MONTH FULL DATASET RESULTS OF THE ITALIAN BICSTAR COHORT

S. Rusconi[1], G.C. Marchetti[2], D. Canetti[3], V. Esposito[4], E. Quiros-Roldan[5], B. Candelaresi[6], A. Saracino[7], V. Malagnino[8], A. Antinori[9], A. Marongiu[10], L. Albini[11], R. Caldera[11], G. Forcina[11], G. Di Perri[12]

[1]Infectious Diseases Unit, ASST Ovest Milanese – DIBIC, University of Milan, Milan, Italy, [2]Clinic of Infectious Diseases, Department of Health Sciences, University of Milan, "ASST Santi Paolo e Carlo", Milan, Italy, [3]Clinic of Infectious Diseases, IRCCS San Raffaele Scientific Institute, Milan, Italy, [4]Infectious Diseases and Gender Medicine Unit D. Cotugno Hospital-A.O. dei Colli, Naples, Italy, [5]Division of Infectious and Tropical Medicine, ASST Spedali Civili, Brescia, Italy, [6]Infectious Diseases Clinic, Department of Biological Sciences and Public Health, Marche Polytechnic University, Ancona, Italy, [7]Division of Infectious Diseases, Bari University Hospital, University of Bari, Bari, Italy, [8]Infectious Diseases Clinic, University Hospital "Tor Vergata", Rome, Italy, [9]HIV/AIDS Department, National Institute of Infectious Diseases, L. Spallanzani, IRCCS, Rome, Italy, [10]Gilead Sciences Europe Ltd, Stockley Park, Uxbridge, UK, [11]Gilead Sciences Srl, Milan, Italy, [12]Department of Medical Sciences, Infectious Diseases, University of Turin, Turin, Italy

Background: The aim of the BICSTaR (GS-EU-380-4472) cohort is to provide real-world evidence on the effectiveness and tolerability of B/F/TAF in treatment-naive (TN) and treatment-experienced (TE) people with HIV (PWH). Here we present the final month 24 (M24) results from the Italian cohort.
Material and methods: BICSTaR is a prospective, multi-country, observational cohort study (enrolment 2018-2021). PWH initiated on B/F/TAF without further follow-up were excluded. Outcomes of interest were viral suppression (HIV -1 RNA <50 cp/mL; missing/discontinuation=excluded [M=E] and discontinuation=failure [D=F] analyses), treatment persistence, drug-related non-serious/serious adverse events (DRAEs/DRSAEs), and weight change.
Results: Of 205 PWH (29 TN, 176 TE), 82% were male and 44% were ≥50 years of age (baseline [BL] characteristics, see Table 1); 69% of participants had comorbid conditions (those occurring in ≥10%: hyperlipidemia [27%], hypertension [18%], musculoskeletal disorders [14%], neuropsychiatric disorders [10%]); 52% received concomitant medication (taken by ≥10%: agents acting on the renin-angiotensin system [15%], analgesics [14%], lipid-modifying agents [13%]). 14% of TE had documented history of virologic failure, the majority (94%) were on suppressive ART at BL. Most common regimens prior to B/F/TAF were elvitegravir/cobicistat/F/TAF (47%), darunavir/cobicistat/F/TAF (10%), and dolutegravir+F/TAF (9%).
At M24, in the M=E analysis, HIV-1 RNA was <50 cp/mL in 96% (24/25) of TN and 97% (145/149) of TE. In the D=F analysis, proportions were 92% (24/26) in TN and 92% (145/157) in TE. Resistance testing during follow-up was documented in 4 cases, with no emergent B/F/TAF-specific resistance-associated mutations.
Persistence on B/F/TAF was high with 6% discontinuations “due to other reasons” than virologic failure (1 TN, 11 TE; incl. n=5 due to DRAEs [involving 7 MedDRA preferred terms: affect lability, anxiety, loss of libido, hypersensitivity, amnesia, headache, alopecia]).
Overall, 22 DRAEs (no DRSAEs) were reported in 13 (6%) participants (most common psychiatric [n=5], nervous system [n=4], and gastrointestinal disorders [n=5]).
In TN (n=21 with weight data at BL and M24), median BL weight was 76kg (Q1, Q3 [70, 85]); median relative weight change at M24 was +5.3% (Q1, Q3 [-0.6, +8.2]).
In TE (n=110 with BL and M24 data), median BL weight was 76kg (Q1, Q3 [66, 82]); median relative change at M24 was +0.4% (Q1, Q3 [-3.5, +4.2]). Weight gains of >5% and >10% were reported in 20% and 5% of TE, respectively. Weight loss of >5% and >10% was reported in 17% and 1%, respectively.
Conclusion: During the 2-year observation period of the Italian BICSTaR cohort, B/F/TAF maintained high rates of viral suppression without emergence of resistance. Persistence on B/F/TAF was high with no discontinuation due to virologic failure and 2% discontinuations due to DRAEs. Real-world data support the safety and effectiveness of B/F/TAF.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_75.jpg

Because the virus matters

TD 11 VIRAL BLIPS AMONG PEOPLE LIVING WITH HIV FOLLOWING RECOMMENDED VACCINES

B. Trentacapilli[1], A.R. Raccagni[1], S. Diotallevi[2], R. Lolatto[2], D. Canetti[2], E. Messina[2], V. Spagnuolo[1,2], M. Ranzenigo[2], M. Bottanelli[1], C. Maci[1], A. Castagna[1,2], S. Nozza[1,2]

[1]Infectious Diseases Unit, Vita-Salute San Raffaele University, Milan, Italy, [2]Infectious Diseases Unit, IRCCS San Raffaele Scientific Institute, Milan, Italy

Background: Vaccines might be associated with viral blips (VB) in people living with HIV (PLWH) on antiretroviral therapy (ART). Aim was to assess the incidence of VBs following the currently recommended vaccines among PLWH.

Material and Methods: Retrospective study on PLWH receiving ART in care at the Infectious Diseases Unit of San Raffaele Scientific Institute, Milan, Italy, with at least 3 HIV-RNA<50cps/mL before baseline (BL) and at least one of the following vaccines: hepatitis B (HBV), hepatitis A (HAV), combined hepatitis A-B (HABV), pneumococcus (PNC: PPSV23, PVC13), papilloma virus (9vHPV), herpes zoster (RZV), or meningococcus ACWY (MenACWY). Date of the first dose of each vaccine schedule was defined as baseline (BL); follow-up (FU) accrued from BL until 6 months after the last vaccine dose. Incidence rate (IR) of VB was calculated with Poisson's exact confidence interval (95% CI); incidence rate ratio (IRR) with the approximate CI to compare the IRs.

Results: Overall, 2375 PLWH were included: 1947 received PNC, 865 MenACWY, 421 HAV, 382 HBV, 336 HPV, 175 RZV and 160 HABV. Demographic characteristics and IRs of VBs and CVFs per 100-PYFU are presented in Table.

VBs were more common following: i) MenACWY compared to HAV (IRR=2.78, 95%CI=1.35-5.88, p=0.004), HPV (IRR=2.22, 95%CI=1.05-4.76, p=0.03) or PNC (IRR=3.71, 95%CI=2.33-5.90, p<0.001); ii) HABV (IRR=2.76, 95% CI=1.32-5.77, p=0.004) or HBV (IRR=2.08, 95%CI=1.16-3.71, p=0.01) compared to PNC. CVFs were uncommon: these were more frequent only following HAV compared to PNC (IRR=3.16, 95%CI=1.12-8.85, p=0.02). No other significant differences were found between IRs.

Conclusion: Among vaccines recommended for PLWH, we observed higher incidence of VBs following MenACWY. The observed different IR of VB and IRR of different vaccines reflects the intrinsic diversity each other and could help clinicians in the correct interpretation of the causes of VB.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_116.jpg

Because the virus matters

TD 12 **CLINICAL PRESENTATION OF NEWLY DIAGNOSED PWH IN THE LAST FOUR-YEARS PERIOD POST COVID -19 PANDEMIC, IN A SINGLE CENTER IN ROME: A RETROSPECTIVE OBSERVATIONAL STUDY**

V. Iannone[1], A. Carbone[1], G. Lenzi[1], G. Baldin[2], P.F. Salvo[1], R. Passerotto[2], A. Cingolani[1,2], S. Di Giambenedetto[1,2], C. Torti[1,2], F. Lombardi[2]

[1]Catholic University of Sacred Heart, Infectious Diseases Unit, Rome, Italy, [2]UOC Infectious Diseases, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy

Background: Newly notified AIDS diagnoses have slightly increased in the last years after the COVID-19 pandemic, arising concerns about the effects of the initial stringent lockdown measure, that generated challenges in accessing healthcare facilities and HIV testing. Accordingly, worsening of clinical conditions at the time of HIV diagnosis has been reported in COVID-19 era, with a consistent diagnostic delay. We present our data from a single center of newly diagnosed People with HIV (Nd-PWH) during the period 2020-2023, investigating their clinical presentation at HIV diagnosis and frequency of AIDS defining illnesses (ADI).

Methods: We performed a retrospective observational study including Nd-PWH who tested HIV positive (baseline, BL) in a ranging period from 2020 to 2023 in our Infectious Disease Unit in Rome. Clinic and laboratory findings were collected, hospitalization needing and ADI frequency were also recorded. The individuals enrolled has been afterwards stratified by year. Kaplan-Meier (KM) was used to assess probability of virological success (VS) (HIV-RNA <= 30 cps/mL) according to the year and Cox- regression was used to assess the potential predictors of VS.

Results: We enrolled 173 Nd-PWH. Characteristics of participants at BL according to the year are summarized in Table 1. A slight decreasing trend in numbers of participants PWH with a CDC stage C, was observed (39 % in 2020, 36 % in 2021, 33 % in 2022, 27 % in 2023) although it was not statistically significant (p= 0.606). Concurrently, no significantly difference in hospitalization rate was observed (p=0.346). Regarding ADI,Pneumocystis pneumonia (PCP) was the most frequent illness in the overall population (31%) reaching the highest peak in 2020 (44%).Kaposi Sarcoma had a major frequency in 2022/2023 if compared to the previous 2 years period (2020-2021).In terms of antiretroviral treatment, the percentage of 3-drug regimen and 2-drug regimen as first line therapy, were both employed evenly over the years (p=0.474). By KM at 12 months after starting therapy, the overall probability of experiencing VS was 87 %. Nd-PWH who started therapy in 2023 had a higher probability of experiencing VS compared to participants from the other years (97% vs 85 2020, 85 2021, and 84.0 2022, p=0.021).After adjusting for age, sex, BL HIV-RNA, BL CD4 and CDC C, Cox regression confirmed that Nd-PWH starting therapy in 2023 showed a higher hazard of experiencing VS (aHR 2.35, 95%CI, 1.41-3.91, p=0.001).

Conclusion: In this single center observational study, we observed a slight improvement in percentage of ADI, when comparing with first COVID-pandemic year, although it remains high considering the restoring of full healthcare services and the increasingly easier access to the HIV test.Early detection remains a corner mark in reducing ADI frequency and in increasing survival in Nd- PWH, so clinicians have to be aware in encouraging prevention and providing information to increase access to HIV test.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_472.jpg

Because the virus matters

TD 13 CLINICAL AND IMMUNOVIROLOGICAL FEATURES OF POTENTIAL POST TREATMENT HIV CONTROLLERS

E. Focà[1], S. Rapino[1], M. Ferrara[2], G. Tiecco[1], F. Bai[3], B. Fioretti[1], T. Roatta[2], M. Sala[3], S. Bonora[2], G. Marchetti[3], A. Calcagno[2]

[1]Division of Infectious and Tropical Diseases, ASST Spedali Civili Hospital, University of Brescia, Brescia, Italy, [2]Unit of Infectious Diseases, Department of Medical Sciences, University of Torino, Torino, Italy, [3]Division of Infectious Diseases, ASST Santi Paolo e Carlo Hospital, University of Milan, Milan, Italy

Background: Post-treatment controllers (PTCs) are HIV-infected individuals able to spontaneously control the infection despite antiretroviral therapy (ART) interruption. An association between PTCs and primary HIV infection (PHI) was found due to an early treatment initiation in PHI compared to chronic infection (CHI). Aim of our study was to compare characteristics of people living with HIV (PLWH) with PHI to PLWH with CHI to establish a criterion for identifying potential PTCs.

Methods: In this multicentric cross-sectional study, we included adult PLWH with PHI and CHI matched according to age, sex and ART duration. Selection criteria were CD4 at ART initiation >350/mm3 plus viral load suppression ≥ 3 years for both groups and treatment during PHI for the first group. We collected immunovirological parameters and comorbidities. We analysed the two groups using Mann-Whitney and Chi-squared test, as appropriate.

Results: 146 PHI and 64 CHI were included. No differences were observed in age at diagnosis (38 vs. 39 years, p=0.124) or sex (male 84.9 vs. 85.9%, p=0.850), while ART duration was longer in PHI (1036 vs. 848 months, p=0.004). In PHI group, higher HIV-RNA zenith (p<0.001) but similar CD4 cell count at nadir (p=0.877) were observed. There was no significant difference in number of ART switch, duration of virological undetectability, last visit CD4, CD8 or CD4/CD8 ratio. Low-level viremia was less common in PHI participants (10.3 vs. 26.5%, p=0.003) and of shorter duration (0 vs. 7 months, p<0.001). More patients in the PHI group were receiving dual therapies at last visit (64.3 vs. 45.3%, p=0.10). CHI showed to have a higher burden of comorbidities (0 vs. 1, p<0.001), including psychiatric diseases (8.2 vs. 28.1%, p<0.001); hypertension (10.3 vs. 18.8%, p=0.078) and cancer (5.5 vs. 12.5%, p=0.091) were numerically higher in CHI. PHI were significantly less affected by polypharmacy (2.1 vs. 9.4%, p=0.025).

Discussions and Conclusions: Despite several limitations (including a small sample size, imperfect matching and possible unbalance in risk factors), the findings of this study identified clinical differences between PHI and CHI. The significantly lower prevalence of comorbidities in participants in the PHI group is a novel finding that may be explained by a lower level of systemic inflammation and/or a lower HIV reservoires in body tissues that may lead to a slower aging process. A lower prevalence and duration of low-level viremia may confirm such hypothesis despite adherence was not measured. Since no differences were observed in routine immunological and virological markers the identification of potential PCTs requires additional biomarkers.

Because the virus matters

TD 14 TWO-DRUGS REGIMENS DID NOT INFLUENCE HIV-1 DNA IN PEOPLE LIVING WITH HIV

A. Nava[1], R. Rossotti[2], G. Cavazza[3], E. Nicolini[4], A. Raimondi[2], A. Corbetta[1], E. Franchetti[1], L. Chianura[2], C. Moioli[2], M. Puoti[2], C. Vismara[1], D. Fanti[1]

[1]SC. Clinical Microbiology- ASST Grande Ospedale Metropolitano Niguarda, Milan, Italy, [2]SC. Infectious Diseases – ASST Grande Ospedale Metropolitano Niguarda, Milan, Italy, [3]School of Medicine and Surgery, University Bicocca, Milan, Italy, [4]Resident Student Microbiology and Virology; University of Milan, Italy

Background: Quantitative HIV-1 DNA (qDNA) is the most used biomarker for viral reservoir evaluation, which represents the major obstacle to viral eradication. The lack of standardisation among protocols and the problem of specimens' choice makes the test scantily performed despite it is an important prognostic factor. Recently, HIV-1 DNA Test Pro has been made compatible on an automated platform. Our aim was to evaluate whether two-drugs regimens (2DRs) maintain qDNA values comparable to standard triple therapies.
Materials: Our Retrospective analysis included all samples tested from April to October 2023. HIV-1 DNA Test Pro (Diatheva) detected HIV-1 total DNA from 200ul of whole blood with time to results of 180 minutes on the fully automated InGenius (Elitech) platform. We collected clinical data from hospital electronic records of enrolled subjects. Descriptive statistics and non-parametric tests (Fisher's exact, Mann-Whitney U, and one-way ANOVA, as appropriate) were used to describe study population and to compare subgroups. Unadjusted and adjusted Poisson regression analyses were used to test factors associated to qDNA values.
Results: We analysed samples from 115 individuals: 58 (50.4%) were receiving 2DRs and 23 (20.0%) long-acting regimens. Demographic and clinical features of our population were showed in table 1. The majority was receiving an integrase inhibitor (INSTI)-based regimen (81.7%) but the anchor drug did not influence qDNA (values expressed in Log cps/10^6 leucocytes): 2.26 (1.78-2.53) for INSTI versus 1.98 (1.58-2.20) for nonnucleoside reverse transcriptase inhibitors and 2.10 (1.77-2.36) for protease inhibitors, p=0.467. Long-acting regimens showed comparable qDNA values: 2.28 (1.59-2.55) versus 2.17 (1.78-2.46), p=0.453. Those receiving 2DRs had better virologic and immunologic conditions with no differences in terms of qDNA (2.07 versus 2.28, p=0.093). The adjusted Poisson regression analysis did not find an association of 2DRs with qDNA values (IRR 0.97, 95%CI 0.73-1.27, p=0.808).
Conclusion: In our cohort, receiving a 2DR, mainly INSTI-based, did not result associated to higher qDNA values. 2DRs did not seem to impact on viral reservoir and might be a safe option also for individuals at major risk of disease progression.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_90.png

Because the virus matters

TD 15

VIROLOGICAL PERFORMANCE AND RESISTANCE-ASSOCIATED MUTATIONS IN PEOPLE LIVING WITH HIV SWITCHING TO BICTEGRAVIR/EMTRICITABINE/TENOFOVIR ALAFENAMIDE IN THE ITALIAN ARCA COHORT: THE BIC-BARRIER STUDY

L. Pezzati[1], F. Conti[2], A. Cozzi Lepri[3], W. Gennari[4], C. Mussini[5], E. Pontali[6], A. Volpe[7], I. Vicenti[8], A. Saracino[7], B. Rossetti[9], B. Bruzzone[10], A. Shallvari[11], L. Albini[12], D. Corsini[11], M. Zazzi[8], S. Rusconi[13], ARCA Study Group

[1]ASST Ovest Milanese, Infectious Diseases Unit, Legnano, Italy, [2]ASST Lecco, Infectious Diseases Unit, Lecco, Italy, [3]Institute for Global Health - UCL, Centre for Clinical Research, Epidemiology, Modelling and Evaluation (CREME), London, United Kingdom, [4]Azienda Ospedaliero-Universitaria di Modena, SDD Virologia - Microbiologia molecolare, Modena, Italy, [5]Università degli Studi di Modena-Reggio Emilia, Infectious Diseases Unit, Modena, Italy, [6]Ente Ospedaliero Ospedali Galliera, Infectious Diseases Unit, Genova, Italy, [7]Università degli Studi di Bari "Aldo Moro", Infectious Diseases Unit, Bari, Italy, [8]Università degli Studi di Siena, Dipartimento di Biotecnologie Mediche, Siena, Italy, [9]USL Sud-Est Toscana, Ospedale della Misericordia, Infectious Diseases Unit, Grosseto, Italy, [10]Azienda Ospedaliero-Universitaria San Martino, Hygiene Unit, Genova, Italy, [11]InformaPRO S.r.l., EuResist Network GEIE, Roma, Italy, [12]Gilead Sciences Srl, Milano, Italy, [13]DIBIC, University of Milan, Legnano, Italy

Background: In clinical trials, bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) demonstrated durable efficacy in maintaining viral suppression, even in the presence of NRTI resistance-associatedmutations (RAMs). Little is known about the prevalence of RAMs and their impact on B/F/TAF in clinical practice.
Materials and Methods: BIC-BARRIER aimed to estimate the prevalence of RAMs in adult subjects at baseline (BL) of their first switch to B/F/TAF in clinical practice at any HIV RNA level, as documented in the ARCA cohort. We calculated RAMs prevalence with 95% confidence intervals (CI) and the Stanford Genotypic Susceptibility Score (GSS) for single drugs and for the whole regimen using cumulative RNA/DNA Genotypic Resistance Testing (cGRT). We included subjects with an available GRT on RNA or DNA. We used Kaplan-Meier estimators to assess the time to virological failure (VF) in the 36 months after BL in subjects with a plasma HIV RNA assessed in the 6 months before BL and ≥1 HIV RNA post-BL. Two VF definitions were used: two consecutive viral loads >50 cp/mL and >200 cp/mL, respectively.
Results: We included 974 subjects (27.3% female); median age was 53 years [IQR 44, 59]. At BL, 235 (24.1%) subjects had a viral load >50 cp/mL (Table 1). A GSS <3 for B/F/TAF was scored in 30.2% (26.2, 34.4) of subjects. A higher prevalence of RAMs was detected in viremic subjects at BL (Figure 1). We found major INSTI RAMs in 4.4% (2.8, 6.6) of subjects, and 1.8% (0.8, 3.4) had a bictegravir GSS <1. Major NRTI RAMs were found in 28.4% (25.6, 31.4) of subjects including TAMs in 19.7% (17.3, 22.4) and non-TAMs in 23.5% (20.9, 26.4). The most common NRTI RAM was M184V, detected in 21.4% (18.9, 24.2). We included 798 subjects in the time-to-failure analysis, of whom 181 (22.7%) had a VL >50 cp/mL at BL. In the overall population, at 36 months we observed 78 (12.8%; 10.0-15.5) VFs at the 50 cp/mL cut-off, and 28 (4.9%; 3.0-6.7) VFs at the 200 cp/mL cut-off. At 12, 24, and 36 months 17 (3.0%; 95%CI 1.7-4.4), 26 (4.9%; 95%CI 3.1-6.8) and 29 (6.0%; 95%CI 3.8-8.3) subjects with a VL <50 cp/mL at BL, experienced VF at the >50 cp/mL cut-off, while 4 (0.7%; 95%CI 0.1-1.4), 8 (1.6%; 95%CI 0.5-2.7) and 9 (1.9%; 95% CI 0.6-3.1) subjects experienced VF at the >200 cp/mL cut-off, respectively. In subjects with a VL >50 cp/mL at BL, 29 (20.4%; 95%CI 13.8-27.1), 47 (36.8%; 95%CI 28.1-45.4) and 50 (42.0%; 95%CI 32.2-51.9) experienced VF at the >50 cp/mL cut-off, and 11 (9%; 4.5-14.3), 16 (12.1%; 95%CI 6.5-17.7) and 19 (16.9%; 95%CI 9.3-24.4) experienced VF at the >200 cp/mL cut-off, respectively (Figure 2A-D).
Conclusions: The estimated prevalence of RAMs in our real-world switching setting was higher than that seen in clinical trials, especially for NRTIs. Over 36 months, we observed a high effectiveness of B/F/TAF with an overall VF lower than 5%, with the 200 cp/mL cut-off. A higher prevalence of NRTI RAMs and a higher rate of VF was detected in viremic subjects at BL.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_247.png

Crossing borders and fighting inequalities

TD 16 **ACTIVE CLOSE CONTACT INVESTIGATION OF TUBERCULOSIS THROUGH COMPUTER-AIDED DETECTION AND STOOL XPERT MTB/RIF AMONG PEOPLE LIVING IN OROMIA REGION, ETHIOPIA: A PRELIMINARY RESULTS**

G. Guido[1], S. Cotugno[1], F.V. Segala[1], W. Nigussa[2], B. Kenate[3], A. Tsegaye[2], B. Gulo[2], F. Cavallin[1], A.B. Asmare[2], F. Manenti[4], E. Facci[2], M. Tilahun[5], G. Putoto[5], F. Di Gennaro[1], A. Saracino[1]

[1]Department of Precision and Regenerative Medicine and Ionian Area (DiMePRe-J), University of Bari Aldo Moro, Bari, Italy, [2]Doctors with Africa CUAMM, Wolisso; Etiopia, [3]Oromia Regional Health Bureau; Etiopia, [4]Doctors with Africa CUAMM, Padova, Italy, [5]Armauer Hansen Research Institute (AHRI), Addis Ababa, Etiopia

Background: Pulmonary tuberculosis (pTB) remains one of the infectious diseases with the highest mortality in the world, especially in Low-Middle Income Countries (LMICs). To better control the diseases, it is crucial to recognise and diagnose TB as soon as possible, but microbiological tests on sputum are not always sensitive enough, and often not trained health workers to interpret chest X-rays (CXR) are available. The CADOOL study looks into the possible role of both Xpert MTB/RIF on stool and the Computer-Aided Detection (CAD4TB) artificial intelligence technology for CXR interpretation in pTB work-up.

Methods: Since April 2023, confirmed pTB were enrolled at St. Lukas Catholic Hospital in Wolisso, Ethiopia. Close contacts were also included. Each participant was screened by 3 methods at the same time: TB symptoms; Xpert on both sputum and stool; CXR. The CXR was read independently by CAD4TB, by a CAD4TB-supported physician and by a CAD4TB-unsupported physician. Both physicians were aware of the patient's demographic and clinical characteristics, but not of the Xpert test results.

Results: From April 2023 to March 2024, 284 patients were enrolled (82 index cases and 202 household contact), with a mean age of 26 years (range 18-39), of whom 47% were women. Characteristics of participants' risk factors are summarized in Table 1. Upon symptom screening, 156/283 (55%) participants were found to be asymptomatic, while 127/283 (45%) reported symptoms (Table 2).

Using Xpert as the reference, CAD4TB had a sensitivity of 0.79, specificity of 0.88, positive predictive value of 0.77, and negative predictive value of 0.89 (Table 3). Overall, 212/217 recruits (98%) were able to provide a fecal sample, of which 208/212 samples (98%) were correctly processed. Similarly, 211/217 (97%) were able to provide a sputum sample with Xpert correctly performed in 209/211 samples (99%). The agreement between stool and sputum Xpert was good (Cohen's kappa 0.73). With sputum Xpert as the reference, stool Xpert had a sensitivity of 0.72, specificity of 0.97, positive predictive value of 0.93, and negative predictive value of 0.86.

Conclusions: The preliminary analysis of this study supports the effectiveness of stool Xpert as a valid support for sputum especially where, such as LMICs, alternative are scarce. Additionally, CAD4TB technology proves useful in detecting tuberculosis through CXR. These innovative approaches promise a more timely and accurate diagnosis, particularly in resource-limited settings like Ethiopia, with potential significant benefits on the clinical outcome of pTB patients.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_190.png

Crossing borders and fighting inequalities

TD 17 THE IMPACT OF COVID-19 ON THE VIROLOGICAL SUPPRESSION IN PEOPLE LIVING WITH HIV FOLLOWED UP AT THE HOSPITAL DIVINA PROVIDÊNCIA IN LUANDA, ANGOLA

A. Calcagno[1], C. Pizzi[2], B. Pocongo[3], N. Ronzoni[4], F. Alladio[1], F. Ngiambudulu[5], C. Castilletti[4], A. Kalume[6], G. Di Perri[1], F.G. Gobbi[4,7]

[1]Unit of Infectious Diseases, Department of Medical Sciences, University of Torino, Italy, [2]Cancer Epidemiology Unit, Department of Medical Sciences, University of Turin and CPO Piemonte, Turin, Italy, [3]Instituto Nacional de Luta Contra SIDA – MINSA, Luanda, Angola, [4]Department of Infectious - Tropical Diseases and Microbiology, IRCCS Sacro Cuore Don Calabria Hospital, Negrar (VR), Italy, [5]Instituto Nacional de Investigação em Saúde (National Institute for Health Research) – INIS, Luanda, Angola, [6]Hospital Divina Providência, Luanda, Angola, [7]Department of Clinical and Experimental Sciences, University of Brescia, Brescia, Italy

Background: COVID-19 pandemic caused serious disruptions in health programs worldwide. While some studies showed no decline in viral load suppression rates in ART-treated patients, some others did. Data from African countries revealed constant service disruption but no change in virological suppression rates. The UNAIDS 2022 data for Angola showed a HIV prevalence of 1.5% (1.2-1.7) and a decreasing HIV incidence (0.44 cases per 1000 uninfected population); however, the prevalence of virological suppression in people receiving antiretroviral treatment was not available.

Material and methods: A retrospective study was conducted at the outpatient clinic of Hospital "Divina Providência" (HDP) in Luanda from January 2017 to April 2022. Data from the outpatient clinic database were retrieved using pseudo-anonymity. To investigate the impact of the COVID-19 pandemic on virological control, various analyses were performed. In order to account for the within patient correlation population-averaged panel data regression models were fitted, using generalized estimating equations with binomial family, logit link and within-patient exchangeable correlation structure. Estimates are thus expressed as Odds Ratios (OR) and their corresponding 95% Confidence Intervals (CI). The first trimester of 2017 was utilized as the reference period.

Results: In 6023 patients (Table 1) we evaluated 26044 visits. The proportion of patients who were lost to care was much greater among those who had at least one visit in 2019, with 45.8% having no visits in 2020 and having 26.5% no visits in either 2020 nor in 2021. The median time between visits differed across period being higher in period 2 (April 2020-March 2021) [9.9 months (IQR 1.1-16)] and 3 (March 2021-April 2022) [8.5 months (IQR 1.2-17.2)] than in period 1 (2017-2020) [4.9 months (IQR 1.1-9.2) ($p<0.001$).

For the virological efficacy analysis, we included 3505 patients (Table 1) who contributed with 7801 visits with measured HIV RNA during the study period. HIV RNA levels were below 50 and 1000 copies/mL in 2644 (75.4%) and 3068 (87.5%) individuals, respectively. Male patients ($p <0.001$) and those receiving second-line treatments showed lower rates of virological suppression ($p <0.001$). In a multivariable analysis, care during the third trimester of 2020 is associated with the highest increase in the odds of HIV RNA>1000 copies/mL (OR 1.93, 95%CI 1.06-3.53, $p=0.03$); the effect is even stronger when HIV RNA>50 copies/mL is analyzed as outcome of interest (OR 2.77, 95% CI 1.52-5.03, $p=0.001$).

Discussion: COVID-19 was associated with a temporary reduction in HIV virological control in individuals receiving antiretroviral treatment followed at HDP in Luanda. The substantial proportion of patients with HIV RNA >50 copies/mL warrants further studies to better understanding the prevalence of resistance associated mutations and the presence of significant barriers to treatment adherence.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_264.png

Crossing borders and fighting inequalities

TD 18 TRENDS IN HIV-RELATED STIGMA AND GENDER INEQUALITY INDICATORS: FINDINGS FROM A PEER-BASED INTERVENTION PREVENTION PROGRAM IN RURAL NORTHERN UGANDA

G. Micheli[1], M. Chiuchiarelli[2], A. Pierantozzi[3], R. Lukwiya[4], B. Odong[5], F. Opira[4], C. Seguiti[6], F.S. Aloi[7], R. Cauda[1], K. De Gaetano Donati[2], C. Torti[1,2], A. Cingolani[1,2] for 'Pe Atye Kena, no longer alone' study group

[1]Dipartimento di Sicurezza e Bioetica - Sezione di Malattie Infettive, Università Cattolica del Sacro Cuore, Rome, Italy, [2]Dipartimento di Scienze mediche e Chirurgiche, Fondazione Policlinico Universitario Agostino Gemelli IRCCS Rome, Italy, [3]AIFA-Agenzia Italiana del farmaco, Rome, Italy, [4]"Comboni Samaritans of Gulu" Health Center, Gulu, Uganda, [5]Medical Teams International, Kitgum, Uganda, [6]Fondazione Poliambulanza Istituto Ospedaliero, UOC medicina generale, Brescia, Italy, [7]Università Cattolica S. Cuore, Patologia Speciale Medica e Semeiotica Medica, Rome, Italy

Background: The UNAIDS targets for better access to HIV services imply that <10% of Countries implement punitive legal and policy environments,<10% of PWH experience stigma and discrimination,<10% of key populations experience gender inequality and violence. To reach these targets, societal barriers must be addressed to achieve the WHO 95-95-95 goal by 2025.
Objective: To identify trajectories of stigma and gender inequalities indicators among Ugandan women after implementation of a community-based comprehensive not pharmacological prevention program.
Methods: The "Pe atye kena" study targeted high-risk women in rural Gulu, Uganda. Enrolled participants took part in a 3-year program consisting of various activities about HIV and STIs prevention, sexual empowerment, and behavioral interventions, on a weekly/monthly basis. A self-reported survey on sociodemographic, HIV/AIDS awareness, stigma and sexual self-determination was offered along with 4th generation HIV-1/2 immunoassay, serology for syphilis and HBV at baseline and 6-month intervals. Specific scores were established for each questionnaire item, and the mean values for each score in each timepoint were analyzed.
Results: The baseline and last follow-up characteristics are described in Table 1. Over time, HIV-stigma indicators about family (willingness to care for a family member living with HIV, secrecy about serostatus) decreased (worst score during t2, difference from mean score at baseline-last follow-up -0.09 points out of 2; Figure 1), with greater benefits in the low educated participants (mean score difference -0.42). The perception/certainty of partners' HIV infection steadily increased (mean scores +0.22 points out of 2; Figure 2). Individuals of extreme ages were consistently more certain/suspicious throughout the study period. HIV-negative participants were more prone to perceive/be certain of their partner's seropositivity than their positive counterparts. HIV-related shame (e.g., "people with AIDS should be ashamed of themselves" with positive points associated with disagreement) also improved, although the overall performance was already high at baseline (mean scores difference +0.03 points out of 2; Figure 3). No striking differences were noted when accounting for HIV or age. Lastly, sexual determination and empowerment (agency to refuse unsolicited sexual acts or partners with STIs, requesting condom use when desired) increased over time across all categories (baseline-last follow-up +0.61 points out of 4; Figure 4). Low/uneducated participants showed greater improvement (mean score difference 1.75).
Conclusions: Substantial and persistent improvement in most HIV-stigma and women empowerment indicators were observed during the study period, with the greatest benefits to the low-educated groups. Therefore, our results are relevant since a community-based comprehensive prevention program provided important benefits to population most in need in an extreme resource limited setting.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_323.png

Crossing borders and fighting inequalities

TD 19 HIGH IN-HOSPITAL MORTALITY AND SIGNIFICANT PREVALENCE OF HIV AMONG PATIENTS ADMITTED TO A TUBERCULOSIS WARD AT DIVINA PROVIDÊNCIA HOSPITAL IN LUANDA - ANGOLA, 2023

A. Lopes Sucuma[1], R. Huits[2], N. Francisco[3], F. Alladio[2], A. Kalume[5], N. Ronzoni[2], E. Salvador[2], P. Cattaneo[2], F. Gobbi[2], A. Calcagno[4]

[1]Department of Clinical and Biological Sciences, University of Turin, Turin, Italy, [2]Department of Infectious Tropical Diseases and Microbiology, IRCCS Sacro Cuore Don Calabria Hospital, Negrar, Verona, Italy, [3]Microbial and Immunological Research Group, National Institute for Health Research, Luanda, Angola, [4]Unit of Infectious Diseases, Department of Medical Sciences, University of Turin, Amedeo di Savoia Hospital, Turin, Italy, [5]Divina Providencia Hospital, Luanda, Angola

Background: Tuberculosis (TB) incidence in Angola in 2022 was 333 cases per 100,000 people. Treatment coverage is suboptimal and treatment failure is common. TB case fatality rate is 20% and an estimated 17,000 TB cases were attributable to HIV. The aim of this study was to describe the characteristics of patients admitted to the TB ward of an urban hospital in Luanda in 2023.

Methods: We performed a retrospective review of medical records of patients admitted to the TB ward of the Hospital Divina Providência (HDP) in Luanda between January and November 2023. We gathered data on demographics, medical history, laboratory and imaging tests, treatment, and outcome from patients' medical records. We assessed factors associated with in-hospital mortality using binary logistic regression.

Results: We enrolled 321 participants. The median age was 35 years (Interquartile range [IQR]: 25, 47) and 48.6% were males. Median weight was 48 Kg (IQR: 41, 53) with malnutrition reported for 119 participants (37.1%). One hundred twenty-eight individuals (39.9%) had a previous history of TB. HIV test was requested and performed for 206 and 142 participants respectively. Of the 142 tests performed 96 (67.6%) were HIV-positive. Microbiologically-confirmed TB (positive sputum staining or gene Xpert) was observed in 5 patients only (1.6%). Fifty-eight of 321 (18%) patients died during hospital admission. The in-hospital mortality among patients with known HIV-status was 28%. At multivariate analysis dyspnea at admission (adjusted odds ratio [aOR] 2.7, p=0.001), HIV positivity (aOR 2.5, p=0.004) and malnutrition (aOR 2.4, p=0.006) were independent predictors of in-hospital mortality.

Conclusions: Our findings suggest that TB is mainly diagnosed on clinical grounds. The prevalence of HIV is high. Timely diagnosis and tailored treatments including management of significant risk factors such as malnutrition and HIV infection are warranted to improve clinical outcomes and reduce in-hospital mortality in this vulnerable population.

Antiretroviral therapy

P 1 EFFICACY AND SAFETY OF DORAVIRINE/LAMIVUDINE/TENOFOVIR DISOPROXIL FUMARATE IN PEOPLE LIVING WITH HIV-1 AGED OVER 60 YEARS

L. Calza, M. Giglia, V. Colangeli, F. Baldasso, M. Cantini, I. Grassi, A. Poma, S. Cretella, P. Viale

Unit of Infectious Diseases1, IRCCS S.Orsola Hospital, University of Bologna, Bologna, Italy

Introduction: A significant percentage of people living with HIV (PLWH) in the European countries and United States are ≥60 years, and this percentage will increase in next years.
Methods: Retrospective cohort study evaluating records from PLWH aged ≥60 years at our HIV Clinic who started doravirine/lamivudine/tenofovir disoproxil fumarate (DOR/3TC/TDF) between January 2020 and December 2022. Eligible patients were antiretroviral therapy-naive or -experienced PLWH with 48 weeks of follow-up data and no known resistance mutations for doravirine, lamivudine and tenofovir.
Results: Inclusion criteria were met by 32 patients: 9 naive and 23 experienced. Mean age was 64.2 years (range, 60-72), 88% were men, and one or more comorbidities were present in 25 subjects (78%). In naive patients, mean log10 HIV RNA was 4.46, and two (6%) had an AIDS diagnosis. In experienced patients, mean CD4+ T lymphocyte count was 617 cells/mm3, 21 (91%) had HIV RNA <50 copies/mL, 3 (13%), and previous antiretroviral regimen included two nucleoside/nucleotide analogues (NRTIs) plus one boosted protease inhibitor (PI) in 5 patients (22%), two NRTIs plus one non-nucleoside reverse transcriptase inhibitor in 13 (56%), and two NRTIs plus one integrase inhibitor in 5 patients (22%). At week 48, 28 patients (87.5%) had HIV RNA <50 copies/mL: 8 (88.8%) naive and 20 (86.9%) experienced. Four patients discontinued DOR/3TC/TDF: one for virological failure and three for adverse events. A genotype resistance testing was performed in patient with virological failure (HIV RNA 1400 copies/mL) and no resistance mutations were detected. Twenty-two potential DDIs were identified in 16 (50%) patients at baseline and were resolved after switching to DOR/3TC/TDF. Treatment-related adverse events occurred in 11 (34%) patients (all grade 1-2) but there were only three cases (9.3%) of treatment discontinuation because of gastrointestinal symptoms. At week 48, mean change (+ SD) in CD4+ T lymphocyte count was +156 (+101) cells/mm3 in naive patients and +59 (+32) cells/mm3 in experienced patients. Overall, mean variations (+SD) in creatinine, total cholesterol and triglycerides were +0.19 (+0.11) mg/dL, -34 (+18) mg/dL, and -46 (+25) mg/dL, respectively. Reductions in total and LDL cholesterol were statistically significant in experienced patients switched from a PI-based and/or a tenofovir alafenamide (TAF)-based regimen. At week 48, mean change (+SD) in body weight was +1.81 (+0.92) Kg in naive patients and +0.87 (+0.51) Kg in experienced patients.
Conclusion: In this real-world cohort, DOR/3TC/TDF was associated with high virological efficacy, good tolerability profile, favourable metabolic impact, and avoidance of DDIs among antiretroviral therapy-naive or experienced PLWH aged over 60 years. These data support use of DOR/3TC/TDF as a treatment option in older patients with HIV infection.

Antiretroviral therapy

P 2 DESCRIPTION OF A COHORT OF PEOPLE WITH HIV INFECTION ON LONG-ACTING ANTIRETROVIRAL THERAPY

A. Di Biagio[1], E. Gaggero[2]

[1]Università degli Studi di Genova, Genua, Italy, [2]Università degli Studi di Genova, Genua, Italy

Long-acting injectable therapy with Cabotegravir/Rilpivirin is a new treatment option for people living with HIV infection who are in a stable suppressed state. This recent revolutionary approach, which has been approved and recommended by international guidelines, allows for a switch from the standard oral antiretroviral therapy to a new injectable intramuscular regimen, providing significant improvements in the physical and psychological well-being of patients, especially in cases of poor treatment adherence. Both real-life studies and meta-analyses yield consistent results, demonstrating the excellent effectiveness and safety of this therapy, with rare virological failures (1%) and adverse events leading to early treatment discontinuation (1-5%).

The aim of this prospective observational study is to describe the first group of patients from Liguria (Italy) who were treated with long-acting Cabotegravir/Rilpivirin. The data were collected between September 2022 and February 2024 at San Martino Hospital in Genoa and Giovanni Borea Hospital in Sanremo. By evaluating adherence to eligibility criteria, describing the patients' clinical and epidemiological characteristics, and examining HIV-RNA levels at two time points (at the start of long-acting therapy and after 6 months of Cabotegravir/Rilpivirin), our study confirms the high effectiveness and safety reported in the ATLAS and FLAIR trials. Out of the 66 enrolled patients, there was only one case of treatment failure (1.5%) and two treatment interruptions (3%) due to adverse events at the injection site (pain).

The analysis also focused on the potential effects of Cabotegravir/Rilpivirin-based antiretroviral therapy on renal and hepatic function, lipid metabolism, and CD4+ and CD8+ T-cell counts. The results indicate that 48% of participants experienced a decrease in creatinine levels after 6 months, and 9.4% had elevated AST and ALT transaminase levels beyond the normal range. Regarding lipid metabolism, significant changes were observed in only a small subgroup of patients, with 14% showing improvement in total cholesterol, LDL, and HDL levels, while 9% experienced worsening. In terms of CD4+ and CD8+ lymphocyte counts, the study reported a decrease in CD4+ counts in 49% of participants and a decrease in CD8+ counts in 39.6%.

Therefore, the data from this study did not report any significant effects of CAB/RPV LA antiretroviral therapy on liver function, lipid metabolism, or plasma levels of CD4+ and CD8+ T lymphocytes by using . There is only a statistically significant decrease in creatinine levels after six months of treatment.

Antiretroviral therapy

P 3

EFFECTIVENESS AND SAFETY OF TENOFOVIR ALAFENAMIDE/EMTRICITABINE/BICTEGRAVIR AS FIRST LINE REGIMEN IN PEOPLE WITH HIV: A RETROSPECTIVE OBSERVATIONAL STUDY

A. Giacomelli[1,2], M.V. Cossu[3], D. Moschese[3], G. Carrozzo[1,2], S. Reato[1,2], F. Sabaini[1,2], G. Pozza[1,2], M.L. Colombo[1,2], C. Fusetti[1,3], A.L. Ridolfo[2], C. Gervasoni[2], S. Antinori[1,2], A. Gori[1,4,5]

[1]Dipartimento di Scienze Biomediche e Cliniche, Università degli Studi di Milano, Milan, Italy, [2]III Division of Infectious Diseases, ASST Fatebenefratelli Sacco, Luigi Sacco Hospital, Milan, Italy, [3]I Infectious Diseases Unit, ASST Fatebenefratelli Sacco, Luigi Sacco Hospital, Milan, Italy, [4]Centre for Multidisciplinary Research in Health Science (MACH), University of Milano, Milano, Italy, [5]II Infectious Diseases Unit, ASST Fatebenefratelli Sacco, Luigi Sacco Hospital, Milan, Italy

Background: Integrase based regimens are recommended by international guidelines as first line options for people with HIV (PWH). Tenofovir alafenamide/emtricitabine/bictegravir (TAF/FTC/BIC) is a single tablet regimen which has demonstrated high genetic barrier to resistance and a good safety profile in randomized clinical trial. We aimed to assess the durability and safety of TAF/FTC/BIC in newly diagnosed PWH and reasons for discontinuation in a non-experimental context.

Materials and methods: We conducted a single center retrospective observational study including all PWH with a new HIV diagnosis between 1st August 2019 and 7th February 2024 at the Infectious Disease Department (Luigi Sacco Hospital, Milan, Italy). Subjects included have been followed until TAF/FTC/BIC interruption, death, administrative censoring or 25th March 2024 whichever occurred first. Reason for TAF/FTC/BIC interruption were collected and categorized as simplification, death, drug to drug interaction, toxicity, pregnancy, virological failure and enrolment in a randomized clinical trial. Durability of TAF/FTC/BIC was estimated by means of Kaplan Meier curves and durability according to biological sex and CD4 cell count (< vs >350 cell/mm3) was assessed by means of log rank test.

Results: During the study period 236 PWH started TAF/FTC/BIC as first line regimen with a median time of observation of 13 (IQR 4-27) months. Most PWH were cis male (178/236, 75.4%), 21 (8.9%) were transgender women and the remaining 37 (15.7%) were cis female with a median age at diagnosis of 37 years (IQR 29-48) (Table 1). The main mode of HIV acquisition was with male-to-male sexual contact (107/236, 45.3%) followed by heterosexual contact (71/236, 30.1%). The median CD4 cell count at diagnosis was 302 cell/mm3 (IQR 117-467). Ninety (38.1%) individuals presented with a CD4 cell count <200 cell/mm3, 64 (27.1%) with an AIDS defining condition and 30 (12.7%) with an HIV-RNA >500,000 cp/mL. Fifty-three individuals (22.5%) interrupted TAF/FTC/BIC during the study period: 34 (14.4%) simplification, 9 toxicities (3.4%), 4 (1.7%) clinical trial enrolment, 2 (0.8%) died, 1 (0.4%) pregnancy, 1 (0.4%) virological failure and 2 (0.8%) for other reasons (Figure 1). The estimated durability of TAF/FTC/BIC at 12 and 24 months was 84.8% (95%CI 78.6%-89.3%) and 75.5% (95%CI 67.6%-82.6%), respectively (Figure 2). No significant difference in terms of durability was observed according to biological sex (p=0.285) and CD4 cell count strata (p=0.973).

Conclusions: In our cohort of newly diagnosed PWH TAF/FTC/BIC showed a good durability up to 75% after 2 years since the treatment start. Few interruptions appeared to be related to drug toxicities and a low rate of virological failure was observed although the high proportion of PWH who presented late or with an AIDS defining condition.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_50.jpg

Antiretroviral therapy

P 4 LOW LEVEL VIREMIA AT THE BEGINNING AND IN COURSE OF LONG-ACTING TREATMENT WITH INJECTABLE CABOTEGRAVIR AND RILPIVIRINE

L. Taramasso[1], E. Ricci[2], A. De Vito[3], N. Squillace[4], S. Ferrara[5], E. Pontali[6], G. Cenderello[7], G.F. Pellicanò[8], E. Sarchi[9], F. Lagi[10], E. Salomoni[11], M. A. Carleo[12], O. Bargiacchi[13], G. Madeddu[3], A. Cascio[14], B. Menzaghi[15], G.V. De Socio[16], K. Falasca[17], P. Bonfanti[4], A. Di Biagio[1,18] for the CISAI study group

[1]Infectious Disease Clinic, IRCCS Ospedale Policlinico San Martino di Genova, Italy, [2]Fondazione ASIA, Milan, Italy, [3]Unit of Infectious Diseases, Department of Medicine, Surgery and Pharmacy, University of Sassari, Italy, [4]Infectious Disease Unit, Fondazione IRCCS San Gerardo dei Tintori, Monza - University of Milano-Bicocca, Monza, Italy, [5]Unit of Infectious Diseases, Department of Clinical and Experimental Medicine, University of Foggia, Foggia, Italy, [6]Department of Infectious Diseases, Galliera Hospital, Genoa, Italy, [7]Infectious Diseases Department, Sanremo Hospital, Sanremo, Italy, [8]Unit of Infectious Diseases, Department of Human Pathology of the Adult and the Developmental Age 'G. Barresi', University of Messina, Messina, Italy, [9]Infectious Diseases Unit, S. Antonio e Biagio e Cesare Arrigo Hospital, Alessandria, Italy, [10]AOU Infectious and Tropical Diseases, Careggi Hospital, Florence, Italy, [11]SOC 1 USLCENTRO FIRENZE, Unit of Infectious Diseases, Santa Maria Annunziata Hospital, Florence, Italy, [12]Infectious Diseases and Gender Medicine Unit, Cotugno Hospital, AO dei Colli, Naples, Italy, [13]Unit of Infectious Diseases, Ospedale Maggiore della Carità, Novara, Italy, [14]Unit of Infectious Diseases, Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties, University of Palermo, Palermo, Italy, [15]Unit of Infectious Diseases, ASST della Valle Olona – Busto Arsizio, Varese, Italy, [16]Unit of Infectious Diseases, Santa Maria Hospital, Perugia, Italy, [17]Clinic of Infectious Diseases, Department of Medicine and Science of Aging, G. D'Annunzio University, Chieti-Pescara, Chieti, Italy, [18]Department of Health Sciences (DISSAL), University of Genoa, Genoa, Italy

Background: The aim of this study is to describe the frequency and management of low-level viremia (LLV, i.e. HIV RNA >50 but <200 copies/mL) at the beginning and in course of long-acting (LA) injectable cabotegravir (CAB) and rilpivirine (RPV).

Methods: Observational multicentre cohort study. HIV RNA values were collected prospectively in people on LA CAB+RPV.

Results: 417 PWH, (97 women, 23.3%), started CAB+RPV. Mean age was 48.5 (+/- 11.3) years and the median CD4 were 806 cells/mmc (IQR 582-1040). Most participants were Caucasian (397, 95%), with 198 (47%) being men who have sex with men and 143 (34%) heterosexuals PWH. Most were in CDC stage A (253, 62%). All were treatment experienced, with median 10 (IQR 6.2-16.5) years of ART.

Before starting LA, 313 (75%) PWH were on an integrase inhibitor (INSTI), 202 (48%) on a non-nucleoside reverse transcriptase inhibitor (NNRTI), 108 (26%) were on both INSTI+NNRTI and 11 (3%) on a protease inhibitor regimen. At the time of initiating LA, 6 (1.5%) participants had LLV. All achieved undetectable HIV RNA<50 copies/mL at the following visit. Among the 231 PWH with at least one follow-up visit (median follow-up of 7 months, range 0-16), five episodes (2%) of LLV occurred, with HIV-RNA levels ranging from 52 to 140 copies/mL (Table). In two participants, the subsequent HIV-RNA was <50 copies/mL without changing therapy, in one the treatment was continued but HIV-RNA from the next visit was still not available, and in two the treatment was stopped due to a concomitant adverse event. Two virological failures with HIV-RNA >200 copies/mL were also registered, and both discontinued LA treatment.

Conclusions: LLV is a rare event, and its frequency did not change during LA therapy. All PWH with LLV who remained on CAB + RPV obtained an undetectable viremia.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_81.png

Antiretroviral therapy

P 5 IMPROVED LIPID PROFILES IN ADULTS LIVING WITH HIV RECEIVING DORAVIRINE-BASED REGIMENS: WEEK 52 ANALYSIS

N. Braccialarghe[1], D. Zaçe[1], L.V. Rindi[1], L. Ansaldo[1], M. Compagno[2], E. Teti[2], A.M. Geretti[1,2,3], L. Sarmati[1,2]

[1]Department of Systems Medicine, University of Rome Tor Vergata, Rome, Italy, [2]Infectious Diseases Unit, Fondazione Policlinico Tor Vergata, Rome, Italy, [3]School of Immunity and Microbial Sciences, King's College London, London, United Kingdom

Doravirine (DOR), a non-nucleoside reverse transcriptase inhibitor (NNRTI) with improved genetic barrier, was approved in 2018 for the treatment of HIV-1 in Europe and North America. It is available alone or coformulated with tenofovir disoproxil fumarate (TDF) and lamivudine (3TC) as a single tablet regimen. ART-naïve and -switch studies demonstrated the non-inferior efficacy of DOR-based regimens (vs. darunavir/ritonavir or efavirenz) and an overall favorable safety profile including improved blood lipids.

We retrospectively studied an adult cohort in follow-up at Tor Vergata University Hospital who started a DOR-based regimen between 2016 and February 2024. We collected demographic, clinical and laboratory data at the start of DOR (T0), and after 12 (T12), 24 (T24) and 52 (T52) weeks. Paired t-test was used to compare parameters at T0 vs. T52. We used the Systemic Coronary Risk Estimation algorithm (SCORE2) to estimate 10-year fatal and non-fatal cardiovascular disease (CVD) risk in individuals without previous CVD or diabetes aged 40–69 years.

The cohort comprised 45 participants (Table 1). At T0, most (38/45, 84.4%) were virologically suppressed (<50 copies/mL), 3 were ART-naïve, and 4 were experiencing virological failure (confirmed viral load ≥ 200 copies/mL). 24 patients experienced a prior NNRTI regimen but none of them had a prior history of NNRTI failure or documented NNRTI resistance. Baseline and DOR-based regimens are summarised in Table 2. The most frequent reasons to start DOR were dyslipidaemia or weight gain (n=16), followed by proactive switch (n=12), toxicity (n=6), virological failure (n=4), unknown (n=3), and DDIs (n=1). Overall, 30/45 (66.7%) participants had dyslipidaemia before starting DOR and 10/30 (33%) were receiving lipid-lowering agents. Over median 77 weeks of follow-up (IQR 34-110), 6/45 (13.3%) participants discontinued DOR (after a median of 12 weeks); reason included paradoxical dyslipidaemia (n=2), gastrointestinal symptoms (n=2), inability to swallow the pill (n=1), and osteoporosis (n=1, on TDF). All patients maintained or achieved virological suppression after the introduction of DOR, with a significant increase in the CD4/CD8 ratio between T0 and T52 (mean difference 0.1 ±0.2; p=0.01). Between T0 and T52, there were significant decreases in total cholesterol by mean -38 mg/dL (±41, p<0.001), LDL cholesterol by mean -26 mg/dL (±42, p<0.001) and triglycerides by mean -48 mg/dL (±107, p=0.01). SCORE2 values showed a significant reduction by mean 0.8 (±2.1, p=0.04). eGFR values remained stable both in the overall cohort and in the subgroup who started TDF. There were no apparent differences in blood pressure, weight, BMI or HDL cholesterol when comparing T0 and T52.

DOR-based regimens represented a valid choice in this cohort with a high baseline prevalence of dyslipidaemia, achieving excellent virological and immunological efficacy, improving blood lipids, and reducing cardiovascular risk.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_82.png

Antiretroviral therapy

P 6 FEASIBILITY OF CABOTEGRAVIR AND RILPIVIRINE LONG-ACTING INJECTION SPECIFIC PROGRAM IN A LARGE CENTER IN NORTHERN ITALY: ADHERENCE, TOLERABILITY AND COSTS

G.M. Piccardi[1], G. Tiecco[2], S. Arsuffi[2], B. Fioretti[2], D. Minisci[2], C. Anzoni[2], R. Fazio[1], S. Turriceni[2], I Polesini[2], F. Castelli[2], E. Quiros-Roldan[2], E. Focà[2]

[1]SC Farmacia Aziendale, ASST Spedali Civili di Brescia, Brescia, Italy, [2]Department of Clinical and Experimental Sciences, Unit of Infectious and Tropical Diseases, University of Brescia and ASST Spedali Civili di Brescia, Brescia, Italy

Background: Another milestone in people living with HIV (PLWH) management is the introduction of long-acting injectable (LAI) therapy, which holds the potential to enhance medication adherence and improve compliance for PLWH. This analysis aims to investigate demographic aspects, tolerability, and cost savings in our cohort of PLWH currently receiving cabotegravir/rilpivirine (CAB/RPV) LAI therapy.
Methods: We included all outpatients currently receiving CAB/RPV LAI therapy followed at the Unit of Infectious Diseases (IDs), ASST Spedali Civili of Brescia. Demographic data, adverse drug reactions (ADR), reasons for treatment discontinuation and the annual number of accesses have been collected. A descriptive and pharmacoeconomic analysis has been conducted considering the patients on CAB/RPV LAI therapy to date. The prediction of cost savings associated with the switch from each oral regimen to the LAI was also assessed. For treatment costs (€), reference was made to 2023 Lombardy Regional HIV treatment recommendations (PDTA).
Results: Our IDs Unit routinely follows 3848 PLWH. A total of 63 (63/3848, 16.4%) PLWH are currently undergoing therapy with CAB/RPV LAI, the majority of whom are male (53/63, 84.1%), with a median age between 46 and 60 years (25/63, 39.7%). The most common pre-switch oral regimens were DTG/RPV (14/63, 22.2%), DTG/3TC (14/63, 22.2%), and RPV/FTC/TAF (11/63, 17.5%). Twenty-eight patients (28/63, 44,4 %) received oral lead-in, which consists of CAB/RPV per os for 28-30 days before starting LAI. Thirty-three ADRs were identified, mostly mild-to-moderate (32/33, 97.0%). The most frequently reported ADR was injection-site pain (16/33, 48.5%), followed by asthenia (2/33, 6.1%) and fever (2/33, 6.1%). Only one severe ADR reported: a case of erectile dysfunction, which resolved after suspension. There were 5 reported instances of treatment discontinuation, mainly due to ADRs and patient preference (4/5, 80%), or significant drug interactions (1/5, 20%). LAI treatment, requiring bi-monthly administrations, involves 6 outpatient accesses/year without increase in the accesses in respect of those under the previous oral treatment received. All patients kept their scheduled appointments except for two, who had to postpone their administration by 2-3 days, but still within the seven-day time window allowed. The annual overall cost savings associated with the switch to the LAI regimen amount to €23,042.87 compared to the previous oral regimen received in the last year (table 1).
Conclusions: LAI CAB/RPV therapy continues to demonstrate high tolerability: our cohort reported few ADRs, predominantly mild-to-moderate, consistent with existing literature. The adoption of LAI antiretroviral therapy may present an enduring opportunity for cost savings, in addition to its clinical benefits. Healthcare practitioners should acknowledge the feasibility of a LAI regimen. Thereby, an increase effort in LAI switch strategies should be considered.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_94.png

Antiretroviral therapy

P 7 OUTDATED ANTIRETROVIRAL REGIMENS (OLD-ART): A CROSS-SECTIONAL STUDY ON THE ACHILLES' HEEL OF OUTPATIENT CARE

G. Tiecco, M. Alberti, M. Salvi, M. Di Gregorio, L. Zeneli, E. Focà, F. Castelli, E. Quiros-Roldan

Department of Clinical and Experimental Sciences, Unit of Infectious and Tropical Diseases, University of Brescia and ASST Spedali Civili di Brescia, Brescia, Italy

Background: Despite the significant advancements in antiretroviral therapy (ART), instances of PLWH persisting with outdated treatment regimens (OLD-ART) continue to come to our attention. Therefore, we conducted a cross-sectional analysis to explore demographic characteristics, viro-immunological profiles, adverse effects (ADR), and potential alternative therapeutic options within our cohort of PLWH currently undergoing OLD-ART therapy.
Methods: We included all outpatients currently receiving an OLD-ART who were under follow-up at the Unit of Infectious Diseases, ASST Spedali Civili di Brescia. We defined OLD-ART as a combination of antiretroviral drugs that included at least 1 agent not recommended as first- or second-line treatment according to the EACS 2023 guidelines. We excluded patients whose last visit occurred more than 1 year ago. Demographic data, viro-immunological profile, ADR, reasons for persistence of an OLD-ART regimen, and reasonable alternative were collected. A historical HIV-RNA resistance test was carried out using the HIV Drug Resistance Database (Stanford University) to address a reasonable alternative regimen. A descriptive analysis was conducted.
Results: Our Infectious Diseases Unit routinary follows 3848 PLWH. Fourty-eight (48/3848, 1.2%) PLWH were included as currently undergoing treatment with OLD-ART, prevalently female (27/48, 56.3%), with a median age of 56 years (range 40-88), and of European origin (36/48, 75%). They had been on ART for a median duration of 22.5 years (range 8-36). Twenty-seven (56.3%) PLWH had at least 3 comorbidities, especially dyslipidemia (28/48, 58.3%), and hypertension (22/48, 45.8%). The most common OLD-ART contained boosted atazanavir (19/49, 38.8%), with a mean duration of 115 (±66) months. Twenty-nine (60.4%) PLWH maintained a stable viro-suppression (<50 cp/mL) during the OLD-ART with a mean CD4/CD8 ratio of 0.90 (±0.49). Twenty-eight (58.3%) ADRs were identified, predominantly lab tests abnormalities (25/28, 89.3%) including mild-to-moderate hepatic toxicity (18/28, 64.3%). Based on the historical HIV-RNA resistance tests available (40/48, 83.3%), more than 2 reasonable treatment alternatives were available in 25 (62.5%) cases. A regimen including a drug with a new mechanism of action was deemed necessary only in 1 case (2.5%). The primary reason for persistence with the OLD-ART was patient's will (16/31, 51.5%), followed by referred impaired tolerance (6/31, 19.4%), and allergic reactions (4/31, 12.9%) to other classes. In 5 cases (16.1%) a therapy modification suggestion was written in the footnote to be considered at the subsequent follow-up visit. (Table 1)
Conclusions: Although infrequent, OLD-ART regimens persist in clinical practice, particularly among extensively treated patients, often because of patient preference.Nevertheless, numerous alternative regimens with improved tolerability are currently available and should be advocated during follow-up visits.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_101.jpg

Antiretroviral therapy

P 8 EXPERIENCE WITH THE USE OF PROLONGED-RELEASE INJECTABLE CAB/RPV IN OUTPATIENTS

N. Bobbio, D. Fiorellino, S. Puppo, E. Blasi Vacca, S. Boni, F. Del Puente, M. Feasi, A. Parisini, S.R. Prinapori, Tigano, E. Pontali

Infectious Disease Department, Galliera Hospital, Genoa, Italy

Background: Since May 2022 the first antiretroviral drugs (ARVs) by intramuscular injection (IM) cabotegravir + rilpivirine (CAB/RPV) entered the market in Italy. Since November 2022 these drugs started to be used in our outpatient clinic. The aim of the work is to describe the cases observed in the first 16 months of use of these drugs.
Material and methods: We prospectively collected data of patients who, since November 2022, underwent CAB/RPV administration, initially orally (28 days) and subsequently by the IM route. For each patient (pts), the following were collected: epidemiological data, evaluation of immunovirological staging and blood chemistry tests, possible onset of adverse events.
Results: 42 pts were included, 35 males (83%) and 7 females (17%) whose mean age was 48 years, mean BMI 25.4; risk factor for HIV: 16 ES (38%), 20 MSM (47%), 6 TD (14%). 20 pts (47%) had metabolic co-morbidities such as diabetes, overweight, arterial hypertension, dyslipidemia. Previous ARV therapy (ART): 29 pts (69%) had received triple ART, 13 pts (31%) oral dual ART. All pts performed immunovirological staging on the first day of oral CBV/RPV administration, on the day of the first IM administration (28 days after the start of oral CAB/RPV), on the second IM administration of CAB/RPV 21-35 days after the first, and at subsequent bimonthly administrations.
All pts in the study showed HIV RNA <14 cp/ml at the time of oral intake.
On the day of the first IM administration of CAB/RPVwe recorded HIV RNA <14 cp/ml (95%) in 40/42 pts, 2 pts were viraemic with blips (HIV RNA <40 cp/ml). Two pts discontinued treatment due to fever and arthralgias that appeared three days after the first IM CAB/RPV administration (Injection Site Reactions, ISR). Of the 42 pts in the study, 40 pts received the second IM administration of CAB/RPV, all pts showed HIV RNA <14 cp/ml on that occasion.
Three days after the second IM administration of CAB/RPV, one further pt discontinued treatment due to the onset of fever and intense arthralgias lasting for 5-6 days (ISR).
One pt stopped treatment due to the onset of acute pancreatitis (later defined as unrelated); the patient was hospitalized in another city hospital, 4 days before admission the patient had received the second IM injection of CAB/RPV.
37 pts received the third IM CAB/RPV administration, 36 pts showed HIV RNA <14 cp/ml, 1 pt was viraemic with a blip <70 cp/ml.
8 pts at the end of 1 year of treatment present HIV RNA <14 cp/ml, only in one pt a viral blip (23 p/ml) was present (after the 5th IM administration).
Conclusions: Despite the need for larger series and with a longer observation time, our work shows that the injection therapy with CAB/RPV has excellent virological efficacy while maintaining virological replication under control. We also observed 4 cases of treatment discontinuation (3 ISRs), greater experience with these drugs will be essential to better evaluate their tolerability.

Antiretroviral therapy

P 9 COST/EFFECTIVENESS ANALYSIS AND ASSESSMENT OF ADVERSE EVENTS ASSOCIATED WITH THE ADMINISTRATION OF THE LONG-ACTING CABOTEGRAVIR - RILPIVIRINE ASSOCIATION

D. Cicetti[1,2], S. Vitale[1,2], L. Appolloni[1,2], G. Pensalfine[1,2], M. Traficante[1,2], R. Caprara[1,2], L. Calza[3], A. Stancari[1]

[1]IRCCS University Hospital Company - S.Orsola-Malpighi Polyclinic - Clinical Pharmacy, Research and Development, Bologna, Italy, [2]IRCCS University Hospital Company - S.Orsola-Malpighi Polyclinic - Department of Infectious and Tropical Disease, Bologna, Italy, [3]IRCCS Azienda Ospedaliero-Universitaria Policlinico S.Orsola - Malpighi - Dipartimento Interaziendale Gestione Integrata Rischio Infettivo, Bologna, Italy

Although the new injectable formulation cabotegravir –rilpivirine represents the latest innovative weapon for the treatment of HIV, further studies and data are needed to fully understand the effectiveness, the cost-benefit ratio and the possible negative aspects

The list of patients was obtained by extrapolating from the administrative system the expenditure carried out in 2023 in the clinical pharmacy. Through the e4Cure portal, it was possible to follow reports in the period prior to the injection treatment and at each scheduled follow-up

The analysis included 38 patients with a mean age of 48 years. N.6 decided to voluntarily discontinue treatment due adverse events. The main side effect in all six patients was pain associated with the occurrence of myalgia at the injection site. After the first administration, the pain sensation was classified as mild in 14 patients, moderate in 12 and severe in 5. Interestingly, after the first injection, there were only 2 patients who reported no side effects, while with increasing number of administrations, the patients with no side effects was significantly higher. In particular, after the third administration, 11 has reported no adverse events while none reported a severe pain sensation. A similar picture emerged after the fourth administration, n.11 reported no adverse events as a result of the administration of the two drugs, and none reported the perception of severe or moderate pain. An economic analysis showed that the average price of oral therapies amounts to €991 for a two-month intake, while an extrapolation of the costs over 12 months results in average costs per patient of €5.948. The average total effective expenditure/patient for therapies up to Dec 2023, calculated on the basis of the average cost of oral therapy plus the introduction of the long-acting formulation at different times of the years is €6.764 with an increase in total expenditure of €29.778. However, a significant fact emerges when attempting to develop a projection of the expenditure delta for the year 2024 with the following patients treated with the long-acting formulation only, as an overall decrease in estimated expenditure of -€12.222 is observed when we compare the year 2023 with 2024, managing to almost fully amortize the cost of injection therapy only two years.

Although pain at the injection site is a critical adverse effect in terms of the persistence of injection therapy, this phenomenon appears to be more pronounced during the first administrations, whereas it decreases during subsequent treatment phases. Although there is an initial increase in drug expenditure in the year when the long-acting regimen is introduced the investment seems to be almost fully amortized in the two years following the switch to therapy. Based on the observations, the long-term regimen thus appears to be an effective tool for curbing drug expenditure two and a half years after its introduction and improving adherence to HIV treatment.

Antiretroviral therapy

P 10 UNCONVENTIONAL USE OF LONG-ACTING CAB+RPV AGAINST HIV IN PWH IN NEED: REAL-WORLD DATA AT 48 WEEKS FROM AN ITALIAN BICENTRIC COHORT

V. Iannone[1], R. Rossotti[2], N.B. Bana[2], G. Cavazza[2], F. D'Amico[2], F. Lombardi[3], P.F. Salvo[1], G. Baldin[3], S. Di Giambenedetto[1,3], D. Bernacchia[4], G. Pagani[4], A. Borghetti[5], S. Rusconi[4]

[1]Department of Medical and Surgical Science, Infectious Diseases, Catholic University of Sacred Heart, Rome, Italy, [2]Department of Infectious Diseases, ASST Grande Ospedale Metropolitano Niguarda, School of Medicine and Surgery, Milan, Italy, [3]UOC Infectious Diseases, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy, [4]Infectious Diseases Unit, ASST Ovest Milanese, Legnano General Hospital, and DIBIC, University of Milan, Milan, Italy, [5]Department of Clinical and Experimental Medicine, University of Pisa, Pisa, Italy

Background: In this new "injectable era", there have been great expectations on the feasibility of injectable long-acting Cabotegravir and Rilpivirine (LA CAB-RPV) as a switch strategy in virosuppressed PWH. Concurrently, potential advantages from long-acting administration in comorbid and even in viremic PWH have been reported, showing benefit in reducing barriers to adherence and increasing viral suppression.We present our data from a cohort of PWH unable to maintain viral suppression due to adherence issues and with high rate of comorbidities who switched to LA CAB-RPV.

Methods: We performed an observational study in two outpatient settings (Milan, Rome) from February 2021 to January 2024, enrolling PWH who switched to LA CAB-RPV, with and without viral suppression at BL (time of switch) and with high rate of comorbidities and worrisome clinical risks.We collected clinical features, comorbidities and viro-immunological parameters at BL,4W,12W,24W,48W.Kaplan-Meier (KM) was used to assess the probability of discontinuation.Cox regression analysis was used to evaluate potential predictors of discontinuation.

Results: We enrolled 74 PWH, with at least 2 follow-up injection and a median of 7 injections (IQR 5–9).Ten of them received injections by the home care assistance service. Full population characteristics are summarized in Table 1.At BL 26 PWH (35.1%) reported poor adherence to oral daily ART (inability to maintain everyday pill-taking).Eleven PWH discontinued LA CAB-RPV (after a median of 3 injections) mainly for pain in injection-site (45.5%). Of 53 (72%) PWH who had virologic suppression before switch (VL <= 30 cps/ml, median TCD4 cell count, 681 cells/mm3, IQR 486-116) and with a median of 7 injections (IQR 5-9), 37 reached 48 W of follow up maintaining viral suppression.We registered only one virological failure at 12 W (4th injection):genotypic resistance testing was performed and showed N115H and H51Y mutations in the integrase gene and LA CAB-RPV was discontinued toward TAF/FTC/DRV/c. Twenty-one PWH (28.4%) started injections with unsuppressed viral loads (median TCD4 cell count of 594 cells/mm3, IQR, 339-1035; median VL 66 cps/ml, IQR, 40-215) with a median of 7 injections (IQR 2-8.5) of whom 11 reached 48 W of follow-up and 10 achieved viral suppression. By KM at 48W after switching LA CAB-RPV, the overall probability of discontinuation was 14.9% (Figure 1).Younger age was associated with discontinuation (per 1 year increase, aHR 0.93 95%CI, 0.88-0.99, p=0.048) by Cox regression.No safety issues were recorded.

Conclusions: Our results confirm the potential advantages in using LA CAB-RPV in PWH with adherence issues and comorbidities. Implementation of health programs could help to reach out more comorbid PWH in need and will increase virological suppression rates even in this complex population.A larger sample size and a longer follow-up are needed to define the real target population of this promising long-acting injectable regimen.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_146.jpg

Antiretroviral therapy

P 11 CENTRAL NERVOUS SYSTEM AND NEUROPSYCHIATRIC ADVERSE EVENTS IN WOMEN LIVING WITH HIV TREATED WITH INSTI-BASED REGIMENS

A. De Vito[1,2], P. Bonfanti[3], E. Ricci[4], B. Menzaghi[5], G. Orofino[6], N. Squillace[3], P. Maggi[7], C. Molteni[8], E. Sarchi[9], G.V. De Socio[10], B.M. Celesia[11], F. G. Pellicanò[12], F. Lagi[13], R. Gulminetti[14], L. Taramasso[15], L. Albini[16], A. Di Biagio[15], G. Madeddu[1]

[1]Unit of Infectious Disease, Department of Medicine, Surgery and Pharmacy, University of Sassari, Sassari, Italy, [2]PhD School in Biomedical Science, Biomedical Science Department, University of Sassari, Sassari, Italy, [3]Infectious Disease Unit, Fondazione IRCCS San Gerardo dei Tintori, Monza - University of Milano-Bicocca, Monza, Italy, [4]Fondazione ASIA, Milan, Italy, [5]Unit of Infectious Diseases, ASST della Valle Olona, Busto Arsizio (VA), Italy, [6]Division I of Infectious and Tropical Diseases, ASL Città di Torino, Italy, [7]Infectious Diseases Unit, AORN Sant'Anna e San Sebastiano, Caserta, Italy, [8]Unit of Infectious Diseases, A. Manzoni Hospital, Lecco, Italy, [9]Infectious Diseases Unit, S.Antonio e Biagio e Cesare Arrigo Hospital, Alessandria, Italy, [10]Unit of Infectious Diseases, Santa Maria Hospital, Perugia, Italy, [11]Unit of Infectious Diseases, Garibaldi Hospital, Catania, Italy, [12]Unit of Infectious Diseases, Department of Human Pathology of the Adult and the Developmental Age 'G. Barresi', University of Messina, Messina, Italy, [13]AOU Infectious and Tropical Diseases, Careggi Hospital, Florence, Italy, [14]Fondazione IRCCS Policlinico S. Matteo, Infectious Diseases, University of Pavia, Pavia, Italy, [15]Infectious Diseases Unit, Ospedale Policlinico San Martino – IRCCS per l'Oncologia Department of Health's Sciences, University of Genoa, Genoa, Italy, [16]Gilead Science S.r.l, Milan, Italy

Background: Some integrase inhibitors (INSTIs) have been associated with Central Nervous System (CNS) and Neuropsychiatric (NP) adverse events (AEs) in real-life studies. These complications can lead to decreased adherence, thereby interfering with treatment outcomes. However, data on INSTI CNS/NP AEs in Women Living with HIV (WLH) are scarce.

Methods: Using data from the SCOLTA project, a multicenter observational study following PWH who start antiretrovirals to identify AEs in real-life, we performed a retrospective analysis (NEURO-INSTI) to assess incidence rates (IR) and 95% confidence intervals (95% CI) of CNS/NP AEs and myalgia. Qualitative variables were presented as absolute and relative numbers, while quantitative variables were described using the mean and standard deviation (SD) or median and interquartile range (IQR), depending on the distribution's normality. Group differences were assessed using the Chi-squared test or Fisher's exact test for qualitative variables and the t-test or Mann-Whitney U test for quantitative variables, as appropriate. Observation was truncated at the first occurrence of any CNS/NP AEs, even if not causing treatment discontinuation. IRs were calculated as number of first occurrences/1000 person years follow-up (PYFU). When crude IR were significantly different according to selected baseline variables, they were included in the multivariate generalized linear model, to calculate the adjusted IRs (aIRs). The significance level was set at <0.05. Statistical analysis was performed using the SAS/STAT statistical package (version 9.4; SAS Institute Inc., USA). The DAG was drafted using the R codes in www.dagitty.net (Figure 1).

Results: A total of 738 WLH were included in our study. The mean age was 46.4 years (SD ±11.2). Out of these, 107 (14.5%) were treatment naïve. Regarding INSTI-based-regimens, 175 (23.7%) were treated with Bictegravir (BIC), 320 (43.4%) with Dolutegravir (DTG), 77 (10.4%) with Elvitegravir/cobicistat (EVG/c), and 166 (22.5%) with Raltegravir (RAL) (Table 1). In total, we documented 31 (4.2%) grade 3-4 CNS/NP AEs, 7 (0.9%) cases of myalgia and 1 (0.1%) case of peripheral neuropathy. WLW experiencing these AEs had more baseline risk factors (IDU, HCV coinfection, CDC stage C). Regarding the CNS/NP AEs, 14 (45.2%) led to treatment discontinuation. The overall incidence rate for AEs was 1.6 (1.1-1.2) per 100 person-years follow-up (PYFU). After adjusting for confounders (Table 2), RAL-based regimens were associated with the highest incidence rate, followed by DTG and BIC.

Conclusions: Our findings highlight the relatively low incidence of CNS/NP adverse events in women living with HIV treated with INSTIs. This suggests that while such events are a concern, they are not frequent in this population. These insights contribute to a better understanding of INSTIs tolerability and support their use in managing HIV in women, with an emphasis on careful selection and monitoring of treatment regimens.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_153.png

Antiretroviral therapy

P 12 SWITCHING FROM 3TC/DTG AND RPV/DTG TO TRIPLE DRUG AND DUAL PI-BASED THERAPIES FOR TOXICITY/INTOLERANCE: DATA FROM THE ICONA COHORT

A. De Vito[1,2], A. Tavelli[3], A. Giacomelli[4], M. Mazzitelli[5], M. Ceccarelli[6], F. Balena[7], L. Alessio[8], M.L. Colombo[9], S. Di Giambenedetto[10], D. Canetti[11], R. Rossotti[12], R. Gagliardini[13], S. Lo Caputo[14], A. Cozzi-Lepri[15], A. d'Arminio Monforte[3] on behalf of Icona Foundation Study Group

[1]Unit of Infectious Disease, Department of Medicine, Surgery and Pharmacy, University of Sassari, Sassari, Italy, [2]PhD School in Biomedical Science, Biomedical Science Department, University of Sassari, Sassari, Italy, [3]ICONA Foundation, Milan, Italy, [4]III Infectious Diseases Unit, ASST FBF-Sacco, Milan, Italy, [5]Infectious and Tropical Diseases Unit, Padua University Hospital, Padua, Italy, [6]Department of Clinical and Experimental Medicine, University of Messina, Messina, Italy, [7]Clinic of Infectious Diseases, Department of Precision and Regenerative Medicine and Ionian Area, University of Bari, Bari, Italy, [8]Azienda Ospedaliera di Rilevanza Nazionale e di Alta Specializzazione S. Anna e S. Sebastiano, Caserta, Italy, [9]Department of Biomedical and Clinical Sciences, Università degli Studi di Milano, Milan, Italy, [10]Clinic of Infectious Diseases, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Catholic University, Rome, Italy, [11]Infectious Diseases Unit, IRCCS San Raffaele Scientific Institute, Milan, Italy, [12]Department of Infectious Diseases, ASST Grande Ospedale Metropolitano Niguarda, School of Medicine and Surgery, Milan, Italy, [13]National Institute for Infectious Diseases Lazzaro Spallanzani, IRCCS, Roma, Italy, [14]Clinic of Infectious Diseases, Department of Clinical and Surgical Sciences, University of Foggia, Foggia, Italy, [15]Centre for Clinical Research, Epidemiology, Modelling and Evaluation (CREME), Institute for Global Health, University College London, London, UK

Background: Two-drug regimens (2DR) [lamivudine (3TC)/dolutegravir(DTG) or rilpivirine(RPV/DTG)] are generally well tolerated but there is a proportion of people with HIV (PWH) who develops toxicity/intolerance to these regimens and are switched back to three-drug regimens (3DR) or dual PI-based therapies (2DR-PI/b). The frequency and factors associated with these switches have been poorly investigated.
Material and methods: We included all PWH enrolled in the Icona cohort who switched to 3TC/DTG or RPV/DTG with a plasma viral load (pVL) <50 copies/mL excluding people with a positive HBsAg. The primary aim was to estimate the cumulative incidence of switch from 3TC/DTG and RPV/DTG to 3DR or 2DR-PI/b due to toxicity and intolerance (including as events drug-drug interactions (DDI), pregnancies, other unknown reasons, and patients' decisions). An intention to treat approach has been used. PWH who switched to 2DR not PI-based were considered still at-risk. Secondary objectives were to describe the reasons behind discontinuations, and predictors of the discontinuation due to intolerance/toxicity were identified using a Fine-Gray Cox regression for competing events.
Results: We included 2,660 PWH for a total of 6,708 person-year-follow-up (PYFU). Of them, 2,078 (83%) started 3TC/DTG, and 427 (17%) RPV/DTG. The demographic and clinical characteristics are summarized in Table 1. Overall, 93 (3.5%) people discontinued the treatment due to toxicity/intolerance with a five-years cumulative incidence of 5.93% (95%CI 4.49-7.65%) (Figure 1). Specifically, 63 (67.7%) PWH discontinued their regimen due to toxicity, 6 (6.5%) PWH chose to discontinue, 8 (8.6%) due to pregnancy or for being planning it, 4 (4.3%) due to DDI, and 12 (12.9%) due to unknown reason, yet maintained an undetectable HIV-RNA level. Regimens started after 3TC/DTG or RPV/DTG discontinuation are detailed in Figure 2. In the multivariable analysis (Table 2), assigned female-sex at birth (AFAB) [aSHR 2,05 (95%CI 1.30-3.25)], and previous toxicities [aSHR 1.93 (95%CI 1.24-3.01)] were associated with an increased risk of discontinuation. Conversely, individuals previously exposed to DTG had a lower risk [aSHR 0.52 (95%CI 0.33-0.82]. After excluding discontinuation related to pregnancy, AFAB was still associated with a 50% higher risk of interruption, although no longer significant Results were consistent after excluding 12 people whose reasons for discontinuation were unknown.
Conclusion: In our study the discontinuation of 2DR regimens due to toxicities and intolerance followed by a switch to a 3DR was rarely observed. AFAB, naivety to DTG, and prior toxicities were key predictors of DTG discontinuation. After these stops, clinicians have chosen to avoid the use of DTG, and in most cases INSTI, and consequently abandon altogether not-boosted dual therapy as an option. These findings highlight the importance of treatment tailoring and previous-regimen assessment when starting a 2DR regimen.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_161.jpg

Antiretroviral therapy

P 13 EFFICACY AND SAFETY OF B/F/TAF IN NAÏVE PEOPLE WITH HIV: REAL LIFE DATA FROM THE SHINE AND SHIC COHORTS

G. Moi[1], A. De Vito[1,2], G. Conti[3], B.M. Celesia[3], S. Spampinato[3], A. Marino[3], C. Cali[4], M.A. Di Rosolini[4], A. Colpani[1], L. Corda[1], G. Sanna[5], G. Angioni[5], G. Nunnari[3], G. Madeddu[1]

[1]Unit of Infectious Disease, Department of Medicine, Surgery and Pharmacy, University of Sassari, Sassari, Italy, [2]PhD School in Biomedical Science, Biomedical Science Department, University of Sassari, Sassari, Italy, [3]Department of Clinical and Experimental Medicine, University of Catania, Catania, Italy, [4]Infectious and Tropical Diseases Unit, Modica Hospital, Ragusa, Italy

Background: The combination of bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) is a single-tablet antiretroviral therapy regimen with a high genetic barrier, favorable tolerability, and few interactions with other drugs. It represents a first-line drug for the treatment of people with HIV (PWH), both naïve and experienced. Our study aims to investigate the effectiveness and safety of B/F/TAF for naive PWH in real life.

Methods: Using data from the SHiNE and SHiC research group, which collects data of PWH from centers in Sardinia and Sicily, we conducted a multicenter retrospective observational analysis including all PWH who started B/F/TAF as first-line antiretroviral treatment. We collected demographical, clinical, viro-immunological, and biochemical data. We used three time points: baseline, 6 months, and 12 months. To identify significant changes across these time points we used Wilcoxon rank-sum test, after assessing distribution normality. A significant p-value was defined as <0.05.

Results: A total of 159 naïve PWH were included, with a median age of 42.3 years (IQR 33.5-52-5). Most of them were male (127, 79.9%), while 30 were cis female (18.9%) and 2 were transgender female (1.2%). Notably 91 (57.2%) PWH had less than 350 CD4 cells/mm3 at diagnosis, 49 (30.8%) less than 200 CD4 cells/mm3, and 19 (11.9%) had AIDS defining conditions. The characteristics of the population are summarized in Table 1.

Regarding efficacy, at 6 months 107/134 (79.8%) PWH had a HIVRNA < 50 copies/mL, while 133 (99.2%) had less than 200 copies/mL. At 12 months, 78/89 (87.6%) had an HIVRNA <50 copies/mL and 88 (98.9%) less than 200 copies/mL (Fig.1). Of the 107 PWH undetectable at 24 weeks, only 6 had a viral blip at 48 weeks. Of the 26 PWH who still had >50 copies/ml at 24 weeks, 14/18 (77.8%) were found undetectable at 48 weeks. Median CD4 cells/mm3 and ratio CD4/CD8 increased significantly at 24 and 48 weeks (Table 2).

Regarding safety, we observed a significant reduction in transaminase values, with creatinine values increasing slightly at 24 weeks and then stabilizing at 48 weeks. There was a modest increase in total cholesterol, and LDL values during the observation period, with an unchanged total cholesterol/HDL ratio (Tab. 2).

Eighteen (11.3%) PWH interrupted B/F/TAF during the observation period. Of note only 3 (1.9%) discontinued due to toxicity. The reasons for discontinuation are detailed in Table 3.

Conclusions: Our study confirms the great efficacy of B/F/TAF in naive PWH, regardless of baseline viral load. The regimen's tolerability is further highlighted by the minimal adverse events that led to discontinuation, underlining its suitability also in a severely immunocompromised population. These findings contribute to affirm the pivotal role of B/F/TAF as a preferred choice for starting treatment in real-world settings.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_163.jpg

Antiretroviral therapy

P 14 ANTIRETROVIRAL THERAPY: CONSUMPTION, COSTS AND DEMOGRAPHIC PROFILE OF PATIENTS TREATED AT A UNIVERSITY HOSPITAL IN ITALY IN 2023

L. Martellone, A. Coluccia, M. Vaccaro, K. Malandrini, G. Polito

Policinico Umberto I Hospital, Rome, Italy

Background: The advent of anti-HIV therapy has transformed the management and outlook of HIV/AIDS globally, marking a crucial milestone in the fight against the virus. Since the late 1980s, treatment strategies have rapidly evolved, significantly reducing the morbidity and mortality rates. Given the changing landscape of antiretroviral therapy and the need to improve resource allocation and patient care, it's essential to continually monitor antiretroviral drug usage patterns, costs, and patient demographics. Within this context, the purpose of this study was to monitor the trend of antiretroviral therapy within our hospital, a national reference centre for HIV, to gain insight into the utilization of these medications during the year 2023, to identify prevalent treatment regimens, and assess the economic burden associated with HIV management.

Material and methods: Data regarding prescriptions of antiretroviral drugs and the demographic profile of patients subjected to anti-HIV drug prescriptions during 2023 have been retrieved from the administrative database of the University Hospital. The consumption of anti-HIV drugs, expressed in terms of dosage units and medication packages dispensed, was categorized based on their ATC (Anatomical Therapeutic Chemical) codes.

Results: A set of 14.626 prescriptions consisting in 808.936 dosage units and 18.735 medication packages related to 2.104 patients was analyzed. The male/female ratio of patients was approximately 2,6. Excluding subjects without available demographic information (N=38 males and N=11 females), the average age for females was 55,4 years, while for males it was 53,8 years (Figure 1). In terms of anti-HIV drugs, N= 30 different drugs were dispensed and 88% of medication packages were dispensed as branded drugs. Approximately 68% of dosage units were dispensed as combination therapy (Figure 2). Among these, the most dispensed combination was Emtricitabine+Bictegravir +Tenofovir (27%) followed by Lamivudine+Dolutegravir (22%) and Emtricitabine+Tenofovir (12%). Regarding dosage units dispensed as a single drug, Raltegravir (42%) was the most dispensed, followed by Dolutegravir (17%) and Doravirine (14%) (Figure 3). The total expenditure on HIV drugs in 2023 amounted to 10.933.802,37 € of which roughly half was due to prescriptions of the combination Emtricitabine+Bictegravir+Tenofovir and Lamivudine +Dolutegravir.

Conclusions: This study provides a snapshot of antiretroviral therapy in a national reference centre for HIV in Italy. The demographic profile indicated a predominance of male individuals, with an average age in the mid-50s for both genders, aligned with existing epidemiological trends for HIV/AIDS. Combination therapy was prevalent, with notable costs associated with specific drug combinations. Optimizing treatment strategies is crucial for cost-effective HIV management and quality care. Further research is required to investigate prescribing factors and patient outcomes.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_209.png

Antiretroviral therapy

P 15 REAL-LIFE USE OF DORAVIRINE IN ART-EXPERIENCED PLWH BEARING DRUG RESISTANCE MUTATIONS: FINDINGS FROM A MONOCENTRIC COHORT STUDY

S. Cotugno, M. Poliseno, L. De Santis, G. Manco Cesari, G. Metrangolo, R. Novara, G. Brindicci, C.R. Santoro, F. Di Gennaro, A. Saracino

Department of Precision and Regenerative Medicine and Ionian Area (DiMePRe-J), University of Bari Aldo Moro, Bari, Italy

Background: Doravirine (DOR), a novel non-nucleoside reverse transcriptase inhibitor (NNRTI) exhibiting a unique resistance profile, presents as a potential therapeutic option for people living with HIV (PLWH) bearing drug-resistant viral mutations (DRMs), although this aspect has not been thoroughly investigated in clinical trials. The objective of this study is to delineate the real-world clinical utility of DOR in patients with resistance to at least one of the primary classes of antiretroviral drugs.

Materials and Methods: Retrospective data of all >18 years old PLWH who initiated a DOR-based antiretroviral treatment (ART) at the Infectious Diseases Clinic of A.O.U.C. Policlinico in Bari between January 1, 2021, and February 15, 2024, having a genotypic resistance test (GRT) archived in the clinic's database were collected. Viral sequences were analyzed using the HIV Sequencing Program of the Stanford HIV Resistance Database to obtain an updated profile of DRMs towards modern drug classes. Differences in immunovirological values, disease history, and ART were evaluated and compared between patients with and without major DRMs in the GRT using Chi-square test and Mann-Whitney U-test.

Results: During the study period, 196 PLWH initiated a DOR-based ART. Among them, 131, mostly ART-experienced (120/131, 91%), had available viral genotype data. Of these, 29 subjects (22%) harbored at least one major DRM: 15 towards NRTIs, 10 towards PIs, 1 towards INSTIs, and 12 towards NNRTIs. Additionally, 12 PLWH (41%) showed resistance to two or more classes of antiretroviral drugs. Detailed characteristics of this latter group are reported in Table 1. PLWH with evidence of DRMs had a longer history of HIV infection (median 26 vs 13 years, $p<0.001$) and ART therapy (median 20 vs 11 years, $p<0.001$), and a greater number of previous ART regimens (median 6 vs 4, $p<0.001$), compared to the group who did not (Table 2). In this group of patients, DOR mainly represented a switching strategy (27/29, 93%), motivated in half of the cases by reported adverse effects to previous ART and in only 3/29 by virological rebound. Notably, a history of previous virological failure was reported in 17/29 subjects (57%), significantly more often than in the other group (16 patients, 16%, $p=0.008$). DOR was frequently prescribed as a single agent (15/29 patients), often in combination with an INSTI (10/15 patients). At a mean follow-up of 17 (8-35) months from the start of DOR, 25/27 patients had remained on treatment, all with evidence of virological suppression, without significant differences compared to the DRMs-free group.

Conclusions: The unique resistance profile of DOR within the NNRTI class enables its use also in patients with complex HIV infection histories and DRMs. Our real-life data demonstrate that DOR, particularly as single agent, represents a valid option to overcome intolerance or ineffectiveness issues with prior regimens while maintaining virological suppression.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_211.PNG

Antiretroviral therapy

P 16 LONG-TERM DURABILITY OF DOLUTEGRAVIR + DARUNAVIR/COBICISTAT DUAL REGIMEN IN HIGHLY ANTIRETROVIRAL-EXPERIENCED PEOPLE LIVING WITH HIV (DODACO STUDY)

D. Ripamonti[1], L. Comi[1], A. Francavilla[2], D. Valenti[2], M.V. Cossu[3], D. Moschese[3], G. Lapadula[4], L. Mezzadri[4], P. Bonfanti[4], M. Mazzitelli[5], A.M. Cattelan[5], M. Fabbiani[6], T. Bini[7], A. Giacomelli[3]

[1]ASST Papa Giovanni XXIII, Bergamo, Italy, [2]FROM - Fondazione per la Ricerca Ospedale di Bergamo – ETS, Bergamo, Italy, [3]ASST Fatebenefratelli, Ospedale Luigi Sacco, Milano, Italy, [4]University of Milano-Bicocca, Fondazione IRCCS San Gerardo dei Tintori, Monza, Italy, [5]Padua University Hospital, Padova, Italy, [6]Azienda Ospedaliero-Universitaria Senese, Siena, Italy, [7]ASST Santi Paolo e Carlo, Milano, Italy

Background: Dolutegravir (DTG) plus darunavir-cobicistat (DRV-c) dual regimen has been used as a simplified salvage option in treatment-experienced people living with HIV (PLWH), with history of virological failures and multiple class resistance. However, long term data on this combination are missing. We report on the durability of this dual regimen assessed by treatment failure (TF) over time as a composite endpoint.

Material and methods: Retrospective, observational, multicenter study (6 Italian centres). PLWH who started DTG +DRV-c (DTG bid was allowed) since 2015 were included, regardless of HIV RNA levels. Resistance-associated mutations (RAMs) were interpreted according to the Stanford HIVdb mutation list. The primary endpoint was the TF defined as any reason of discontinuation, including virological failure (VF) (i.e. confirmed HIV RNA ≥ 50 copies/mL or any detectable viral load followed by followed by any treatment switch). Survival analysis with Kaplan-Meier estimator was used to assess the probability of treatment discontinuation over time. Multiple logistic regression was used to estimate the probability of TF at 1 year following the initiation of DTG+DRV-c.

Results: 283 patients were included (66.4% males, median age 60 years, median nadir CD4 + T-cell 153 cells/ml, 36% with previous AIDS events). The median duration of therapy was 24 years, 45%of people experienced 8 or more previous treatment lines. Participants had a median follow-up of 4 years since DTG+DRV-c initiation. At the baseline, (i.e. DTG+DRV-c initiation), only 57.7% and 67% individuals had CD4+T-cell count >500 cells/ml and HIV RNA < 50 c/ml, respectively. Primary RAMs for NRTI, NNRTI, PI and INI were documented in 86, 71, 37 and 15%, respectively. Only 2 patients were on DTG bid. Treatment discontinuation (TD) occurred in most cases for to simplification, toxicity, intolerance, drug interaction (42 cases, 14.8%), while VF occurred in only 7 persons (2.5%). Death and loss-to-follow up occurred in 18 and 8 subjects. The probability of TD was 11%, 16%, 22%, 27%, 29%, 33%, and 42% after 1, 2, 3, 4, 5, 6 and 7 years of treatment, respectively (figure1). At multiple logistic regression, after adjusting for age, sex, viral load at baseline and number of lines of therapy, the only factor associated with a reduced probability of TF after 1 year of treatment was an increase in CD4+T cell count of 50-unit from the baseline value (OR=0.947, 95%CI 0.9 -0.992).

Conclusions: DTG+DRV-c is an effective and durable dual combination in highly treatment-experienced PLWH. Most reasons of discontinuation were other than VF (mainly age-related phenomena, such as drug-interactions), confirming its efficacy as simplified and salvage therapy in PLWH with multiple class resistance.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_227.png

Antiretroviral therapy

P 17 INSIGHTS INTO PATIENTS PERSPECTIVES: IDENTIFYING BARRIERS IN THE TRANSITION FROM ORAL TO INJECTABLE ANTIRETROVIRAL TREATMENT

M. Poliseno[1], A. Vigna[1], M. Cibelli[1], N. De Gennaro[1], E. Milano[1], C. Grillo[2], F.R.P. Ieva[2], S.M. Ferrara[2], S. Lo Caputo[2], F. Di Gennaro[1], A. Saracino[1]

[1]Clinic of Infectious Diseases, Department of Precision and Regenerative Medicine and Jonian Area (DiMePreJ), A.O.U.C. Policlinico di Bari, Bari, Italy, [2]Clinic of Infectious Diseases, Department of Clinical and Surgical Sciences, University of Foggia, Foggia, Italy

Background: The introduction of long-acting injectable antiretroviral treatment (LA ART) in Italian Infectious Diseases Centers has marked a cornerstone in the management of HIV infection. However, despite the enthusiastic reception of transitioning to LA ART among some People Living with HIV (PLWH), clinical observation has revealed a subset of patients who, despite meeting the inclusion criteria for this treatment, firmly reject its prescription. This study aimed to investigate potential social, cultural, or clinical determinants underlying this phenomenon, to assist clinicians in formulating individualized therapeutic strategies.

Materials and Methods: From January 1, 2023, to February 15, 2024, all eligible PLWH followed at the Infectious Diseases Outpatient Clinics of the University Hospitals of Bari and Foggia, were proposed a switch to injectable ART during routine follow-up visits. Reasons for both switch acceptance and refusal were collected through both in-person and telephone interviews conducted by medical staff. Clinical and demographic characteristics of both patient groups were recalled from medical records. Chi-square tests and Mann-Whitney U-test were performed to test the null hypothesis of no differences between the two groups. A uni- and multivariate Cox regression model, incorporating variables that showed significance in the descriptive analysis, was developed to identify factors associated with an increased likelihood (Odds Ratio, OR, 95% Confidence Interval, CI) of declining LA therapy.

Results: Overall, 208 PLWH were offered LA ART. Their main features are reported in Table 1. Of these, 95 (46%) declined. While patients opting for injectable ART stated their preference to avoid daily pill-taking, those who declined expressed inconvenience with the bi-monthly medication schedule, and would prefer a semi-annual dosage regimen (Figure 1). At univariate analysis, duration of ART ≥10 years (OR 4.73, 95% CI 2.64-8.70, p<0.001), the use of co. medications (OR 3.04, 95% CI 1.58-6.10, p<0.001), and an age ≥50 years (OR 2.64, 95% CI 1.51-4.67, p=0.001) correlated with a higher likelihood of refusal, whereas male gender and a higher level of education appeared as predictors of treatment acceptance (OR 0.46, 95% CI 0.24-0.88, p=0.02 and OR 0.24, 95% CI 0.09-0.56, p=0.002). At multivariate analysis, prolonged ART (OR 3.05, 95% CI 1.07-9.53, p=0.04) was associated with a higher likelihood of refusing LA ART, while higher education degree was predictive of LA acceptance (OR 0.31, 95% CI 0.11 -0.80, p=0.02).

Conclusions: Our findings underscore the influence of demographic and clinical factors on patients' acceptance of LA ART. These results underscore the importance of thorough counseling, particularly for patients with longer ART history and lower levels of education, as transitioning to a newer ART regimen may require a shift in mindset.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_233.png

Antiretroviral therapy

P 18 THERAPEUTIC SWITCH TO LONG ACTING CABOTEGRAVIR/RILPIVIRINE TO OVERCOME MALABSORPTION DUE TO ULCERATIVE COLITIS IN A PERSON LIVING WITH HIV, A CASE REPORT

F. Sabaini[1,2], G. Pozza[1,2], A. Giacomelli[1,2], C. Fusetti[1,3], S. Antinori[1,2]

[1]Department of Biomedical and Clinical Sciences, Università degli Studi di Milano, Italy, [2]III Division of Infectious Diseases, ASST Fatebenefratelli Sacco, Luigi Sacco Hospital, Milano, Italy, [3]II Division of Infectious Diseases, ASST Fatebenefratelli Sacco, Luigi Sacco Hospital, Milano, Italy

Background: Long acting cabotegravir/rilpivirine, through intramuscular administration, may be a solution to malabsorption in people living with HIV with IBD.
Case Presentation: M.A. is a 76 year old woman living with HIV since 1993, who has a long history of ARV therapy and multiple resistances (as shown in table 1 and table 2).
Her clinical history also includes: ulcerative colitis (that was first diagnosed in 1969 and for which multiple surgical operations were performed through the years, starting with proctocolectomy and ileal pouch anastomosis, until an ileostomy was finally performed in 2023), previous pulmonary tuberculosis, hypercholesterolemia, osteoporosis, thyroid nodules, cataract, venous insufficiency.
She is allergic to miconazole, amoxicillin and efavirenz (rash).
Her other medications are: cholecalciferol, denosumab, acetylsaliylic acid.
After the ileostomy was performed, she reported seeing her oral ARV (DRV/c/TAF/FTC) almost completely undigested in her stoma pouch. Therefore, even though the viral load was still undetectable, her clinicians at the time (March 2023), after revising her history, decided to switch her ARV therapy from oral to intramuscular, with cabotegravir/rilpivirine.
For the following year, there were no adverse reactions and the viral load remained undetectable, until March 2024, when her blood test showed detectable HIV-RNA (111 copies/ml), apparently without any simple explanation (the patient always kept her appointments and there were no signs of concomitant infections, she hadn't received any vaccination recently and no interactions with other medications were documented). No further measures were taken and the following test in April 2024 showed undetectable viral load.
Discussion: A switch to long acting cabotegravir/rilpivirine proved a successful strategy in this case. Nonetheless, there were some concerns about this choice. First of all, the malabsorption was only referred by the patient and there were no evidence of inefficacy of her ARV in her blood test. Moreover, event though there were no evidence of mutations conferring resistance to NNRTIs, the clinical history included a rash caused by efavirenz, which naturally lead to the abrupt discontinuation of such medication; EFV is known for its long half-life, which may have caused suboptimal plasma concentrations following its stop and, subsequently, resistances to NNRTI. This might have been the explanation of a possible virological failure in 2024 (which luckily did not happen).
Conclusions: This case report shows how long acting CAB/RPV might be a solution to malabsorption in people living with HIV facing inflammatory bowel disease and its complications. Nevertheless, as clinicians, we must always be extremely cautious and consider all the variables (clinical history, previous resistance tests, co-medications, co-infections, adherence) before making a decision.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_257.png

Antiretroviral therapy

P 19 HIGH LIPID LEVELS IN PATIENTS LIVING WITH HIV UNDERGOING TRIPLE ANTIRETROVIRAL THERAPY

L. Moffa[1], C. Tana[2], C. Ucciferri[1], K. Falasca[1], J. Vecchiet[1]

[1]Clinica Malattie Infettive, Università degli Studi Gabriele D'Annunzio, Chieti, Italia, [2]Clinica di Geriatria, Università degli Studi Gabriele D'Annunzio, Chieti, Italia

Background: Dyslipidemia is highly prevalent in people living with the human immunodeficency virus (HIV). Reducing blood lipid levels is useful to protect against heart disease. The virus itself and antiretroviral therapy (ART) can be associated with increased blood lipid levels. The aim of this retrospective study was to evaluate the lipid metabolism alterations and the impact of ART on the lipid profile in a group of patients living with HIV (PLWHIV).
Material and methods: PLWHIV admitted at the Day Hospital of the Infectious Diseases Unit of the SS. Annunziata, Chieti, Italy were included in this retrospective study. Discharge letters of December 2023 were analyzed. For each patient, age, sex, HDL, LDL, triglycerides and total cholesterol values at discharge, current ART therapy, levels of vitamin D, CD4, diagnosis of concomitant infections, cardiovascular diseases, therapy with PPIs and statins were also included.
Results: A group of 60 patients living with HIV with a mean age of 52.2 (29-74) were enrolled, 46 males and 14 females. All patient received ART for at least 12 months and were in good virologic response with undetectable HIV-RNA viral load. A total of 51 patients had alterations in lipid metabolism (85%), of these 41 patients (68%) had alterations of LDL. 51.2% had concomitant vitamin D insufficiency despite supplementation. Fourteen patients had a CD4 count < 500 and of these 71% had alterations in lipid profile. In this analysis, 9/50 patients had low HDL levels, high LDL levels, triglycerides and total cholesterol and they all underwent triple ART. Table 1 show the treatment baseline characteristics of the study population. Surprisingly, young patients aged < 45 yrs (19/50) had only high LDL levels.
Conclusions: Alterations in lipid metabolism are a significant issue in PLWHIV. Advanced age, therapies, dietary habits and bad lifestyle are well-recognized risk factors. However, the risk underlying the blood lipid levels alterations in patients with triple ART is unknown. In this study, we found a significant increase of all lipid components in patients undergoing triple ART. This is an important finding since patients who are candidate to this treatment should be evaluated carefully by investigating the cardiovascular (CV) risk before therapy. The main limitation of our study is the small sample size but this could be a starting point for future research. Understanding the mechanisms behind these results could be the first step towards the reduction of the CV risk and in some cases fatal complications in PLWHIV.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_263.jpg

Antiretroviral therapy

P 20 A REAL-LIFE STUDY IN HIV-INFECTED PATIENTS ON NNRTI-REGIMEN UNDERGOING THERAPEUTIC OPTIMIZATION

M. Trizzino[1], D. Arena[2], R. Gaudiano[2], R. Rubino[1], L. Pipitò[2], M. Piccione[2], I. Ganci[2], A. Cascio[2]

[1]Infectious and Tropical Diseases Unit, Emergency and Urgency Department, Azienda Ospedaliera Universitaria Policlinico 'Paolo Giaccone', Palermo, Italy, [2]Infectious and Tropical Diseases Unit, Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties, Azienda Ospedaliera Universitaria Policlinico 'Paolo Giaccone', Palermo, Italy

Background: The new antiretroviral therapies for HIV infection available today have made it possible to overcome obstacles linked to old co-formulations, such as pharmacological interactions with widely used over-the-counter drugs, or even the need to take therapies together with food, up to the crucial aspect such as that of forgiveness.
Methods: In this retrospective observational study conducted at the Infectious Diseases Operating Unit of the University Hospital of Palermo we analyzed a cohort of 78 patients with HIV infection already on antiretroviral therapy (Table 1). A first group of patients (n=48) suspended RPV/TAF/FTC by carrying out a pharmacological switch (switch group), while a second group of patients maintained antiretroviral therapy with RPV/TAF/FTC (RPV-regimen group). A viro-immunological evaluation was carried out, anthropometric parameters were collected, laboratory parameters and reasons for switch were evaluated.
Results: At the beginning of the analysis period, the percentage of viro-suppressed patients with HIV-RNA <20 cp/mL in switch group and RPV-regimen group were 84.4% and 95.2%, respectively. In the switch group, the main motivation was simplification (56.7%), followed by reduction of metabolic/CV risk (22.2%), toxicity (10%), patient's choice (7,8%), DDIs (3.3%).
At 12 months from the start of the analysis, the percentage of viro-suppressed patients with HIV-RNA <20 cp/mL in switch group and RPV-regimen group were 89.5% and 81.3%, respectively (Table 2, Figure 1). In the switch group, a single-tablet-regimen INI regimen was mainly started (43.8%), a 2DR regimen (20.8%) or a single-tablet-regimen NNRTI (20.8%), and finally the new long-acting regimens (12.5 %).
At the beginning of the analysis period and at 12 months, no differences emerged regarding body weight or the laboratory parameters analyzed. No adverse events occurred in both groups, and all patients continued therapy without interruption.
Conclusions: Despite the effectiveness of RPV-based regimens, it is important for the clinician to maintain high attention towards drugs taken by the patient but which are often not communicated, first of all proton pump inhibitors which rank first in terms of expense healthcare and in second place in terms of consumption in Italy. Likewise, the clinician must implement every measure aimed at optimizing the patient's compliance with therapy, such as the possibility of taking drugs outside of meals. The availability of antiretroviral drugs that combine several characteristics such as a high genetic barrier, excellent tolerability, consolidated experience in clinical trials and real-world studies, allows the doctor to make a therapeutic change not only by keeping the viremia undetectable, but also by strengthening retention-in-care. The future is also represented by regimens with fewer drugs and the new long-acting formulation, and clinicians must be aware of this.
(Table 1, Table 2, Figure 1)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_268.jpg

Antiretroviral therapy

P 21 EFFICACY AND SAFETY OF SWITCHING TO CO-FORMULATED DOR/TDF/3TC IN HIV-1-INFECTED, ART EXPERIENCED ADULTS: DATA FROM A SINGLE ITALIAN CENTER IN FLORENCE, ITALY

G. Formica[1], G. Somma[1], F. Ducci[1], G. Toti[1], S.T. Kiros[1], J. Mencarini[2], C. Malcontenti[2], M. Pozzi[2], B. Borchi[2], C. Fiorelli[2], I. Campolmi[2], G. Sterrantino[1], A. Bartoloni[1,2], F. Lagi[2]

[1]Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy, [2]Infectious and Tropical Diseases Unit, Careggi University Hospital, Florence, Italy

Introduction: Doravirine (DOR) is a non-nucleoside reverse transcriptase inhibitor (NNRTI) and is also available co-formulated with tenofovir disoproxil (TDF) and lamivudine (3TC). Real-life data on DOR is lacking. The study aim is to evaluate the efficacy, safety, and metabolic impact of switching to DOR/TDF/3TC in a cohort of people living with HIV (PLWH) treated in a single center in Florence, Italy.

Materials and Methods: This is a retrospective, monocentric cohort study. We included all PLWH > 18 years old, antiretroviral therapy (ART) experienced switching to DOR/TDF/3TC with at least one follow-up visit at the Infectious and Tropical Diseases Unit in Careggi University Hospital, Florence. Study entry was the date of DOR/TDF/3TC initiation; exit was the discontinuation date, loss to follow-up, or the end of follow-up (March 2024). Virological failure (VF) was defined as two consecutive HIV-RNA >50 copies/mL detections or a single HIV-RNA >50 copies/ mL followed by ART modification. However, those lost to follow-up weren't considered treatment discontinuations.

Results: We included 86 patients with a median FU of 2.43 years [IQR 1.5 – 3.4] with a maximum observation time of 4.5 years. At the switch, 81.4% (n=70) had undetectable HIV-RNA, while 18.6% (n=16) did not. No notable differences were observed between these groups. Demographic and clinical details are elucidated in Table 1. Notably, in 91.7% of PLWH, the pre-switching regimen was a 3-drug regimen, with tenofovir alafenamide (TAF) forming part of most backbones (54.7%). Over 60% of the cohort had at least one comorbidity, predominantly psychiatric disorders, followed by dyslipidemia and hypertension (Figure 1). We found 11 (12.8%) discontinuations attributable to various factors listed in Table 2, with an overall discontinuation rate of 5.34 per 100 patient-years [95% c 2.95 – 9.64]. Notably, two out of the 3 viral failures were PLHW who switched to DOR/TDF/3TC with detectable HIV-RNA. The only VF observed in PLWH who switched with HIV-RNA <50 cp/mL, occurred due to pre-existing mutations to TDF and 3TC (Table 2). Conversely, the majority (14 out of 16) of those starting with detectable viremia obtained undetectable levels after the switch. Figure 2 shows the probability of maintaining DOR/TDF/3TC up to 4 years. A focused analysis on individuals with over two years of follow-up showed significant reductions in total cholesterol and triglycerides without affecting creatinine levels (Table 3).

Conclusions: Switching to DOR/TDF/3TC was effective across varying baseline HIV-RNA levels, demonstrated good tolerability, and was associated with a marked improvement in serum lipid profiles.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_298.jpeg

Antiretroviral therapy

P 22 DURABILITY OF DORAVIRINE/LAMIVUDINE/TENOFOVIR DISOPROXIL FUMARATE IN A COHORT OF TREATMENT-EXPERIENCED PEOPLE WITH HIV: A RETROSPECTIVE OBSERVATIONAL STUDY

A. Rabbione[1], S. Pagano[1], M.V. Cossu[2], D. Moschese[2], A. Giacomelli[1], A. Gori[3,4], S. Antinori[1,5], C. Gervasoni[1]

[1]III Division of Infectious Diseases, ASST Fatebenefratelli Sacco, Luigi Sacco Hospital, Milan, Italy, [2]I Division of Infectious Diseases, ASST Fatebenefratelli Sacco, Luigi Sacco Hospital, Milan, Italy, [3]II Infectious Disease Unit, Ospedale Luigi Sacco, ASST Fatebenefratelli Sacco, Milan, Italy, [4]Centre for Multidisciplinary Research in Health Science (MACH), Università degli Studi di Milano, Milan, Italy, [5]Department of Biomedical and Clinical Sciences, Università degli Studi di Milano, Italy

Background: Doravirine/lamivudine/tenofovir disoproxil fumarate (DOR/3TC/TDF) is a single tablet NNRTI-based regimen approved for treatment-experienced and treatment-naive patients. Doravirine has shown a favorable resistance profile within the NNRTIs, no food restrictions, safe lipid profile and minimal drug interactions. Our study investigates the durability of DOR/3TC/FTC as a switch regimen in people with HIV (PWH) and analyzes reasons for discontinuation.

Materials and Methods: We conducted a retrospective, monocentric observational cohort study at the Infectious Disease Department of L. Sacco Hospital (Milan, Italy). The cohort includes all PWH who switched to DOR/3TC/TDF from a previous regimen until 31/12/2023 (end of observation period). Patients were followed until discontinuation of DOR/3TC/TDF due to any cause, death or until 31/12/2023, whichever came first. Epidemiological and clinical characteristics were collected including reasons for DOR/3TC/TDF discontinuation. Durability of DOR/3TC/TDF was performed by means of Kaplan-Meier curves, and log-rank test was used to assess exposures of interest.

Results: During the study period, 83 PWH switched from a previous ARV regimen to DOR/3TC/TDF; the majority were biological males (60, 72.3%) and the median age at baseline was 49 years (IQR 43-56). The most common associated comorbidities were arterial hypertension (21.7%), obesity (13.3%), and neuropsychiatric diseases (10.8%) (Table 1).

The median observation time was 33 months (IQR 18-38). Patients immunovirological parameters at baseline, their previous ARV regimen and reasons to switch to DOR/3TC/TDF are shown in Table 2.

A total of 43 (51.8%) PLW discontinued DOR/3TC/TDF during the observation period. The estimated durability of DOR/3TC/TDF at 12, 24 and 36 months was 80.7% (95%CI 70.5%-87.7%), 63.9% (95%CI 52.6%-73.2%), and 50.6% (39.1%-61%), respectively (Figure 1). No significant differences were observed according to biological sex in term of regimen durability (p=0.9308).

The main reasons for switching to another regimen were simplification (18, 21.7% of total PLW), toxicity (16, 19.3%) and poor adherence to therapy (4, 4.8%); death occurred in 3 PWH. No virological failure was reported. As shown in Figure 2, among patients who discontinued DOR/3TC/TDF regimen because of toxicity, the main reason was liver toxicity (3 cases), weight gain (3) followed by renal damage, osteopenia and neuropsychiatric disorders in 2 patients each.

13 patients (32.5%) switched to dual INSTI-based, 12 (30%) to a triple INSTI-based regimen, and 8 (20%) to another triple NNRTI-based regimen.

Conclusions: We found that most discontinuation of DOR/3TC/TDF were due to simplification although a not negligible rate of PWH experienced a toxicity potentially related to one of the components of the regimen. We confirm a favorable virological outcome of this regimen with no confirmed virological failure observed.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_305.jpg

Antiretroviral therapy

P 23 DURABILITY AND EFFECTIVENESS OF DUAL VERSUS TRIPLE INSTI-BASED ANTIRETROVIRAL THERAPY IN A REAL-WORLD COHORT IN PALERMO

R. Gaudiano[1], M. Trizzino[2], B. Romanin[2], M. Piccione[2], D. Arena[2], E. De Luca[3], A. Cascio[1,2]

[1]Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties "G D'Alessandro", University of Palermo, Palermo, Italy, [2]Infectious and Tropical Disease Unit and Sicilian Regional Reference Center for the Fight against AIDS, AOU Policlinico "P. Giaccone", Palermo, Italy, [3]Hospital Pharmacy, AOU Policlinico "P. Giaccone", Palermo, Italy

Background: Integrase Strand Transfer Inhibitor (INSTI) are oral antiretroviral agents with a high efficacy and safety rate. Our aim is to describe treatment durability and virological outcomes in people living with HIV (PLWH) using two of the most commons INSTI-based regimens, BIC/TAF/FTC or DTG/3TC, respectively a three-drug (3-DR) and two-drug (2-DR) regimen.

Material and methods: We performed an observational retrospective single center study that included all treatment-naïve (TN) and treatment-experienced (TE) PLWH, who started 3-DR or 2-DR between 01 March 2019 and 29 February 2024. PLWH were followed up from the date of start of antiretroviral therapy to the date of treatment discontinuation for any reason or censoring. Exclusion criteria were: multidrug regimens, documented resistance to INSTI or Non-Nucleoside Reverse Transcriptase Inhibitor, PLWH who started study treatment or were followed up in another clinical centre.

The purpose was to establish the durability of the two regimens; secondary endpoints were the reasons for discontinuation and the rate of virological suppression, defined as viral load (VL)<50 copies/mL after starting or switching to 2-DR or 3-DR at 48 and 96 weeks +/- 24 weeks.

Results: According to the exclusion criteria, 440 PLWH were identified: 293 (67%) in the 3-DR group (228 TE and 65 TN) and 147 (33%) in the 2-DR group (142 TE and 5 TN).

The median follow-up was 99 weeks (Q1-Q3:52-197) in the 3-DR group and 99 weeks (Q1-Q3:50-142) in the 2-DR group.

Durability of the two regimens was analyzed using Kaplan-Meier survival analysis and showed no statistically significant difference (log rank p=0,467) (Figure 1).

65 (14%) PLWH discontinued treatment. Eleven (15%) TN PLWH discontinued 3-DR due to drug interactions (4), lost to follow-up (4), switch to long-acting antiretroviral treatment (LA-ART) (2) and death due to AIDS (1). No TN PLWH discontinued 2-DR (although one was excluded from this study for documented resistance to INSTI). In the TE group, 38 (10%) PLWH suspended 3-DR due to treatment simplification (13), toxicity (11), lost to follow-up (6), switch to LA-ART (5), pregnancy (1), switch to crushable drug (1) and kidney failure (1). 17 (12%) TE discontinued 2-DR due to switch to LA-ARV (9), toxicity (6), lost to follow-up (1) and kidney failure (1).

292 (79%) TE PLWH reported outcomes for VL at 48 weeks and 223 (60%) at 96 weeks after switch. Percentage of TN with VL<50 copies/ml at 48 weeks was 93.3% in 3-DR group and 97.3% in 2-DR group. After 96 weeks, 95.2% PLWH in 3-DR group and 97.4% in 2-DR group achieved virological suppression. In both cases, the rate of viral suppression was similar between the two groups (p>0,05).

Conclusions: 3-DR and 2-DR showed a similar risk of treatment discontinuation. Additionally, virological suppression in TE using 2-DR was comparable to 3-DR. Concerning TN PLWH, a more appropriate evaluation of virological suppression needs a larger sample and a longer observation period.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_306.png

Antiretroviral therapy

P 24 EXPERIENCED PWH SWITCHING TO 3TC/TDF/DOR IN OUTPATIENT SETTING: REAL-LIFE DATA ON LIPID CHANGES AND ASCVD RISK FROM AN ITALIAN MULTICENTER COHORT

V. Iannone[1], A. Ciccullo[2], D. Moschese[3], F. Lombardi[4], A. Giacomelli[3], M. Fabbiani[5], F. Lagi[6], C. Papalini[7], A. De Vito[8], M.V. Cossu[3], G. Madeddu[8], D. Francisci[7], S. Di Giambenedetto[1,4], A. Borghetti[9]

[1]Department of Medical and Surgical Science, Infectious Diseases, Catholic University of Sacred Heart, Rome, Italy, [2]Infectious Diseases Unit, San Salvatore Hospital, L'Aquila, Italy, [3]Division of Infectious Diseases, ASST Fatebenefratelli Sacco, Luigi Sacco Hospital, Milan, Italy, [4]Department of Infectious Diseases, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy, [5]Department of Medical Sciences, Infectious and Tropical Diseases Unit, University Hospital of Siena, Siena, Italy, [6]Infectious and Tropical Diseases Unit, Careggi University Hospital, Florence, Italy, [7]Department of Medicine, Clinic of Infectious Diseases, "Santa Maria della Misericordia" Hospital, University of Perugia, Perugia, Italy, [8]Unit of Infectious Diseases, Department of Medicine, Surgery and Pharmacy, University of Sassari, Sassari, Italy, [9]Department of Clinical and Experimental Medicine, Infectious diseases Unit, University of Pisa, Italy

Background: The burden of cardiovascular disease in persons living with HIV (PWH), requires clinicians to seek safe ARV regimens with low metabolic impact. Doravirine (DOR) showed long-term safety, tolerability, and a favorable lipid profile, which placed it among the most suitable treatment options in dyslipidemic PWH with high CVD risk. We present out data on multicenter cohort on the effects of 3TC/TDF/DOR on ASCVD risk and lipid profile at 24 weeks of follow-up.

Methods: We enrolled treatments experienced PWH from seven outpatient settings in Italy (Rome, Milan, Siena, Florence, Perugia, Pesaro, Sassari) switching to 3TC/TDF/DOR (baseline, BL). We collected viro-immunological parameters, lipid profiles and calculated the ASCVD risk score at BL and after 24 weeks (24W) of follow-up.Reported adverse events during follow-up were recorded. Student t-test for paired samples and multivariable linear regression were used to assess changes in lipid profile and predictors of those changes, respectively.

Results: We enrolled 309 individuals, with a mean duration of HIV infection of 16y (± 9) and a mean time of antiretroviral therapy of 13y (±7.8). At BL most of PWH (67%) switched from a 3-drug regimen, while a smaller percentage (7.4%) from a 2-drug regimen (NRTI+ INI 4.85%, other dual 2.59%); 132 (43%) were on a TAF-based regimen vs 52 (17%) on a TDF-based one).The major reason for switching to 3TC/TDF/DOR was regimen optimization (32%). Population characteristics at BL are shown in Table 1. Regarding to the lipid profile, at 24 W, we observed a significant improvement in total cholesterol (TC) (mean difference -17.80 mg/dl, 95% CI -22/-14, p<0.001), HDL/LDL (0.03 95% CI, 0.004/0.05, p= 0.019), triglycerides (-28 mg/dl, 95% CI -42/-14, p<0.001), TC/HDL (-0.3 95% CI, -0.4/-0.2, p< 0.001). However, upon stratification by pre-switch therapy (TDF-based regimens versus all others), mean reduction in total cholesterol (-21 mg/dL; p<0.001) and triglycerides (-34 mg/dL; p<0.001) and mean increase in HDL/LDL (+0.03; p=0.028), were only observed in PWH who switched from non-TDF-based regimen, whereas reduction in TC/HDL was seen independently from pre-switch regimen (-0.28; p<0.001). Multivariable regression analysis confirmed the association with pre-switch TDF for TC/HDL and triglycerides. Greater lipid improvements over time were associated with higher respective BL levels (all p-values <0.001). No significant change was observed in either ASCVD risk score or BMI at 24 W. At 24W, 37 PLWH discontinued 3TC/TDF/DOR (37/309, 12%) mainly for gastrointestinal toxicity (2.3%) and for simplification to a 2DR (2.3%).

Conclusions: In this national multicenter cohort of PWH, the main driver of the improvement in TC, HDL/LDL, and triglycerides appears to be a non TDF- based prior antiretroviral regimen.However, based on the TC/HDL ratio amelioration observed in overall population, 3TC/TDF/DOR could represent a suitable antiretroviral treatment option for dysplipidemic PWH.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_311.jpg

Antiretroviral therapy

P 25 SWITCHING TO LONG-ACTING CABOTEGRAVIR/RILPIVIRINE: DATA FROM AN ITALIAN MONOCENTRIC COHORT

M. Matone[1], D. Moschese[1], A. Giacomelli[2], M. Piscaglia[1], A. Capetti[1], G. Pozza[2], L. Galli[3], M. Faenzi[1], S. Sportoletti[1], A. Riva[2], S. Antinori[2], A. Gori[1,3,4], M.V. Cossu[1]

[1]Department of Infectious Diseases, Unit I, L. Sacco Hospital, ASST Fatebenefratelli Sacco, Milan, Italy, [2]Institute of Infectious Diseases & Tropical Medicine, III Division, ASST Fatebenefratelli Sacco, Luigi Sacco Hospital, Milan, Italy, [3]Department of Infectious Diseases, Unit II, L. Sacco Hospital, ASST Fatebenefratelli Sacco. Milan, Italy, [4]Centre for Multidisciplinary Research in Health Science (MACH), University of Milano, Milano, Italy

Background: Cabotegravir/Rilpivirine (CAB/RPV) is the first long-acting injectable (LAI) antiretroviral therapy (ART) approved for virologically suppressed adults with HIV-1. While clinical trials have provided safety and efficacy data for this new regimen, real-life data are limited. This study aimed to assess the durability and reasons for discontinuation of CAB/RPV LAI administered every 8 weeks (Q8W) in the first year of implementation at our center.
Methods: We conducted a retrospective observational study to examine the characteristics of patients switched to commercially available LAI CAB/RPV Q8W during the first year of clinical implementation. Our analysis focused on assessing adherence to the prescribed injection schedule and documenting instances of treatment discontinuation.
Results: A total of 138 patients were included in the study, with a median observation period of 43 weeks (IQR: 34 -47). Of these, 32 (23.2%) were female, and the median age was 51 years old (IQR 40-58). Prior to switching to CAB/RPV LAI, most patients (N 88, 63.8%) had been exposed to integrase strand transfer inhibitors (INSTIs), followed by non-nucleoside reverse transcriptase inhibitors (NNRTIs), and protease inhibitors (PIs). The most common previous regimen included an INSTI drug (107 of 138, 77.5%). Overall, 12 patients (8.7%) discontinued CAB/RPV LAI treatment during the study period. The median time to discontinuation was 21 weeks (IQR 12-35), with patients receiving a median of 4 injections before discontinuation. The adherence to the injection schedule after 48 weeks of LAI was estimated at 89.4%. The most common reasons for discontinuation were injection-related pain (5/12 cases) and various clinical reasons such as evidence of hepatitis B virus (HBV) infection, major depression, pregnancy, implant of silicon prosthesis, drug-drug interactions, evidence of rilpivirine resistance-associated mutations (RAMs), and logistical reasons. There were no recorded instances of virological failure during the study period. Most patients (95.6%) maintained viral suppression (viral load <50 copies/mL) after initiating CAB/RPV LAI, with only a few cases of virological blips. Gender disparity was observed in discontinuation rates, with a higher proportion of female patients discontinuing the regimen compared to male patients. Most patients (92.8%) received injections within the correct time window.
Conclusions: The findings suggest that CAB/RPV LAI Q8W is feasible and well-tolerated in clinical practice, with high adherence to the injection schedule and minimal instances of treatment discontinuation. Further research with larger cohorts and longer follow-up periods is warranted to validate these findings and optimize treatment strategies for PWH.
(Table 1, Figure 1)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_315.jpg

Antiretroviral therapy

P 26 CHANGING LIFE PERCEPTION IN A HEAVY TREATED POPULATION LIVING WITH HIV AFTER LONG-ACTING REGIMEN INTRODUCTION

G. Picchi[1], V. Cofini[2], S. Aviani[1], F. Ferri[3], L. Cappelloni[4], R. Preziosi[1], S. Farinelli[1], L. Caterini[1]

[1]Infectious DIsease Department, Belcolle Hospitali, Strada Sammartinese, Viterbo Italy, [2]Department of Clinical Medicine, Life, Health and Environmental Sciences-MESVA, University of L'Aquila, Italy, [3]Penitentiary medicine Department, Belcolle Hospitali, Strada Sammartinese, Viterbo Italy, [4]Infermieristic Degree Program, Faculty of Medicine, University "La Sapienza", Rome Italy

Background: Long-Acting Regimens (LAR) in persons living with HIV (PLWH) are a promising option in improving quality of life (QoL) and modifying ART approach especially in those experimenting pill fatigue/adversion and stigma. Some concerns regards long term adherence and scheduling appointments difficulties (Nachega 2023, Akinwunmi 2021). We presents the results of a study assessing QoL and adherence in a group of PLWH recently switched to LAR.

Material and methods: From Dec 23 until Mar 24, to all PLWH attending HIV outpatient clinic of Belcolle Hospital in LAR was proposed a questionnaire for QoL assessment and health status perception (WHOQOL-HIV BREF 2012) combined with self-reported adherence and side-effects before and after LAR introduction. The means or frequencies were compared with Wilcoxon rank and McNemar test, alpha 0.05 set.

Results: Of 46 PLWH proposed, 37 fulfilled the questionnaire. Tab.1 reports general features and ART history. Median time from HIV diagnosis and ART beginning were respectively 23 and 13 y with 4,6 mean therapeutic lines; in 83,8% last regimen was STR. 70.3% of patients declared difficulties in following oral ART, 61.1% reported missing dose "sometimes"/"often",main reason being "not to be at home" (50%). All subjects had started LAR within 1 year, without lead-in and every 2 months.

Self-perception was sufficient-to-completely good for majority of persons in all items (health,residential,working, economic and relational status) except for physical aspect,sexual life (very/fully satisfactory in 35% of patients), concern about others' judgment (perceived as high in 57%).

Comparing periods before and after LAR switch, all patients declared an improved QoL (mean score 3.43 vs 4, p=0.002) and health-status (mean score 3.38 vs 4.14 p<.001, Fig. 1) with reduction of needed medical appointments (p=0.020) and no differences in daily-life pain (p=0.206) and energy (p=0.480). Moreover, 10,8% of patients declared complete forgetfulness of HIV condition. Strong reduction of side effects was observed for GI-tract, and reduced incidence and intensity for CNS ones (Tab.2). Injection pain was reported "sometimes" and "often" by 48.6% and 10.8% respectively. All interviewed PLWH declared LAR more simple, well-tolerated and easy-to-take; 3 (8.1%) forgot the appointment for injection and were actually recalled by the clinic.

Conclusions: LAR therapy benefits on QoL of PLWH are confirmed in real-life experience with improved tolerance and self-perception of health status and better coexistence with HIV condition, also in persons with a long medical and pharmacological history. Especially in this population, feelings of external judgments may persist and positive effects on sexual life need more time to emerge. Reduction of side effects overcomes the effect of more scheduling appointments. Injection pain is not affecting daily life. Long-term adherence need to be assessed and eventually supported as continuous re-engagement in care.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_319.jpg

Antiretroviral therapy

P 27 VIROLOGICAL FAILURES IN NEWLY DISCOVERED PEOPLE LIVING WITH HIV TREATED WITH TAF/FTC/BIC AS FIRST LINE REGIMEN

F. Lamanna[2], D. Farinacci[1], A. D'Angelillo[2], R.A. Passerotto[2], E. Visconti[1], G. Baldin[1], A. Ciccullo[3], F. Lombardi[2], S. Di Giambenedetto[1,2], A. Borghetti[4]

[1]Fondazione Policlinico Universitario "A. Gemelli" IRCCS, Roma, Italia, [2]Università Cattolica del Sacro Cuore, Roma, Italia, [3]Ospedale San Salvatore, L'Aquila, Italia, [4]UO Malattie Infettive, Università di Pisa, Pisa, Italia

Background: Antiretroviral therapy (ART) consisting of tenofovir alafenamide/emtricitabine/bictegravir (TAF/FTC/BIC), as a single tablet, represents an effective, high barrier regimen for naive and experienced people living with HIV (PLWH).
These are two cases of naive patients, in which TAF/FTC/BIC regimen was started, but virological suppression wasn't achieved.
First case: First patient, had a first viral load of 1.240.000 copies/mL and a CD4+ T cells count of 68 cells/mmc; a genotype test was performed before starting therapy with the presence of V106I mutation. Therapy with TAF/FTC/BIC was started. During follow-up, it showed a progressive reduction of HIV-RNA, but after two months the viral load slowly increased. Then therapy was discontinued and TAF/FTC plus dolutegravir (DTG) was started. After two months a viral load of 47 copies/mL was found, but a few months later HIV-RNA rises > 50 copies/mL. A genotype test was performed, confirming the presence of V106A with no new RAMs. Nowadays, patients is taking therapy with TAF/FTC/DRV/c + DTG. The last evaluation of plasma viremia resulted in 63 copies/mL.
Second case: The second patient, at diagnosis, had HIV-RNA of 308.322 copies/mL and CD4+ T cells count of 388/mmc; the genotype test was not executed before starting therapy. We started TAF/FTC/BIC. During follow-up, it showed a progressive reduction of HIV-RNA, but later viral load slowly increased and he interrupted the BIC regimen and started TAF/FTC/DRV/c. After three years the patient was still viremic (viral load 1.850 copies/mL) for which the regimen was discontinued to start DOR plus DTG plus DRV/c. After 6 months viral load was 132 copies/mL with a perfect adherence reported. The genotype performed showed no RAMs. Given the persistent detectability of plasma viral load, the patient added fostemsavir with a viral load of 129 copies/mL after one month and 224 copies/mL after six months.
Conclusions: We aimed to present the unconventional viremic patterns observed in two patients who commenced first-line therapy with TAF/FTC/BIC, starting from viral loads exceeding 300,000 copies/mL. These patients appeared to be in good health, encountered no issues related to drug interactions, lacked genotypes demonstrating resistance-associated mutations that might discourage the use of integrase inhibitor-based therapy, and showed no apparent reasons leading to inadequate plasma levels of the circulating drug (such as absorption or treatment adherence issues).
Despite these, both patients initially gradually reduced plasma viremia without achieving virological suppression. Neither patient has attained a viremia level below 50 copies/mL after more than two years of Highly Active Antiretroviral Therapy (HAART). New studies are undoubtedly essential to gain a better understanding of the factors contributing to this pattern and to identify the most effective therapeutic regimens for individuals with elevated baseline viremias.

Antiretroviral therapy

P 28 TREATMENT EXPERIENCED PWH SWITCHING TO 3TC/TDF/DOR: LIPID PROFILE CHANGES OVER 144 WEEKS OF FOLLOW UP IN A SINGLE-CENTER ITALIAN COHORT

V. Iannone[1], P.F. Salvo[1], G. Baldin[2], F. Lombardi[2], A. Carbone[1], G. Lenzi[1], A. Borghetti[3], S. Di Giambenedetto[1,2], A. Ciccullo[4]

[1]Department of Medical and Surgical Science, Infectious Diseases, Catholic University of Sacred Heart, Rome, Italy, [2]UOC Infectious Diseases, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy, [3]Department of Clinical and Experimental Medicine, University of Pisa, Pisa, Italy, [4]Infectious Diseases Unit, San Salvatore Hospital, L'Aquila, Italy

Background: The increasing average life expectancy of people living with HIV (PWH) and the concurrent higher incidence of cardiovascular and metabolic diseases, requires clinicians to search for safe ARV regimen with low impact on lipid profile. In the landscape of antiretroviral regimens, Doravirine (DOR) showed long-term tolerability and a favorable lipid profile with potential advantages on CVD long-term risk. We are presenting our data from a single-center cohort, investigating experienced PWH who switched to 3TC/TDF/DOR and their long-term changes in metabolic and lipid profile.

Methods: We enrolled treatment experienced PWH from an outpatient setting in Rome, switching to 3TC/TDF/DOR (baseline, BL). We collected clinical history, viro-immunological parameters, lipid profiles and Body Mass Index (BMI) at BL and at 48W, 72 W, 96W, until 144 W of follow-up.Treatment discontinuations (TD) and virological failures (VF) (VL > 200 cp/ml at single determination) were also recorded. Data were analyzed using non-parametric tests for repeated measures. Multivariable linear regression was used to assess changes in lipid profile and predictors of those changes, respectively.

Results: We enrolled 72 PWH, with a median duration of HIV infection of 14 years (6-22) and a median time of virological suppression 7.6 years (3.8-15.8).The major reason for switching to 3TC/TDF/DOR was regimen optimization (48.6%). Population characteristics are summarized in Table1.Notably, 34 PWH (47.2%) came from a TAF-based regimen. During 180.7 PYFU we observed 4 VF. Estimated probability of maintaining virological suppression was 93.3% at 96W and 89.2% at 144W. No predictors of VF were found at the regression analysis. Regarding tolerability, during 181.8 PYFU we registered 15 TD: main reason to TD was switching to a 2DR (7/15, 47%). Estimated probability of maintaining study regimen was 79.7% at 96W and 78.0% at 144W. At the multivariate regression analysis, we found that a longer time of virological suppression before starting 3TC/TDF/DOR was reversely associated with TD (aHR 0.78, p=0.034). We did not register significant changes in TCD4+ cells count during follow-up. Regarding changes in metabolic profile, we observed a significant decrease in total cholesterol levels at 96W (median -21 mg/ml, p<0.001) and 144W (-17 mg/ml, p<0.001). Similarly, we also registered significant decrease in triglycerides levels at 96W (-12 mg/dL, p=0.047) and 144W (-20mg/dL, p=0.002). We also observed a significant reduction in BMI at 144 W (-0.6, p<0.001). Interestingly, previous ARV regimens did not predict significant changes in blood lipid levels.

Conclusions: In this single-center Italian cohort, switching to 3TC/TDF/DOR was safe and well tolerated, with a long-term significant reduction in blood lipid levels and BMI, independent from previous ARV regimens. The DOR-based regimen is confirmed to be placed among the most suitable treatment options in dyslipidemic PWH at high CVD risk.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_360.jpg

Antiretroviral therapy

P 29 EFFICACY AND TOLLERABILITY OF INI-BASED 2-DRUG REGIME IN VIRO-SUPPRESSED PATIENTS: A SISTEMATIC REVIEW AND A META-ANALYSIS

M.G. Palamone, A. Russo, S. Martini, M. Pisaturo, M. Russo, V. Zollo, R. Palladino, P. Grimaldi, N. Coppola

Department of Mental Health and Public Medicine - Infectious Disease Unit, University of Campania Luigi Vanvitelli, Naples, Italy

Background: The aim of this meta-analysis is to synthesize the available evidence from literature on the efficacy and safety of INI-based dual therapy compared to triple drug regimens in viro-suppressed HIV in a long-term follow-up (at least 72 96 weeks of follow up). Combination antiretroviral therapy (ART) has changed HIV infection, significantly improving the life expectancy and quality of life of individuals living with HIV (PLWHIV) worldwide. Thus, the clinical challenges of ART in this population are today the tolerability, adherence, long-term toxicity, polypharmacy and drug interactions. For example, a growing interest has developed in exploring alternative treatment strategies with the aim to reduce drugs toxicity, such as dual drug regimens (2-DR). The 2-DR provides some advantages: reducing pill burden, minimizing drug interactions, preserving future treatment options and potentially mitigating long-term toxicities associated with prolonged exposure to multiple antiretroviral drugs.

Methods: A systematic review and meta-analysis were conducted to evaluate the efficacy, safety, and adverse drug reactions leading to discontinuation of dual drug regimens compared to triple drug regimen in viro-suppressed HIV patients after 72 or 96 weeks of follow-up. We searched MEDLINE, Google Scholar and the Cochrane Library up to January 10, 2024, and studies were selected for eligibility based on predefined criteria. Data were extracted independently by two reviewers, and risk ratios (RRs) were calculated as the measure of association between therapy and incidence of events.

Results: Analyzing data of literature, it is clear that in case of switch in stable experienced patients with achieved viral suppression, there is no difference between a 2 or 3-DR, but the majority of the study evaluated the data at week 48 of treatment. The 2-DR can represented an excellent alternative to the classic 3-drug regimen in already viro-suppressed patients, both in terms of efficacy and tolerability. The Figure 1 show the PRISMA flow diagram for article selection. Six studies were included in the analysis both clinical trials and observational studies. The dual therapy regimens investigated included cabotegravir/rilpivirine, dolutegravir/lamivudine, and dolutegravir/rilpivirine. No significant differences were observed in treatment failure (RR 0.67, 95% CI 0.45-1.00, p=0.051), virological failure (RR 0.81, 95% CI 0.44-1.49, p=0.495), or adverse drug reactions leading to discontinuation (RR 1.21, 95% CI 0.44 -3.32, p=0.715) between dual therapy and triple drug regimen groups.

Conclusions: In conclusion, our meta-analysis about 2-DR compared with 3-DR in experienced patients with follow-up of at least 96 weeks. Overall, no differences in efficacy and tolerability were highlighted between the two examined regimens. This supports the use of 2-DR as an option for simplifying treatment and improving clinical outcomes in viro-suppressed HIV patients.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_363.png

Antiretroviral therapy

P 30 SWITCH FROM IBALIZUMAB TO LENACAPAVIR IN A SALVAGE THERAPY FOR A PATIENT WITH MULTIDRUG-RESISTANT HIV INFECTION

S. Martini[1], N. Cuomo[2], A. Russo[1], R. Palladino[1], A. Raddi[2], M. Pisaturo[1], N. Coppola[1]

[1]UOC Malattie infettive Università degli studi della Campania Luigi Vanvitelli, Napoli, Italy, [2]AORN dei COLLI, Unità di Malattie Infettive Ospedale Cotugno, Napoli, Italy

Background: Advances in antiretroviral therapy have improved efficacy,but some patients show multidrug resistances(MDR).The guidelines in this case suggest using new generation drugs together to those with residual efficacy.Ibalizumab is a new monoclonal antibody that blocks the CD4 cell receptor.Lenacapavir is a new viral capsid inhibitor,which represents a new therapeutic target.

Materials and Methods: Our clinical case concerns a patient with MDR HIV infection. A salvage therapy was therefore set up combining drugs not completely effective(Etravirine+Tenofovir/Emtricitabine+Dolutegravir)with Ibalizumab. At the time of introduction of this regimen, HIV-RNA resulted 37,800 copies/ml and CD4+ were 147 cells/µL(14%). Ibalizumab is administered intravenously and was started in April 2022, first as monotherapy with a loading dose of 2000 mg, then after 7 days an 800 mg dose associated with residual effective drugs. Subsequently, this dose was repeated every 15 days.

Results: This salvage therapy showed viro-immunological efficacy. After 7 days, ibalizumab alone had already reduced the HIV viral load by 2 logs. Then,after association with other drugs that are still partially effective, viral suppression was achieved in only one month.The CD4 count improved from 147(14%) to 230 cells/µL (19.3%). There were no adverse events except hypertension after ibalizumab infusions.During the follow-up we also noticed a progressive reduction in the detectability of viral mutations in the reservoir. HIV-DNA genotyping test in fact no longer showed viral mutations that were evident before this salvage regimen. After 6 months of treatment, the patient voluntarily discontinued ibalizumab, without losing viro-immunological efficacy, however we modified the therapeutic regimen switching from Ibalizumab to Lenacapavir. This drug had a more favorable long-acting dosage, being administered subcutaneously every 6 months.The new drug showed good efficacy and tolerability. After 6 months of treatment, viro-immunological efficacy was maintained with CD4+ 259(20,2%), HIV-RNA undetectable and stable pressure on HIV-DNA in terms of reduced detectability of initial viral mutations pre-salvage therapy.

Conclusions: Our case report shows that ibalizumab was effective in a salvage regimen,obtaining virological suppression and an immunological recovery, never previously reached by the patient.The efficacy was also highlighted in the reservoir with a progressive reduction of HIV-DNA demonstrated by the impossibility of detecting initial previous mutations. The overall safety profile was good, despite hypertension following ibalizumab infusions. The subsequent switch to lenacapavir maintained the viro-immunological efficacy and stable pressure on HIV-DNA, showing good tolerability and better posology,being administered by subcutaneous injection, once every 6 months. This case report shows efficacy of lenacapavir in switch strategy in a salvage regimen,in a context in which there are no data in the literature.

(Figure)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_365.jpg

Antiretroviral therapy

P 31 OPTIMISATION OF ANTIRETROVIRAL THERAPY THROUGH A SPENDING REVIEW: A POPULATION-BASED APPROACH

M. Zordan[1], V. Barchi[1], A. Di Lorenzo[1], D. Checchi[1], M. Compagno[1], E. Teti[1], L. Sarmati[2], A.M. Geretti[2]

[1]Clinical Infectious Diseases, Tor Vergata Hospital, Rome, Italy, [2]Clinical Infectious Diseases, Department of System Medicine, Tor Vergata University, Rome, Italy

Background: The 95-95-95 target is the goal UNAIDS aims to achieve by 2025. The objective requires a review of the cost-effectiveness of our treatment decisions to ensure the availability of the resources needed to reach it for all individuals with HIV, including those who may require more complex and costly management. Within this vision of cost-effectiveness, we reviewed all adults living with HIV receiving ART in our centre, to identify opportunities for treatment changes that consider both patient benefit and healthcare spending.
Methods: We are reviewing all patients in care at Policlinico Tor Vergata (Rome) receiving the most expensive regimens, comprising DRV/c/TAF/FTC (cost per month €656), DTG + TAF/FTC (€831), and DRV/c/TAF/FTC + DTG (€1148). Each case was discussed collectively, considering the patient's psychosocial profile and the clinical and treatment history. Where required to complement the treatment history in virologically suppressed individuals, cellular HIV-1 DNA was sequenced to identify archived drug resistance.
Results: We identified 112 individuals for review, representing 14% of the total clinic population (Table 1). A large subset had experienced advanced HIV infection, including 43 (38.4%) with CDC stage C3 at diagnosis and 59 (52.6%) in total with a documented AIDS diagnosis. In 56 (50%), the current ART regimen was the first-line initiated. Most individuals (62, 55.3%) had maintained virological suppression for >6 months, with 26 (23.3%) experiencing viral suppression with detectable episodes, 12 (10.7%) for less than six months, and the same number never achieving the goal. To date, among 95 cases already reviewed, 64 (67.3%) have already undergone a regimen change, A change is planned for further 17 (%), whereas in 14 cases (15.9%) a change was not possible, usually due to the presence of drug resistance (Table 2). The executed and planned therapeutic changes yield monthly cost savings of €14,402. Patient satisfaction was high and refusal to change regimen was rare (n=1/95, 1.1%).
Conclusions: An patient-centred, approach that considers the efficacy, safety and cost of therapy proactively can benefit the entire clinical population by ensuring an optimised patient's treatment journey and improved use of resources. Patients understand and are happy to engage with the review process.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_377.JPG

Antiretroviral therapy

P 32 EFFICACY AND TOLERABILITY OF LONG-ACTING CABOTEGRAVIR/RILPIVIRINE IN REAL-WORLD SETTING, 52 WEEKS RESULTS

F. Antonucci[1], M.M. Santoro[2], A. Bertoli[2,3], G. Torre[3], S. Ferrara[1], C. Grillo[1], A. Narducci[1], F. Ceccherini-Silberstein[2], T. Santantonio[1], S. Lo Caputo[1]

[1]Department of Medical and Surgical Sciences, Infectious Diseases Unit, University of Foggia, Foggia, Italy, [2]Department of Experimental Medicine, University of Rome Tor Vergata, Rome, Italy, [3]Virology Unit, Tor Vergata University Hospital, Rome, Italy

Background: Injectable Cabotegravir (CAB)/Rilpivirine (RPV) (CAR) is the first long-acting (LA) antiretroviral (ART) regimen approved for virologically suppressed people living with HIV (PLWH). Despite the available clinical trial results, the causes and consequences of confirmed virological failures (CVF) remain uncertain; updated data on CAR from the real-world is necessary to protect this novel LA regimen against a potential risk of CVF. The present study examines the real-life effectiveness and safety of CAR in virologically suppressed PLWH treated for up to 52 weeks.
Material and methods: From February 1st 2023 to February 1st 2024, PLWH were screened for eligibility to start CAR; enrolled PLWH received CAR every 8 weeks without oral lead-in. Anonymous PLWH-related information and laboratory results were extracted from the electronic medical record.
Results: Seventy out of the 104 eligible PLWH started CAR: 47 (67%) cisgender males and 23 (33%) cisgender females, median age 51 years (IQR 42-58), median Body Mass Index (BMI) 26.6 (IQR 23.2-29.0) and median duration of HIV infection 18 years (IQR 8-24). As risk factors: 28 (40%) were MSM, 33 (47%) were heterosexual and 9 (13%) were people who inject drugs (Table 1). Sixty-nine PLWH (98%) switched to CAR because of pills burden fatigue and 1 (2%) for Stigma-related ART adherence. Among PLWH receiving CAR, 12 (17%) had a Body Mass Index (BMI)>30 kg/m2 and 4 (6%) had baseline RPV resistance mutations (RAMs) (Table 2). Prior to switch, 53 (76%) had received >3 cART: 48 (91%) had INSTI exposure, and 5 (9%) had NNRTI exposure. At time of switch, 66 (94%) had HIV viral-load (VL) < 20 copies/mL (cpm), and 4 (6%) were viraemic with less than 60 cpm. The median follow-up has been 50 weeks (IQR 23-55); after switching to CAR, 66 (94%) and 69 (99%) maintained VL <50cpm and <200cpm, respectively. A CVF was observed in one PLWH despite BMI<30 kg/m2 and B subtype. Genotypic Resistance Testing (GRT) was performed on both plasma and peripheral blood mononuclear cells samples, without detecting any RPV or CAB RAMs. Viral suppression was also observed in PLWH with BMI>30 kg/m2 and with RPV RAMs. PLWH with viral blip in the last 36 weeks before switching to CAR, were more likely to have detectable VL during CAR (p-value<0.0001). Treatment adherence was high, in fact, most of the PLWH received CAR doses as scheduled; there were only two PLWH potentially exposed to jeopardized viral suppression: one missed the second CAR injection, and the other received the third dose 9 days later the scheduled date. In both these two PLWH, viral suppression has been maintained.
Conclusions: In this real-life study, CAR therapy up to 52 weeks was safe and effective. Most PLWH receiving CAR maintained viral suppression. Further data will be assessed along with the monitoring of the recruited PLWH in future.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_378.jpeg

Antiretroviral therapy

P 33 LONG-ACTING INJECTABLE REGIMEN WITH CABOTEGRAVIR + RILPIVIRINE IN PEOPLE LIVING WITH HIV: REAL-LIFE EXPERIENCE FROM MODENA HIV CLINIC

A. Soffritti[1], M. Menozzi[2], A. Cervo[2], C. Mussini[2]

[1]University of Modena and Reggio Emilia, Modena Italy, Italy, [2]Infectious Disease Clinic - AOU Policlinico Di Modena, Modena MO, Italy

Background: Long-acting injectable (LAI) regimen with Cabotegravir (CAB) and Rilpivirine (RPV) has been recently approved as switch strategy for virologically suppressed people living with HIV (PLWH). The aim was to describe safety and efficacy of LAI regimen in a real-life context in PLWH followed at Modena Clinic.
Materials: Retrospective descriptive cohort study including PLWH switched to LAI CAB/RPV from January 2023 to February 2024. Demographic, clinical and HIV and HBV-related characteristics were collected. Virological failure (VF) was defined as 2 consecutive HIV-RNA>20 copies/ml or a single HIV-RNA>200copies/ml. Virological suppression (VS) was defined as HIV-RNA<20 copies/ml.
Results: Seventy-four PLWH were included with a median follow-up of 322 days (IQR 210-379): 62%males, 53 years(IQR 44-59), BMI 24 Kg/m2, HIV duration 14 years. Six individuals had no VS at switch (median 27copies/ml, IQR 21-78), of whom 3 gained VS at follow-up; twenty-three (31%) individuals used oral lead-in. Twenty-two (30%) had positive HBcAb titre at switch: among these 4(15%) presented non-protective (<10U/ml) or negative HBsAb titre and 7(30%) switched from Tenofovir-based regimen; none of them had detectable HBV-DNA at baseline and follow-up.
More than a half (62%) of the individuals reported side effects, injection-site pain was the most represented.
One individual moved to another clinic, ten(13,5%) discontinued LAI (median time to discontinuation [MTD] 84 days, IQR 28-196): 5 because of side effects, one had pre-existing mutations for NNRTI at genotypic resistance test (GRT), 3 for patient-related logistic reasons. One PLWH experienced severe and prolonged injection pain after the first administration, leading to discontinuation, and contemporary VF (HIV-RNA 4230copies/ml) at 4 weeks. He was switched to the previous oral regimen and gained VS in 2 months. The GRT performed on plasma revealed the emergence of RAMs 181I and 190A for NNRTI, G140S and Q148H for INSTI, thus treatment was modified to DRV/c +DTG, with stable VS. In another subject, HIV-RNA at 8 months on LAI regimen was 7975copies/ml: he was switched to DRV/c/FTC/TAF rescue therapy; at the GRT on plasma mutations 138K for NNRTI and Q148R for INSTI. He did not report any side effect neither presented previous failure risk factors.
Conclusions: LAI CAB/RPV regimen was safe and effective in our population. Side effects were present and led to treatment interruption in 10 cases, with prevalence similar to literature. None of the individuals with VF had baseline known risk factors for LAI CAB+RPV failure. In the first case, the significant pain could reflect incorrect injection procedure, leading presumably to inadequate drug concentration (although therapeutic drug monitoring was not performed). Thus, we highlight the importance of correct injection administration, fundamental to maintain adequate drug concentration and reduce VF risk. Further studies could help understanding more failure mechanisms.

Antiretroviral therapy

P 34 PATIENT PROFILE CHARACTERISTICS WHEN CHOOSING DIFFERENT DOLUTEGRAVIR-BASED DUAL THERAPIES: IMPACT ON LONG TERM EFFICACY AND DURABILITY

E. Morelli[1,2], M. Sambo[1,2], A. Cinigiani[1,2], F. Panza[1,2], M. Crispo[1,2], S. Benedetti[2], C. Puttini[2], F. Montagnani[1,2], M. Tumbarello[1,2], M. Fabbiani[1,2]

[1]Department of Medical Biotechnologies, University of Siena, Siena, Italy, [2]Infectious and Tropical Diseases Unit, Siena University Hospital, Siena, Italy

Background: Dolutegravir (DTG)-based dual therapies (2DR) has demonstrated non-inferior efficacy compared to standard three-drug regimens in several clinical trials. Indeed, they are increasingly used in routine clinical practice. In our study, we aimed to evaluate patient profile characteristics associated with choosing different DTG-based 2DR, and evaluate their impact on long-term efficacy and durability of regimens.

Methods: retrospective, single-centre study including people living with HIV (PLWH) with HIV-RNA<50copies/mL, undergoing switch to DTG-based 2DR at the Infectious and Tropical Diseases Unit of the Siena University Hospital. Variables of interest were collected at baseline (BL, time of switch) and every 6 months during follow-up, until discontinuation of 2DR or last available visit. Using Kaplan-Meier curves and Cox regression analysis, we estimated incidence and predictors of virological failure and treatment discontinuation.

Results: Overall, 106 patients (76.4% males, median age 54 years, 19.8% with past AIDS events, median CD4 738 cells/mmc) were enrolled: 78 (73.6%) treated with DTG/3TC, 28 (26.4%) with other DTG-based 2DR (n=18, 17% DTG/RPV; n=3, 2.8% DTG+DOR; n=7, 6.6% DTG+DRV/cobi). Main reasons for choosing 2DR were: 68.9% simplification, 14.2% toxicity, 4.7% proactive switch. Among reasons for starting 2DR, simplification was more represented in DTG/3TC (78.2% vs 42.9% in other 2DR, p<0.001). Patients treated with 2DR other than DTG/3TC generally had a history of more advanced HIV infection: longer time from HIV diagnosis (p=0.001) or from first ART (p=0.005), higher number of previous treatment regimens (p=0.016). Pre-2DR regimens were most frequently InSTI-based (61.5%) in the DTG/3TC group and PI-based (57.1%) in other 2DR. Overall, during a median follow-up of 39.6 months (IQR 17.5-101), only 3 (2.8%) patients had virological failure (2/78, 2.6% in DTG/3TC and 1/28, 3.6% in other 2DR; p=0.869) with an incidence of 0.49 per 100 person-year of follow-up, PYFU. Twelve (11.3%) patients discontinued 2DR with an incidence of 2.26 per 100 PYFU. At 5 years, the estimated incidence of discontinuation was lower for DTG/3TC (10.5%, 95% CI 1.3-19.7) when compared to other 2DR (20.3%, 95% CI 4.2-36.4)(p=0.047) (see figure). However, when adjusting for confounders, DTG/3TC showed a similar time to treatment discontinuation versus other 2DR (aHR 0.59, p=0.392). Only past AIDS events were independently associated to discontinuation (aHR 4.70, p=0.013).

Conclusion: Dolutegravir-based 2DR demonstrated high long-term efficacy in a real-life setting, with rare virological failures and limited rates of discontinuation. Despite the “other 2DR” group consisted of patients with more advanced HIV infection, adjusted rates of discontinuation and virological failures were similar to patients treated with DTG/3TC. This demonstrated that tailored switch to 2DR is a feasible strategy in routine clinical practice.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_385.jpg

Antiretroviral therapy

P 35 PRELIMINARY REAL WORLD EXPERIENCE IN A COHORT OF PLWH UNDERGOING LA CAB/RPV IN LATINA: A HETEROGENEOUS POPULATION WITH HOMOGENEOUS EFFICACY AND SATISFACTION

A. Carraro[1,2], R. Marocco[2], G. Mancarella[1,2], A. Zingaropoli[1], E. Tortellini[1], S. Guardiani[1], S. De Maria[1,2], S. Corazza[1], A. Grimaldi[1], A. Gasperin[1], P. Zuccalà[2], A. Parente[1,2], L. Ansaldo[2], M. D'Achille[2], V. Rossi[2], O. D'Onofrio[2], P. Addio[3], C. Del Borgo[2], M. Lichtner[4]

[1]Department of Public Health and Infectious Disease, Sapienza University of Rome, Rome, Italy, [2]Infectious disease Unit, SM Goretti Hospital, Sapienza University of Rome, Latina, Italy, [3]Pharmacy Unit, SM Goretti Hospital, Latina, Italy, [4]Department of NESMOS, Sapienza University of Rome, Rome, Italy

Background: Long-acting cabotegravir/rilpivirine (LA CAB/RPV) therapy has similar efficacy to other switching therapy commonly used therapy in maintaining virological suppression, as demonstrated in some the clinical trials; there are still few real-life data demonstrating its effectiveness and evaluating clinical and biochemical changes in people who receive this therapy.
Methods: We evaluate people living with HIV(PLWH) who received, as therapy, LA CAB/RPV since March 2023 at February 2024 in outpatient clinic at S.M.Goretti Hospital in Latina (Italy); in a longitudinal study, we collect data (blood pressure, abdominal circumference, weight) and blood sample (HIV RNA, CD4+, CD8+, HDL-c, LDL-c, total cholesterol, triglycerides) before first injection(T0), after 4 (T4) and 28 weeks (T28). Data acquisition at time T52 is ongoing. As Patient Reported Outcome (PRO) we administrated by online questionnaires (Perception of Injection (PIN) and Satisfaction therapy). Friedman test was used to assess whether variables changed statistically at different time points and Wilcoxon signed-rank test to evaluate the difference between before and after 28 weeks.
Results: We enrolled 36 people of whom 11 (30,5%) were female (sex assigned at birth), median age 47 years [29 -68]; 4 of them had AIDS stage history; median time since diagnosis 12 years [3-35]. Therapies they switch from were different: 9 RPV/TAF/FTC, 8 BIC/TAF/FTC, 4 DTG/RPV, 2 DRV/cobi /TAF/FTC, 10 DTG/3TC, 1 TDF/FTC +RAL, 1 TDF/3TC/ABC, 1DRV+RTV+3TC+EFV. No virological failure occurred (median follow-up of 38 weeks). No differences in CD4+ T-lymphocyte percentages (T0 37,6% [19-65], T28 36,4% [16-54]) in contrast to CD8+ T-lymphocyte percentages, which showed a significant difference among T0, T1 and T28 (T0: 32,9%, T1:34%, T2 32,5%; p=0,014). About lipid, there was a general improvement: a trend of triglycerides reduction in T28 (T0 125mg/dl [53,357], T1 90,5mg/dl [26,205] T28 90,5mg/dl [32,410],), progressive decreasing of c-LDL (T0 130 mg/dl, T1 111mg/dl, T28 121,2 mg/dl) no difference in c-HDL (57mg/dl, 51 mg/dl, 54 mg/dl). The weight, abdominal circumference and blood pressure remain stable. 11 people complain pain in the site of injection at least one time (rilpivirine more than cabotegravir), 1 developed anxiety and irritability, but none wanted to switch therapy. Others results are shown in Table 1 and 2: satisfaction with the therapy improves and the fear and pain associated with the injection is reduced.
Conclusions: There is a good therapeutic response with cabotegravir rilpivirine, regardless of patient age and sex, length of infection, stage of onset, previous therapy. LA CAB/RPV reduces CD8+ levels; the impact on lipids is not yet clear, but initial results are promising. Despite injection site-related pain, patients prefer LA CAB/RPV to oral therapy.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_396.png

Antiretroviral therapy

P 36 LONG-ACTING INJECTABLE ANTIRETROVIRAL THERAPY: PURSUING EQUITY OF ACCESS THROUGH SHARED DECISION-MAKING

E. Teti[1], M. Compagno[1], D. Checchi[1], T. Mulas[1], L. Ferrari[1], G. De Simone[1], A. Crea[1], C. Picarelli[1], V. Barchi[1], L.V. Rindi[1], A. Imeneo[1], G. Alessio[1], I. Fato[1], V. D'Aquila[1], A.R. Cavasio[1], R. Iannazzo[1], L. Minardi[1], B. Massa[1], C. Sorace[1], M. Zordan[1], L. Ansaldo[1], A. Di Lorenzo[1], L. Sarmati[2], A.M. Geretti[2]

[1]Clinical Infectious Diseases, Tor Vergata Hospital, Rome, Italy, [2]Clinical Infectious Diseases, Department of System Medicine, Tor Vergata University, Rome, Italy

Background: Long-acting injectable antiretroviral therapy (LA) offers people living with HIV an effective alternative to daily oral therapy. This is in all respects an innovative therapeutic choice that should be offered to all individuals, net of well-known exclusion criteria, following a standardised decision-making process, without prejudice, in compliance with the principles of equity of access and prioritising patient choice.
Methods: To evaluate LA suitability fairly and proactively for our outpatient population, we developed an electronic screening tool to be applied to all individuals attending follow-up, regardless of any interest already expressed by the individual. The tool considers factors associated with virological failure (previous NNRTI or INSTI failure or resistance [including archived mutations], HIV subtype A6/A1, BMI≥30 kg/m2) and the current viral load to identify eligible individuals, strictly non-eligible individuals, and individuals requiring in-depth review to exclude or confirm eligibility. Through collegial discussions, we take a holistic approach that considers the overall risk/benefit for the individual, identifying individualised action points, and recording the discussion with the patient, including reasons for declining LA when offered. Our programme is ongoing. Here we present the data for July - November 2023.
Results: Across a cohort of 785 adults with HIV, to date, 270 (34%) have been proactively evaluated for LA. The median age was 49 years (IQR 40-57) and most were male at birth (75%) and native Italian (75%), contracted HIV sexually (83%), and were on triple ART regimens (75%), which were typically INI-based (74%). Of the 270 participants screened (Table 1), 56 (21%) were eligible, 84 (31%) were non-eligible (Fig 1), and 130 (48%) needed risk/benefit review (Fig 2). Among the 56 individuals who screened eligible, 11 (20%) started LA immediately; 21 (37%) declined the offer of LA; and a further 24 (43%) are waiting, typically pending completion of HBV vaccination (Table 1). Other common delaying factors included waiting for HIV-1 DNA sequencing to determine HIV subtype and/or archived resistance, and having no access to long needles for BMI >30 Kg/m2. To date, 28/270 (10%) individuals started LA. Of these, one discontinued LA due to adverse events and one due to pregnancy; no virological failures have occurred to date.
Conclusions: Implementing a proactive, patient-centred, collegial decision-making process which fully considers risk/benefit for the individual is essential to ensure equity of access to LA. Our findings highlight several practical barriers to implementation. As processes improve, the hope is that LA can be offered to an increasingly large cohort, giving people the option to choose a different approach to ensure clinical and psycho-social wellbeing.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_397.jpg

Antiretroviral therapy

P 37 FEASIBILITY OF 3TC/DTG AS A FIRST-LINE STRATEGY IN THE SETTING OF RAPID ART INITIATION: A RETROSPECTIVE STUDY FROM THE PISAN COHORT

T. Matucci[1], A. Palomba[1], S. Occhineri[1], M.L. Vatteroni[2], L. Del Bono[1], M. Polidori[1], R. Iapoce[1], A. Borghetti[1], M. Falcone[1]

[1]U.O. Malattie Infettive, Azienda Ospedaliera Universitaria Pisana, Pisa, Italy, [2]U.O. Virologia, Azienda Ospedaliera Universitaria Pisana, Pisa, Italy

Background: Despite being listed as a first-line regimen, indications from European guidelines could hamper the feasibility of lamivudine/dolutegravir (3TC/DTG) dual therapy (DT) in the setting of rapid (especially same-day) ART initiation.

Material and methods: We performed a retrospective, observational study on adult (>18 years-old) patients newly diagnosed with HIV infection from 01/01/2015 to 31/01/2024 at Pisa University Hospital. Contraindications to DT start were grouped into 2 models. In model 1, PLWH were considered not eligible for DT in the presence of at least one among the following factors: current AIDS-defining condition at HIV diagnosis, serum HIV-RNA>500,000 cp/mL, CD4 + count<200 cells/uL, positive HBsAg and/or anti-HBcAg serostatus, any resistance-associated mutation (RAM) to NRTIs at pre-treatment genotypic resistance test and recent HIV infection (as defined by the absence of anti-p31 at Western-blot immunoassay). Model 2 was similar to the previous one but excluded low nadir CD4 count and anti-HBcAg positive serostatus and only considered RAMs to 3TC. For each model, a logistic regression analysis with stepwise backward selection of variables was conducted to identify independent predictors of contraindication to 3TC/DTG (only variables associated with the presence of at least one factor contraindicating 3TC/DTG at a p-value<0.100 were retained in the multivariable model).

Results: A total of 151 individuals were included (Tab.1). Median age was 42.2 years(IQR 31.8-51.5), 126(83.4%) were male, 111(73.5%) were of Caucasian ethnicity. Main risk factors for HIV infection were heterosexual(60, 39.7%), and homosexual(79, 52.3%) intercourses. Positive HBsAg serostatus was detected in 6(3.9%) people, whereas anti-HBcAg positivity without anti-HBsAg was found in 8(5.3%). Sixty-nine(45.7%) patients had a CD4+ count<200 cells/uL at baseline; 42(27.8%) had HIV-RNA>500.000 HIV-RNA cp/mL. Twenty-two(14.6%) were diagnosed with an AIDS-defining condition. Resistance to any NRTI was detected in 24(15.9%) patients, while resistance to 3TC was present in 1(0.7%) patient. The presence of at least one factor considered in model 1 and 2 was found in 107(70.9%) and 75(49.7%) PLWH, respectively. For model 1, older age at diagnosis (>40 versus < 40 years-old, aOR 3.50, 95% CI 1.56-7.85; p=0.002) and Caucasian ethnicity (versus others, aOR 2.41, 95% CI 1.02 -5.69; p=0.044) predicted the ineligibility to DT, whereas being MSM (versus other risk factor for HIV aOR 0.49, 95% CI 0.21-1.11; p=0.087) showed a trend for reduced risk of finding any contraindication to DT. For model 2, no predictors could be found.

Conclusions: Zenith HIV-RNA and late presentation were the most frequent factors potentially affecting the feasibility of 3TC/DTG in our setting. Socio-demographic patients' characteristics could help identify ideal candidates for a rapid DT initiation, that could be of value for a relevant proportion of naïve PLWH.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_401.png

Antiretroviral therapy

P 38 EVALUATION OF RESISTANCE-ASSOCIATED MUTATIONS TO NUCLEOTIDE REVERSE TRANSCRIPTASE INHIBITORS IN PATIENTS TREATED WITH TENOFOVIR DISOPROXIL/LAMIVUDINE/DORAVIRINE

D. Farinacci[1], F. Lamanna[2], R.A. Passerotto[2], R.J. Steiner[2], A. D'Angelillo[2], V. Iannone[2], G. Baldin[1], S. Di Giambenedetto[1,2]

[1]UOC Malattie Infettive e Tropicali, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy, [2]Università Cattolica del Sacro Cuore, Rome, Italy

Introduction: Doravirine (DOR) is a non-nucleoside reverse transcriptase inhibitor (NNRTI) approved for treatment in persons living with HIV (PLWH) in association with lamivudine and tenofovir disoproxil fumarate (DOR/3TC/TDF) as a single-tablet regimen (STR).
This study aimed to evaluate the efficacy of doravirine-based regimens in PLWH with NRTI resistance-associated mutations (RAMs).
Methods: This is a retrospective and monocentric cohort. We included virologically-suppressed patients (viral load < 50 copies/mL) switching to a doravirine-based regimen.
Results: We analyzed a cohort of 69 PLWH, whose characteristics are summed in Table 1. A genotypic resistance test was available for 37 patients (53.6%) and 6 of them (16.2%) presented RAMs to NRTI.
Six virological failures (VF) occurred in 24 months of follow-up (FUP). Four (66.7%) didn't have RAMs for NRTI or NNRTI, while 2 patients (33.3%) had M184V. One of them failed for lack of compliance and subsequently achieved virological suppression with the same regimen.
No failures were detected in patients without a genotype test.
The estimated risk of VF in one year was 25% in people with no RAM to NRTI and 50% in people with RAM to NRTI, with no significant differences between groups (p=0.321).
The estimated probability of VF in one year was 0% for patients without the genotype and 3% for patients with an available historical genotype (p=0.027).
Zenith viral load independently predicted VF (p=0.019). No other patient characteristics were associated with a higher risk of virological failures.
After VF, no new RAMs were detected.
Discussion: DOR is a safe and well-tolerated new NNRTI used for PLWH. Our report confirms previous in vitro findings that DOR is active against HIV-1, despite the presence of NRTI mutations.
Despite the small sample analyzied, no differences were found in PLWH with or without NRTI RAMs regarding the risk of VF.
None of the failures led to new RAMs for NRTI or NNRTI.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_409.png

Antiretroviral therapy

P 39 TWO IS A COMPANY: RESULTS FROM A MULTICENTER COHORT OF PLWHIV STARTING DOLUTEGRAVIR PLUS LAMIVUDINE AS FIRST-LINE REGIMEN

A. Ciccullo[1], G. Baldin[2], A. Cervo[3], M.V. Cossu[4], A. Grimaldi[1], A. Giacomelli[4], S. Rusconi[5], A. Borghetti[6], C. Mussini[3], S. Di Giambenedetto[2]

[1]UOC Malattie Infettive, PO San Salvatore, L'Aquila, Italy, [2]Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy, [3]Azienda Ospedaliero Universitaria di Modena, Clinica Malattie Infettive e Tropicali, Modena, Italy, [4]Department of Infectious Diseases, ASST Fatebenefratelli Sacco University Hospital, Milan, Italy, [5]Infectious Diseases Unit, ASST Ovest Milanese Ospedale di Legnano, and DIBIC, University Milan, Legnano, Italy, [6]Infectious Diseases Unit, Azienda Ospedaliero Universitaria Pisana, Pisa, Italy

Background: Results from clinical trials have shown the efficacy and safety of dolutegravir+lamivudine (DTG+3TC) as a 2DR, first-line regimen, for treatment naïve PLWHIV. However, long-term data from clinical practice are still scarce. Aim of our study was to confirm, in a real-life setting, the efficacy of this regimen.
Materials and methods: We collected data from a multicenter cohort of treatment-naïve PLWHIV starting a first-line regimen with DTG+3TC, evaluating the virological efficacy and the immunological recovery. We evaluated time to virological failure (VF, defined as 2 consecutive HIV-RNA >50 copies/ml or a single determination above 1000 copies/mL) as well as time to treatment discontinuation (TD, defined as the discontinuation of one or both analyzed drugs). Changes from baseline were evaluated via linear mixed models for repeated measures. Linear regression analyses were performed to explore variables associated to significant changes in laboratory parameters.
Results: We analyzed data from 66 PLWHIV: 55 (83.3%) were males, with a median age of 38 years (IQR 30-49), a median HIV-RNA at diagnosis of 4.49 log10 copies/mL (3.84-4.89) and a median CD4+ cell count at diagnosis of 475 (338-636). One person was HCV-coinfected (1.5%). At time of diagnosis, on 41 individuals was performed a genotypic analysis: no major resistances to INI nor a single M184V resistance mutation were observed.
Two individuals experienced VF during 113.8 PYFU. Estimated probability of not experiencing VF was 98% at week 48 and 96% at week 144. Both individuals were switched to a 3-drug regimen (1 to FTC/TAF/BIC and 1 to FTC/TAF/DRV/cobi), with subsequent virological suppression.
As to treatment tolerability, we observed 4 TD during 113.8 PYFU. Reasons to TD were: virological failure in 2 cases, pregnancy in 1 case and individual choice in 1 case. Estimated probability of maintaining DTG/3TC was 98.4% at week 48 and 90.3% at week 144. In a multivariate analysis considering age, sex, HCV serostatus, baseline CD4+ cell count and peak HIV-RNA, we did not find any predictor of treatment discontinuation.
As to immunological parameters, we observed a significant increase in CD4+ cell count at week 48 (median +242, $p<0.001$) and week 144 (+288, $p<0.001$). No predictors of CD4+ changes were found.
Conclusions: In our cohort DTG+3TC as a first line regimen showed overall great efficacy and tolerability, with a low number of TD in the first 144 weeks from treatment initiation.
(Table 1)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_412.jpg

Antiretroviral therapy

P 40 THE LONG ACTING THERAPY WITH CAB/RPV: EXPERIENCE AT THE INFECTIOUS DISEASES CLINIC OF PERUGIA

E. Schiaroli, S. Tordi, E. Svizzeretto, A. Tommasi, D. Francisci

Infectious Diseases Clinic of Perugia, Umbria, Italy

The ART can avail of the long acting (LA) therapy with intramuscolar injection (i.m.) of cabotegravir/rilpivirine (CAB/RPV), approved of being administered monthly or bi-monthly. Indeed, it can mantain exposure at plasma concentrations exceeding in vitro 90% inhibition with a slow release into the tissues and. CAB is an INSTI (HIV viral integrase inhibitor) structurally chemical congener of dolutegravir and characterized by a high barrier resistance, RPV a 2° generation NNRTI (non-nucleoside reverse transcriptase inhibitor), utilized in triple or double ART.
Aim of our study is to describe effectiveness and patient satisfaction in switching from a daily oral ART to LA with CAB/RPV i.m at Perugia Infectious Disease Clinic.
Methods: Since March 2023 we have enrolled some available patients who met the criteria for switching to the LA i.m. with CAB/RPV every 2 months. Demographic, clinical characteristics and previous antiretroviral therapies were collected from their electronic medical records.
Moreover, every 2 months, all patients were clinically evaluated and interviewed about their satisfaction.
Results: Demographic and clinical characteristics of patients at the baseline are shown in table 1, the pre-switch therapies in graphic 1. CAB/RPV i.m was started in 41 virologically suppressed patients and in 1 patient with a detectable HIV-RNA, due to a non-adherence to ART. After 2 months 1 patient died from a metastasized oropharyngeal neoplasm and after 5 months the LA formulation was suspended in another subject due to a reactivation of HBV infection (he was a HBcAb + patient with the previous ART including TDF).
LA has already been carried out for over 6 months in 32 patients (73%), all always virologically suppressed, even the people with a history of poor adherence. In table 2 the main clinical data at 6 months are reported. No significant changes in immunologic and laboratory data were observed, except for CD4/CD8 ratio. Moreover, no significant adverse events were seen. All patients with a follow up over 6 months were called and interviewed: a high satisfaction level was reported.
Conclusions: In our experience CAB/RPV therapy has shown an excellent virological control, no alterations of the lipid profile and an excellent tolerability. Moreover, It has also contributed to the safeguard of both patient and medical adherence.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_421.jpg

Antiretroviral therapy

P 41 SEXUAL QUALITY OF LIFE AND GENITAL COMPARTMENT INFLAMMATION IN A COHORT OF PATIENTS UNDERGOING LONG-ACTING CABOTEGRAVIR/RILPIVIRINE THERAPY

A. Carraro[1,2], R. Marocco[2], G. Mancarella[1,2], A. Zingaropoli[1], E. Tortellini[1], S. Guardiani[1], C. Falvino[1], O. Turriziani[3], S. De Maria[1,2], S. Corazza[1], A. Grimaldi[1], A. Gasperin[1], O. D'Onofrio[2], A. Carlesso[2], M. D'Achille[2], C. Del Borgo[2], M. Lichtner[4]

[1]Department of Public Health and Infectious Disease, Sapienza University of Rome, Rome, Italy, [2]Infectious disease Unit, SM Goretti Hospital, Sapienza University of Rome, Latina, Italy, [3]Department of Molecular Medicine, Sapienza University of Rome, Rome, Italy, [4]Department of NESMOS, Sapienza University of Rome, Rome, Italy

Background: Long-acting cabotegravir/rilpivirine (LA CAB/RPV) therapy has a good impact on quality of life and therapy satisfaction. There is little data on sex life of patients living with HIV (PLWH), and even less data on the impact of long-acting therapy on sex life.
Methods: We evaluate PLWH who received, as therapy, LA CAB/RPV since March 2023 at February 2024 in outpatient clinic at S.M. Goretti Hospital in Latina (Italy); the International Index Erectil Function(IIEF-5) and Female Sexual Function Index (FSFI) were administered to 36 PLWH and we collected seminal fluid samples and vaginal lavage samples before first administration of CAB/RPV LA (T0) and after 28 weeks (T28), during therapy LA. In biological fluid we looked at HIV RNA, IL1beta, IL8, IL6, CMV DNA quantitative. Chi square and Mann Whitney were used to evaluate difference between group with sexual disfunction and group without it. Wilcoxon signed-rank test to evaluate the difference between before and after switch.
Results: IIEF-5 has been filled by 13 males: 4 had score <22 (erectile disfunction); no differences between group with and that without erectile disfunction in terms of age, educational level, duration of infection, CD4+ value, smoking habit, prior protease inhibitor usage. All are men who have sex with men (MSM) or bisexual people (table n 1).
FSFI has been filled by 4 females and one of them(the youngest) presents female sexual disfunction. The characteristics of the female population are presented in table n 2. Currently not available questionnaire scores at T28.
In every sample, HIV RNA results undetectable, except for one seminal liquid that presents HIV RNA detectable, but <20copies/ml. In every vaginal lavage CMV DNA is undetectable.
IL1beta, IL6 and IL8 are available in five seminal fluid samples at T0 and T28 (Graph. 1). Each interleukin decreases (especially IL 8), but not reaching the significance probably due to the very small sample size.
Conclusions: The analysis of sexual health help to better understand the patient overall health and provide clinical support. In our group there are people with dysfunctions in their sexual life, not due to comorbidities or smoking/alcohol habits.
No HIV o CMV are detected in genital sample and a trend of inflammatory cytokines in men suggesting a possible beneficial effect of LA CAB/RPV administration at mucosal level. It will be interesting to see the change in questionnaire scores at T28 to check if the switch of therapy may affect the quality of sexual life.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_426.jpg

Antiretroviral therapy

P 42 FOSTEMSAVIR PLUS DORAVIRINE FOR THE TREATMENT OF HEAVILY TREATMENT-EXPERIENCED (HTE) PEOPLE WITH HIV (PWH) WITH MULTI-DRUG RESISTANT (MDR) HIV-1 INFECTION: 48 WEEKS RESULTS IN A REAL-LIFE SETTING

P.F. Salvo[1], V. Iannone[1], E. Visconti[2], F. Lamanna[1], R.A. Passerotto[1], R.J. Steiner[1], A. Carbone[1], S. Di Giambenedetto[1,2], G. Baldin[2]

[1]Dipartimento di Scienze Mediche e Chirurgiche, Università Cattolica del Sacro Cuore, Rome, Italy, [2]UOC Malattie Infettive, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy

Background: HTE individuals, albeit a minority, represent a crucial demographic facing unique challenges in the context of HIV management.
Fostemsavir is approved for the treatment of HIV-1 infection in HTE PWH with MDR HIV-1 infection. Doravirine, a new-generation NNRTI, stands out as a noteworthy addition to the ARV armamentarium. Its effectiveness even in presence of the K103N mutation, makes it a robust therapeutic option even for individuals contending with resistances. The aim of this study was to evaluate viroimmunological efficacy and clinical tolerability of this molecules over 48 weeks in a real-life setting.
Methods: We selected HTE-PLWH with MDR HIV-1 infection and detectable viremia. Participants switched to fostemsavir in combination with an optimized background therapy with at least 2 active ARV molecules, one of them being doravirine. We collected clinical and viroimmunological data at baseline (BL, time of switch), 4W, 10W, 24W and 48W of follow-up.
Results: We enrolled 10 HTE-PLWH. For 4 participants (ppts) a previous genotypic resistance testing (GRT) was available, documenting resistance to at least 3 ARV classes; for the other 6 the GRT was not available at BL, but resistances were deducible from previous documented virological failures with antiretroviral agents belonging to at least 3 different classes. Characteristics at baseline are summarized in Table 1.
At 4W a viroimmunological determination was available for 8/10 ppts: one ppt achieved virological suppression with target non detectable (TND), two ppts achieved HIV-RNA levels <50 cps/mL. One ppt had HIV-RNA levels > 200 cps/mL.
At 10W a viroimmunological determination was available for 8/10 ppts: none of the enrolled ppts had TND; 3 ppts had HIV-RNA levels<50 cps/mL. One ppt had HIV-RNA levels > 200 cps/mL.
At 24W a viroimmunological determination was available for 7/10 ppts: no one had a TND; 4 ppts had HIV-RNA levels<50cps/mL. One ppt had HIV-RNA levels > 200 cps/mL.
Out of the enrolled population, 5 ppts reached 48W of follow-up: none of the ppts had TND, 4 had HIV-RNA levels < 50 cps/mL. One ppt had HIV-RNA levels > 200 cps/mL.
During the study period we observed 5 treatment discontinuations, due to treatment-related gastrointestinal side effects in 2 cases, headache and insomnia in 1 case and persistent low-level viremia in the other 2 cases.
Median CD4 cells count at BL was 741.0 cells (IQR 385.5 – 1314.5) with a median ratio CD4/CD8 of 0.81 (0.23 – 1.27). At W24 median CD4 cells count was 653.0 (264.5 – 1076.0) with a median CD4/CD8 ratio of 0.81 (0.24 – 1.45). At W48 median CD4 cells count was 526.0 (290.5 – 1397.5) with a median CD4/CD8 ratio of 0.78 (0.27 – 1.46).
Conclusions: Fostemsavir in association with doravirine seemed to show good antiviral potency against MDR HIV-1. However, observations from our experience raise concern due to the apparently unfavourable immunological profile and tolerability, prompting the need for further evaluations.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_427.png

Antiretroviral therapy

P 43 INCIDENCE OF TRANSMITTED DRUG RESISTANCE MUTATIONS AMONG NEWLY DIAGNOSED HIV□1 PATIENTS: A 6-MONTH RETROSPECTIVE ANALYSIS

M. Cantini[1], R. Riccardi[1], F. Baldasso[1], A. Poma[1], L. Calza[1], I. Bon[2], P. Viale[1]

[1]Infectious Disease Unit, Department of Medical and Surgical Sciences, University of Bologna, Bologna, Italy, IRCCS S.Orsola Hospital, [2]Microbiology Unit, IRCCS Policlinico di Sant'Orsola, University of Bologna, Bologna, Italy

Background: Approximately 10% to 17% of cART□naive HIV□positive patients have drug resistance mutations (DRMs) to at least one antiretroviral drug. The aim of our study is to describe the incidence of DRMs in the ART-naive HIV-1 patients population attending our Hospital and evaluate the clinical relevance of these findings.
Methods: We performed a retrospective analysis on a small group of newly diagnosed HIV□1 patients attending the Infectious Diseases Unit of S.Orsola Hospital (Bologna, Italy) between September 2023 and March 2024. The baseline data (age, sex, ethnicity, and transmission routes) were collected. HIV□1 genotyping analysis was performed using Next Generation Sequencing (NGS) with the Illumina MiSeqTM platform. The target genomic regions were amplified by One-Step PCR with AD4SEQ HIV-1 Solution v.2 kit. The Fastq analysis obtained was conducted with the HIVdb Program software, available from the Stanford University HIV Drug Resistance Database: we considered sequences with a minimum of 100 reads at each known drug resistance position and a 10% threshold.
Pending the NGS results, ART was started and afterwards modified, if needed.
Results: The patients enrolled in this study were 34, the mean age was 38.4 years (95% CI 34.5-42.4). 25 (74%) were men, 30 (88%) Caucasian, 16 (47%) MSM and only 2 (6%) were PrEP users. The average nadir CD4 lymphocyte count was 439 cells/mm3 (95% CI 327-552), the average log10 zenit HIV RNA was 5.8 cp/mL (95% CI 4.7-6.1). 13 subjects (38%) harbored a B subtype.
DRMs to any class of antiretroviral agents were detected in 15 viral sequences (44%). The distribution in the major antiretroviral agents were: 3 (9%) for NRTI, 8 (24%) for NNRTI, 6 (18%) for INSTI with 1 (3%) major mutation, 1 (3%) major mutation for PI.
The most common and relevant DRMs identified were: 3 V118V/I (9%) for NRTI; 2 K103N (6%), 4 E138A (12%), 1 A98G (3%), 1 K101E (3%) for NNRTI; 3 G163K (9%), 2 L74I (6%) and 1 T66T/K (3%) for INSTI; 1 L90M (3%) for PI.
The incidence of DRMs for RPV and DOR was 18% (n=6) and 3% (n=1) respectively, the incidence of DRMs for BIC/DTG was 3% (n=1). No DRMs detected for DRV/r. We opted for an INSTI-based regimen in 28 patients (82%). The result of the genotyping analysis led to a modification of the ART in only 2 patients (6%).
Conclusions: We found a higher transmitted DRMs rate in our group compared to other Italian or European cohort studies. The use of NGS sequencing instead of Sanger technology has increased sensitivity to detect more DRMs, including low-frequency variants with uncertain clinical potential. In addition, we found only a small number of DRMs for first-line ART recommended regimens, which led to ART adjustments in only 2 patients (6%). Our study is limited by the small sample size, therefore other large-scale clinical studies are needed for the standardization of NGS assays and the definition of the prevalence and clinical relevance of NGS identified DRMs.

Antiretroviral therapy

P 44 COST-EFFECTIVENESS OF CABOTEGRAVIR-RILPIVIRINE LA VS. LAMIVUDINE/ABACAVIR/DOLUTEGRAVIR AND VS. BICTEGRAVIR/EMTRICITABINE/TENOFOVIR IN THE TREATMENT OF HIV+ PATIENTS IN ITALY, A SHORT-TERM ANALYSIS

D. Croce[1,2], F. De Nardo[1,2], F. Convenga[1], E. Croce[2], V. Alovisetti[2], G. Rizzardini[3]

[1]CREMS, Castellanza, Italy, [2]Università Carlo Cattaneo Liuc , Castellanza, Italy, [3]ASST Fatebenefratelli Sacco, Milan, Italy

In Italy, Long-acting (LA) injectable therapy with cabotegravir (CAB) and rilpivirine (RPV) is currently used as maintenance treatment for HIV-1 and may increase patient satisfaction and facilitate adherence. The cost-effectiveness incremental ratio has not been calculated in Italy since the market authorization.
The Authors use data from the registration trials of cabotegravir-rilpivirine: FLAIR+ATLAS at 48 weeks, and SOLAR at 48 weeks for efficacy and adverse events (AE). Moreover, the treatment price of the therapy in the Lombardy Region HIV+ clinical pathways is included to attain the 48 weeks Incremental Cost Effectiveness Ratio (ICER).
Despite the nature of the short-term evaluation in a chronic condition disease, results can address the acceptability of the treatment in the Italian context.
In FLAIR+ATLAS, the CAB+RPV LA efficacy is 93,10% and 94,40% for the comparator, the utility achieves 0,7922 for CAB+RPV LA and 0,7889 for the comparator, according to the CD4 counts.
In the SOLAR trial the CAB+RPV LA efficacy is 90,16% and 92,83% for the comparator, the utility achieves 0,6823 and 0,6945, respectively.
According to the results of FLAIR + ATLAS, the amount of costs for treatment, and grades 3 and 4 of AE is €7.538,80 for CAB+RPV LA, and €7.681,19 for CAR. In the SOLAR trial, the costs are €7.029,83 for CAB+RPV LA and €7.040,93 for CAR.
In FLAIR+ATLAS trials, the ICER is equal to €10.953,11, and the ICUR to €19.896,80; in the SOLAR trial, the ICER = €376,31, and the ICUR = €415,96. All the results are under the threshold, generally indicated in Europe as €50.000 for chronic and acute diseases, different from rare and oncologic diseases.
The ICER and ICUR ratios in both studies show a strong indication of use. However, it is important to highlight that the enrollment criteria for LA therapy, and the adherence and preference data distinctly indicate that the present analysis is comparing different health technologies indicated for the same treatment.

Antiretroviral therapy

P 45 CAROTID INTIMA MEDIA THICKNESS IS INCREASED IN ADOLESCENT AND YOUNG ADULTS LIVING WITH HIV

M. Stracuzzi[1], F. Musto[1], C. Coppola[1], F. D'amario[2], T. Porretta[2], V. Giacomet[1]

[1]Università degli studi di Milano, Luigi Sacco Hospital, Pediatric Infectious Diseases, Milan, Italy, [2]Luigi Sacco Hospital, Vascular Surgery Unit, Milan, Italy

Background: To date, there are few studies investigating this association in adolescents and young adults with vertically transmitted HIV; it appears to be urgent to stratify as earlier as possible cardiovascular risk in these patients.
Methods: In our study we enrolled 33 (mean age 25 years, 12 male) vertically transmitted HIV patients aged at least 14 years with good immunovirological control. They underwent ultrasound of the supra-aortic trunks with the evaluation of the thickness of the carotid intima-media (IMT). The cohort thus identified was compared with a cohort of HIV-negative healthy controls matched for age and sex.
Results: Comparing PLWH cohort to healthy controls, we found a statistically significant difference in IMT both for right and left carotid, which appears to be greater in the HIV infected cohort, although the values detected are within normal limits.
Spearman's correlation index was calculated between the mean right and left IMT value and weight, height, BMI, abdominal circumference, systolic and diastolic blood pressure in ortho and supine position, cholesterol (total, LDL, HDL, non-HDL), triglycerides, fasting blood glucose, basal insulin, HOMA-index, glycated hemoglobin, CD4+ lymphocyte count and average over the years elapsed since the initiation of ART therapy.
No correlation was found for the left IMT value. There was a significant correlation with abdominal circumference (r = 0.42) (p value 0.012) and BMI (r = 0.36)
(p value 0.03) with right IMT.
Conclusions: Our study revealed an increase of IMT in the PLWH cohort, while remaining within the normal range, apparently related to the patient's
metabolic state. Further data are needed to support these preliminary data.

Antiretroviral therapy

P 46 20-YEAR REVIEW OF NEUROLOGICAL OUTCOMES IN HIV-EXPOSED UNINFECTED CHILDREN IN A PEDIATRIC HIV REFERRAL CENTER

M. Stracuzzi, F. Musto, C. Coppola, A. Cargnelutti, G. Meraviglia, A. Dighera, V. Giacomet

Università degli studi di Milano, Luigi Sacco Hospital, Pediatric Infectious Diseases, Milan, Italy

Background: Children born to HIV-infected mothers have unique and potentially dangerous exposures during pregnancy. HEU children vary in terms of exposure to both HIV and ART. We therefore performed a retrospective study to describe neurological outcomes of children who were exposed to HIV during pregnancy.

Methods: Participants included in the study were all children born to HIV-positive mothers. Child neuropsychiatry assessments were routinely performed to all children at birth, 3, and 12 months, with some additional visits at 1, 6, and 18 months. Brain ultrasound was performed in all newborns at birth to rule out central nervous system abnormalities.

Results: The study population includes 568 HIV-exposed uninfected children born between November 2000 and September 2022 and followed up at the Pediatric Infectious Diseases unit of Luigi Sacco Hospital (Milan, Italy). At birth, neuropsychiatric abnormalities were present in 12% of assessed children, and they appeared to be gradually decreasing across time reaching the minimal frequency of 2,3% at 12 months. Most of these newborns had normal neuropsychiatric assessments in the following months, indeed. We tried to study the effect of four antiretroviral drugs, dolutegravir, efavirenz, atazanavir, and didanosine, which are known to have more impact on neurodevelopment. Exposure to atazanavir occurred in 77 subjects, and an increased proportion of neurodevelopmental abnormalities (50% vs 18,9 % without atazanavir) was found at assessments after 12 months. The number of children exposed to atazanavir during pregnancy who underwent neurodevelopmental assessments after 12 months of age was little (only 8 children), but, importantly, neurodevelopmental abnormalities in this group were all related to language impairment.

Conclusions: This work comprehensively describes outcomes and complications in a group of HEU children born between the years 2000 and 2022. Given these initial results, more focus should be put on HEU children; large prospective studies monitoring over time specific neurodevelopmental disorders using clinical neuropsychiatric assessments and general neurologic development and cognitive functioning using more precise scoring systems should be put in place.

Clinical HIV

P 47 HEAVILY TREATMENT-EXPERIENCED (HTE) PATIENTS WITH MULTIDRUG-RESISTANT HIV INFECTION: POPULATION CHARACTERISTICS, TREATMENT STRATEGIES, AND CLINICAL OUTCOMES

M. Giglia, C. Rigamonti, R. Riccardi, F. Malerba, S. Cretella, L. Calza

Unit of Infectious Diseases, IRCCS S. Orsola Hospital, University of Bologna, Bologna, Italy

Background: Heavily treatment-experienced (HTE) patients are characterized by a history of exposure to numerous antiretroviral (ARV) regimens and have exhausted multiple treatment options due to the development of resistance, the presence of drug-drug interactions, or intolerance to therapies.
Material and methods: This is a single-center retrospective observational study. 50 HTE patients attending our center were recruited, of which 15 with HIV infection resistant to 4 classes of ARV drugs and 35 with HIV resistant to 3 classes of ARV drugs.
Results: The patients involved in this study have a mean age of 58 years, are 84% male and 12% with congenital infection. 34% developed at least one AIDS defining event, and 44% report a history of treatment dropouts. On average, these patients experienced 13 different ARV regimens and 20% presented intolerance to at least one agent. Regarding the viral resistance patterns, 100% are resistant to lamivudine, first-generation non-nucleoside reverse-transcriptase inhibitors (NNRTIs), and first-generation protease inhibitors (PIs). Resistance to tenofovir occurs in 90% of patients, to second-generation NNRTIs in 52.9%, and to second-generation PIs in 58.1%. Finally, among patients with resistance to 4 classes of ARV drugs, 53.8% show resistance to second-generation integrase inhibitors (INSTIs) (Figure 1).
During their clinical history, 14 patients have been treated with maraviroc, 4 with enfuvirtide, 1 with fostemsavir, and 2 with ibalizumab.
On average, the current treatment regimen has been ongoing for 7 years. In 40% of patients, this consists of boosted PI + INSTI.
Currently, 80% of the enrolled patients have adequate immuno-virological status, with a median CD4+ cell count of 664 cells/mm3 and undetectable viral load in 84% of cases. This finding is consistent with data reported in scientific literature [1].
Conclusions: HTE patients have a high risk of unfavorable immuno-virological and clinical outcomes, so it is necessary to ensure careful follow-up and appropriate optimization of treatment strategies.

1. Hsu RK, Fusco JS, Henegar CE, Vannappagari V, Clark A, Brunet L, Lackey PC, Pierone G Jr, Fusco GP. Heavily treatment-experienced people living with HIV in the OPERA® cohort: population characteristics and clinical outcomes. BMC Infect Dis. 2023 Feb 13;23(1):91. doi: 10.1186/s12879-023-08038-w. PMID: 36782125; PMCID: PMC9926692.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_7.jpg

Clinical HIV

P 48 FACTORS INFLUENCING SLEEP DISORDERS IN PEOPLE WITH HIV IN A REAL-LIFE SETTING

F. Alberton[1,2], A. Castelnuovo[2,3], S. Diotallevi[1], R. Lolatto[1], S. Marelli[2,3], M. Salsone[2,3], S. Nozza[1,2], V. Spagnuolo[1,2], N. Gianotti[1], L. Ferini-Strambi[2,3], A. Castagna[1,2]

[1]Infectious Diseases, IRCCS San Raffaele Scientific Institute, Milan, Italy, [2]Vita-Salute San Raffaele University, Milan, Italy, [3]Sleep Disorder Unit, IRCCS San Raffaele Scientific Institute, Milan, Italy

Background: Several studies show a correlation between sleep disorders and people with HIV (PWH). The purpose of this study was to assess sleep quality and factors implicated in poor sleep quality in PWH.
Material and methods: Pittsburgh Sleep Quality index (PSQI) was used to evaluate sleep quality in PWH attending our HIV Outpatient Clinic. In this study, the PSQI presented an internal consistency of α = 0.77. Demographic, clinical, therapeutic ART regimens and laboratory variables were collected at questionnaire administration. PSQI values were grouped in two classes: <5 (good sleepers), ≥5 (bad sleepers). Differences between good and bad sleepers in subjective sleep parameters, ART regimens, and hypnotic drugs were evaluated. Logistic regression models were calculated to assess risk factors associated with bad sleep.
Results: 710 PWH (86% males) were evaluated: median age was 54 (IQR=46-60), 61% were men who have sex with men, ART duration was 13.9 years (IQR=9.0-23.4), 427 (60.1%) individuals had an undetectable viral load and 701 (98.9%) had CD4+ > 200 cells/μL. Bad sleepers were 360 (50.7%) and the good sleepers were 350 (49.3%). Bad sleepers, compared to good sleepers, were older (55% vs 52%; p=0.021) and had more years of ART treatment (15.4 vs 12.7; p=0.001). At univariable analysis, no differences were found between groups concerning NNRTI-based or PI-based versus INSTI-based regimens, but we observed greater difficulty falling asleep (46.5% vs 36% vs 44.9%; p=0.016) in PWH treated by DRV/r or DRV/c compared to RPV/DOR and BIC/DTG. Bad sleepers also had more frequently: falling asleep latency > 30 minutes (39% vs 3%; p<0.0001), total sleep time < 7 hours a night (66% vs 23%; p<0.0001), a lower sleep efficiency (83% vs 93%; p<0.0001) and a poor or very poor quality of sleep/night (45% vs 1%; p<0. 0001). Moreover, bad sleepers more frequently reported to take hypnotic drugs (43% vs 2%; p<0.0001), excessive daytime sleepiness (24.2% vs 8.7%; p<0.0001) and complaining of daytime impairment (58.7% vs 8.7%; p<0.0001). A positive correlation was observed between years of ART and sleep complaints identified with PSQI (r=0.13; p=0.0004). Findings of univariable and multivariable logistic regressions models are in Table 1. At multivariable analysis, a longer ART duration (p=0.003), the use of psycholeptics (p<0.0001) and psychoanaleptics (p=0.022) drugs were independently associated with PSQI ≥5. Indeed, at multivariate analysis, no ART regimens were associated with PSQI ≥5.
Conclusions: Around 50% of PWH had a poor sleep quality, while in Italian general population bad sleep is reported in 14%. Our findings are in line with a previous finding of a 58% prevalence of poor sleep quality in this population. The mechanisms implicated in sleep disturbances in PWH are still unclear. Our results can be useful to guide the more in-depth studies of the underlying mechanisms.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_31.jpg

Clinical HIV

P 49 AN HOSPITAL-BASED INTEGRATED HEALTHY LIFE PROGRAM AMONG PLWH: ONGOING DATA FROM AN OUTPATIENTS CLINIC INCLUDING INFECTIOUS DISEASE SPECIALIST, NUTRITIONIST, PERSONAL TRAINER AND PSYCHOLOGIST AT "D. COTUGNO" HOSPITAL, NAPLES, ITALY

M.A. Carleo[1], F.M. Fusco[2], M. Di Lorenzo[1], M. Vitale[1], L. Santoro[1], V. Rizzo[1], P. Rosario[1], A. Guida[1], R. Viglietti[2], O. Tambaro[2], F. Borrelli[2], V. Sangiovanni[2], V. Esposito[1]

[1]UOC Malattie Infettive e Medicina di genere, AO dei Colli – PO "D. Cotugno", Napoli, Italy, [2]UOC Infezioni sistemiche e dell'immunodepresso, AO dei Colli – PO "D. Cotugno", Napoli, Italy

Purpose: Well-being ("the 4th 90") is an achievable goal among People Living With HIV (PLWH). Healthy lifestyle and stable psychological profile are important parts of well-being. Indeed, even among viro-suppressed PLWH, having unhealthy lifestyle and being anxious and/or depressed may contribute to metabolic disorders and poor retention in care.
At "D. Cotugno" hospital in Naples, Italy, a multidisciplinary program, integrating Infectious Disease (ID) specialist, nutritionist, trainer and psychologist has been implemented for improving healthy lifestyle and good psychological attitude in selected PLWH. We present mid-term results of this project.
Methods: Participating PLWH were addressed to this outpatients clinic on the basis of clinical evaluation by ID specialists during periodical visits. At first visit, patients underwent to an anamnesis about lifestyle, biometrical evaluation including bio-impedencemetry and psychological interview, with completion of SF-36 (Short Form Health Survey) and HADS (Hospital Anxiety and Depression Scores) questionnaires. A personalized diet and physical activity plan were proposed to each patient. A web-app was available to contact specialists during the project. On-site follow-up visits were scheduled at months 3, 6, 12. The program started in July 2022.
For this mid-term evaluation, we present data of all PLWH who reached at least the 3-months follow-up. We defined as goal: ≤2 BMI points for those with "slimming" target; BMI within ±2 points for "maintenance" target; BMI ≥2 points for "increase" target.
Results: 122 PLWH performed initial visit (tab.1). 69 patients (56%) abandoned the project, mostly after the initial assessment. Among remaining, 53, 27 and 19 patients were respectively followed-up, at least a 3-months, 6-months and 12-months.
Among 53 patients who completed at least one follow-up visits, 44 had "slimming" target, the remaining 9 "maintenance/increase" target. Among those with "slimming" target, the target was reached by 39%, 68% and 78% of patients respectively at 3-months, 6-months and 12-months of follow-up. Among those with "maintenance/increase" target, the goal was reached by 66%, 80% and 100% of patients at different follow-up time.
All biometrical parameters significantly improved among those with "slimming" target at 3-months and 6-months (fig.1), while it was stable among those with "maintenance/increase" target. Selected haemato-chemical parameters are available for 53 patients only: all showed no significant changes, but triglycerides, that significantly decreased (tab.2).
Follow-up SF-36 and HADS questionnaires are available respectively for 18 and 27 PLWH (tab.3): all scores about health improved while anxiety and depression significantly decreased.
Conclusions: These preliminary data suggests that such an integrated approach has a potential high impact in improving quality of life of PLWH.
This program was supported by an unconditioned grant from Gilead Sciences inc.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_45.jpg

Clinical HIV

P 50 ARE NEW LIPID LOWERING AGENTS A GOOD OPTION FOR ACHIEVE LIPID GOAL IN HIV SUBJECTS?

R. Ferri, G. Taraschi, J. Vecchiet, K. Falasca, C. Ucciferri

Department of Medicine and Science of Aging, University "G. D'Annunzio", Clinic of Infectious Diseases, Chieti, Pescara, Italy

Combination antiretroviral therapy has increased the life expectancy of HIV-infected individuals transitioned from a fatal disease to a manageable chronic condition.
Patients receiving long-term cART remain at higher risk for major CVD than uninfected individuals and dyslipidemia is a major risk factor.
If lipid goals are not achieved despite lifestyle modification and cART switching ,the use of lipid-lowering medications must be considered.
Bempedoic acid inhibits ATP citrate lyase in the cholesterol synthesis.CLEAR trials have shown safety and efficacy with long term administration of this drug,with significant improvements inflammatory markers.
Another new option is Inclisiran first-in-class,cholesterol-lowering small interfering RNA targeting PCSK9 mRNA and conjugated to GalNAc.
The vast majority of patients at highest risk ASCVD fail to achieve the recommended LDL concentrations with statin monotherapy and require additional oral therapies daily or injectable therapies every 2 weeks.
We present the clinical case of a 62-years-old man with HIV infection and dyslipidemia in whom new hypolipidemic drugs were fundamental in achieving adequate LDL values to prevent cardiovascular events. He has been affected by HIV since 1999 and it was necessary to modify multiple ART lines due to virological failure,now with TAF+FTC +DRV/c.He was already on hypolipidemic therapy with pravastatin and ezetimibe,with 29,4% Framingham Risk Score and 67,6 % D:A:D risk score.Despite failure to reach the target, the patient does not tolerate other statins(muscle pain). An episode of NSTEMI in March 2023 complicated the clinical course.To reduce LDL values, the previous therapy was suspended with the introduction of atorvastatin and ezetimibe.The onset of severe myalgias in the lower extremities,led to a further therapeutic switch and rosuvastatin+ezetimibe were introduced. The patient never reached the LDL target goal and did not tolerate statins,so we decided to try new therapeutic change introducing bempedoic acid/ezetimibe combination therapy. One month after there was an important change on Framingham and DAD score; however, in order to achieve adequate target values of LDL we decided to add inclisiran,After three months we recalculate Framingham risk score getting 21.6 % and DAD score 40,4%, so we finally achieve target LDL values with contemporary increase in HDL during co-administration the patient remained persistently viro-suppressed.
These drugs represent new avenues for prevention and treatment of CVD.The main limitation of literature's meta-analysis is related to the relatively small number of patients involved in the studies.
This is the first report on the use of Bempedoic acid and inclisiran in the HIV population which shows how the new options are well suited to the HIV positive population and represent a valid option to reach therapeutic targets.
(Figure 1, Table 1)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_55.PNG

Clinical HIV

P 51 100% ADHERENCE TO ART: A NEW PARADIGM IN THE LONG-ACTING ERA. DATA FROM A COHORT IN TURIN

G. Orofino[1], M. Guastavigna[1], A. Ianniello[1], M. Ferrara[2], D. Arrue Diaz[2], V. Maccario[2], L. Di Girolamo[2], L. Ponzetta[2], G. Calleri[1]

[1]Tropical and Infectious Diseases Division A, Amedeo di Savoia Hospital, Turin, Italy, [2]University of Turin, Turin, Italy

Background: Adherence to Antiretroviral Therapy (ART) with oral regimens has been evaluated in clinical practice using imperfect methods such as surveys and pharmaceutical refills. In long-acting (LA) therapies, adherence can be monitored in real-time and, if necessary, immediately addressed. The aim of the study is to evaluate the improvement in adherence to ART in people living with HIV/AIDS (PLWHA) switching to LA-ART and its impact on the healthcare system workload.

Methods and materials: We included 194 PLWHA: 164 (84.5%) males, 30 (15.5%) females; median age 52 years; 173 (89.2%) Italians, 21 (10.8%) foreigners; 190 (98%) were virologically suppressed (plasma HIV-RNA undetectable), while 4 (2%) had detectable plasma HIV-RNA.

We collected data on:

- Pre-switch adherence (measured by pharmaceutical refill) and LA-ART adherence (administration within ±1 week of scheduled time) in 164 (84.5%) PLWHA who had received at least the third administration;
- Discontinuation rates for all causes (including non-adherence, using 100% as the adherence cut-off);
- Impact of adherence monitoring on clinical site workload (phone calls, emails, etc).

Results:

• Pre-switch adherence: 120 (73.2%) had adherence=100%; 33 (20.1%) had adherence=80-100%; 5 (3.1%) had adherence=50-80%; 4 (2.4%) had adherence ≤ 50%; 2 (1.2%) had no data available.

LA-ART adherence: 161 (98.4%) received injections within the dosing window. 41 (25%) showed improved adherence. 162 (98.8%) maintained viral suppression.

• Discontinuation rates: 9 out of 194 (4.6%) PLWHA discontinued LA-ART: 4 (44.4%) due to toxicity, 2 (22.2%) by personal choice, 3 (33.3%) due to virologic resistance.

• Healthcare system workload: Only 4 phone calls were made to contact PLWHA who missed their appointments.

Conclusions: With LA-ART, achieving 100% adherence is the new standard. It can be attained in real-world settings as it does not require a significant commitment from the dedicated team to recall and assist non-adherent PLWHA. Currently, there is a strong selection of PLWHA entering LA-ART, prioritizing the most adherent. However, from our data, it appears that LA-ART may be a strategy for improving adherence. It remains unknown whether increasing the number of PLWHA in LA-ART by broadening the criteria may lead to issues in the healthcare system related to increased workload in identifying and supporting non-adherent individuals.

Clinical HIV

P 52 ASYMPTOMATIC NEUROCOGNITIVE IMPAIRMENT IN PEOPLE LIVING WITH HIV INFECTION (PLWH): ARE WE MISDIAGNOSING FOR SOMEONE?

M.S. Paternò Raddusa, G. Emma, G. Conti, C. Giarratana, E. Pistarà, B. Bellocchi, E Campanella, A. Bandiera, N. Villari, G. Nunnari, B.S. Cacopardo, B.M. Celesia

Unit of Infectious diseases. University of Catania. ARNAS Garibaldi Catania, Italy

Backgroung: HIV-Associated Neurocognitive Disorders (HAND) include a spectrum of cognitive, motor and mood problems affecting People Living With HIV (PLWH). For a comprehensive neurocognitive assessment, at least 2 tests for each cognitive domain should be administered. Aim of this study was to examine the prevalence of neurocognitive impairment (NCI) in neurocognitive asymptomatic PLWH attending our outpatient clinics .

Methods: 116 subjects without a previous diagnosis of psychiatric or cerebrovascular events, aged over 18 years, on Antiretroviral treatment (ARV) with an undetectable HIV RNA viremia from more than 1 year, were screened by the same doctor during last autumn routine check-up visits. Attention, concentration, executive functions, memory, language, visuoconstructive skills, abstraction, calculation, and orientation were assessed with an italian version of Montreal Cognitive Assessment (MoCA) test. The administration time for the MoCA test is 10 minutes; the maximum score is 30 points; a score ≥26/30 is considered normal. Moreover, the following parameters were analyzed: sex, age, CD4 cells count, CD4 nadir, HIV RNA viremia, length of time of ARV treatment, antiretroviral regimen (INSTI based or not, 2DR vs 3DR, NUC sparing), years of schooling,

Results: Among 116 examined subjects, 85 (73%) were male, median age 52 (IQR 42-60) median length of exposition to antiretroviral treatment 10 (IQR 4,7-20.2) years. All of them had HIV RNA viremia below 200 copies/ml: 109 (94%) <50 copies/ml, 67 (58%) TND. Median CD4 nadir 252 (IQR 107-457) cells/µl. Median CD4 cell count 781 (IQR 540-996) cells/µl. Median years of schooling 13 (IQR 8-13). The median MoCA score was 24 (21-26). Thirty one (27%) subjects had a normal value. A Spearman correlation was detected between MoCA score and age (r=-0.26; two tailed p=0.0048); schooling (r=0.335; two tailed p=0.0002); CD4 nadir (r=0.216; two tailed p= 0.02); years of treatment (r=0.233; two tailed p=0.012). No statistical differences were seen regarding normal MoCa score with last CD4 cell count, HIV RNA viremia, ARV regimen, therapeutic strategy.

Discussion: Just a quarter of PLWH screened in this cross sectional analysis performed a normal MoCA score. Age, schooling, longer exposition to ARV treatment and lower CD4 cell count nadir could be potentially associated with pathological score. Cognitive test performances could be strongly influenced by complex educational, cultural and socioeconomic factors which can interact with HIV risk. As a consequence, Frascati criteria could mis-classify over 20% of cognitively healthy individuals as having cognitive impairment. In the era of the effective ARV treatment and ageing for PLWH, cognitive impairment is frequently multifactorial and, hence, is not inevitably a result of the direct effect of HIV on the brain. Nevertheless, a comprehensive neurocognitive assessment should be periodically performed in clinical setting to prevent undesirable impairment.
(Figure 1)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_85.jpg

Clinical HIV

P 53 PREGNANCY AND BIRTH OUTCOMES IN WOMEN LIVING WITH HIV: REAL-LIFE EXPERIENCE

M. Mazzoccoli[1], N. Alfieri[2], A.M. Marconi[2], S. Dalzero[2], M. Ierardi[2], S.C. Simonetti[2], C. Tincati[1], F. Bai[1], T. Bini[1], G.C. Marchetti[1]

[1]Department of Infectious Diseases, San Paolo Hospital, Milan, Italy, [2]Department of Obstetrics & Gynecology, San Paolo Hospital, Milan, Italy

Backgroung: Approximately 1.3 million women living with HIV (WLWH) become pregnant each year. Despite advancements in antiretroviral therapy (ART) there remains a paucity of data on the efficacy and safety of ART in pregnancy and birth outcomes.

Material and methods: This is a retrospective case record analysis of 31 WLWH delivering 33 pregnancies between 2019 and 2023, followed at San Paolo Hospital, Milan. Effect of use of ART during pregnancy, preterm birth (PTB), intrauterine growth restriction (IUGR) and birth outcomes, were analysed. Data were retrieved from medical records and presented descriptively.

Results: The median age of the women was 36 years (IQR 33;38). Among 33 pregnancies, 7(21%) occurred in newly diagnosed HIV women, while 26(79%) occurred in women in active follow-up. 5(71%) of newly diagnosed women initiated ART during the first trimester, with all regimens being INSTI-based. In experienced patients, at the time of discovering the pregnancy, 16(61%) were on an INSTI-based regimen, 6(24%) were on therapy with PI, and 4 (15%) were on NNRTI therapy. 6 patients (23%) changed their ART regimen to an INSTI-based therapy (Table 1). Viremia was undetectable at delivery in all patients except one who was non-adherent to therapy (HIV-RNA 69 copies/mL). Both treatment-naive and experienced patients began pregnancy with favorable CD4 counts (median CD4+ 676 cells/uL, IQR 476;778) that remained stable throughout gestation. In most patients, pregnancy occurred spontaneously, with only 1 patient resorting to assisted reproductive technology (ART). Regarding pregnancy outcome, 22(67%) of the patients delivered. In the remaining cases, pregnancy resulted in an abortion, a voluntary termination and 4 patients (12%) were lost to follow-up. 91% of the newborns were delivered at term. 13(59%) patients had a vaginal delivery and 9(41%) had a cesarean section: only in one case the indication for cesarean section was due to detectable viremia. At the third-trimester ultrasound, 91% of the babies had a EFW (estimated fetal weight) percentile above the 50th (median 55th percentile, IQR 50;70). Regarding the newborns, 99% had a normal birth weight with a median birth weight of 3230 g (IQR 2973;3485). All newborn received ZDV prophylaxis for 6 weeks and no one was breastfed. All newborns tested negative for HIV-RNA.

Conclusion: In our cohort, all women except one achieved undetectable viremia prior to delivery, and no adverse birth outcomes such as low birth weight or preterm delivery were observed. However, a relatively high proportion of women (all foreigners) was lost to follow-up, underscoring the importance of monitoring and support for the optimization of care in WLWH during pregnancy and beyond. Viral suppression should be prioritized in all pregnant women with HIV to prevent both vertical transmission and adverse birth outcome.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_121.png

Clinical HIV

P 54 PREVALENCE OF SLEEP DISTURBANCE IN PLWHA. TIME TO ACTION

G. Orofino[1], A. Ianniello[1], M. Guastavigna[1], D. Arrue Diaz[2], P. Ragusa[3], F. Bert[3], G. Calleri[1]

[1]ASL City of Turin, Amedeo di Savoia Hospital, Tropical and Infectious Diseases, Turin, Italy, [2]University of Turin, Medical Sciences Department, Turin, Italy, [3]University of Turin, Department of Public Health and Pediatric Sciences, Turin, Italy

Background: Sleep is a physiological process characterized by a state of perceptual disengagement and unresponsiveness to external stimuli. Sleep quality refers the duration and depth of sleep, encompassing factors such as the ease of falling asleep, staying asleep, and the frequency of nocturnal awakenings.
Typically, 10-40% of the general population experiences sleep disorders, significantly affecting quality of life, physical health, and social functioning. People living with HIV/AIDS (PLWHA) are particularly susceptible to poor sleep quality, estimated at around 70%. This heightened vulnerability can be attributed to various factors, including: social stigma, side effects of antiretroviral drugs, specifically integrase inhibitors (INSTIs), non-adherence to antiretroviral therapy (ART), disease progression, financial concerns, unemployment, and lack of knowledge about sleep-enhancing behaviors in PLWHA.
The objective of this study is to evaluate the prevalence and determinants associated with poor sleep quality in PLWHA receiving ART at the Infectious Diseases Clinic of the Amedeo di Savoia Hospital, ASL City of Turin.
Materials and Methods: In this retrospective observational study, we included 182 PLWHA receiving care at the Amedeo di Savoia hospital, enrolled randomly (i.e. two days/week) from December 2023 to March 2024. Participants completed the Pittsburgh Sleep Quality Index (PSQI), a validated scale for assessing sleep disorders, with scores >5 indicating poor sleep quality. Descriptive analysis was conducted to assess differences in variable distribution according to PSQI Score. Missing data were handled using listwise deletion, resulting in a final sample size of 179.
Among our population, there were 147 males (82%) and 32 females (18%), with an average age of 52 years (IQR 42 -59) and a transmission risk of 106 (59%) MSM, 55 (31%) ETX and 18 (10%) other.
Results: Out of 179 PLWHA, 100 (56%) have good sleep quality (PSQI ≤5), while 79 PLWHA (44%) have poor sleep quality (PSQI >5). Among the 179 PLWHA: 155 (87%) are taking INSTIs, of whom 90 (58%) have good sleep quality and 65 (42%) have poor sleep quality; 24 (13%) are taking non-INSTIs, of whom 10 (42%) have good sleep quality and 14 (58%) have poor sleep quality.
Out of the 179 PLWHA, 41 (23%) have psychiatric comorbidities, of whom 27 (15%) are experiencing depression. Among these 27 PLWHA, 16 (59%) have poor sleep quality.
Conclusions: From this study, it emerged that 44% of PLWHA have poor sleep quality, confirming the literature's data and emphasizing the need to address this issue in routine clinical practice. Our findings, unlike those in the literature, seem to indicate a lack of correlation between poor sleep quality and the intake of INSTIs, possibly due to the small sample size, warranting further research. Moreover, 59% of PLWHA with depression have poor sleep quality. Therefore, we consider it useful to investigate the impact of depression treatment on sleep quality.

Clinical HIV

P 55 ACUTE CARDIAC INSUFFICIENCY IN HIV: A JUMP INTO THE PAST

S. Esperti, A. Cervo, F. Casari, M. Del Monte, B. Fontana, F. Prandini, M. Menozzi, G. Guaraldi, C. Mussini

University of Modena e Reggio Emilia, Infectious Diseases Unit, University Hospital Policlinico of Modena, Italy

Background: AIDS late presenters' management still represents a challenge for HIV clinicians.
Case Presentation: A 42-yearold italian woman arrived confused to the Emergency Department of Modena Hospital, complaining profuse vomiting, fever and mild headache for the last two months. Vital parameters were stable. Blood tests revealed leukopenia, mild thrombocytopenia, anaemia and elevated C-reactive protein. Following a negative CT scan, a lumbar puncture was performed, showing clear cerebrospinal fluid (CSF) with abnormal cell count, protein levels, hypoglycorrhachia, and lactate. Empiric treatment for meningoencephalitis was started. Microbiological exams on CSF revealed positive Cryptococcus neoformans PCR, later confirmed by cultural examination. Thereafter, HIV test resulted positive. Antifungal treatment was started with liposomal amphotericin B 10 mg/kg once (total dose 700mg), combined with fluconazole 1200mg/die and flucytosine 25mg/kg q6h, without any toxicity.
At baseline: HIV RNA >10 million copies/ml and CD4 50cells/mmc (18.6%). Considering meningitis, Antiretroviral therapy (ART) was started on day 10. On day 12, she developed respiratory distress and performed a CT scan showing extensive ground glass consolidations on right inferior lobe. Excluded P.jirovecii, empiric broad spectrum antibiotic therapy was started with progressive improvement. After 15 days of ART, HIV RNA decreased and CSF alteration slightly improved. On day 33, the woman experienced palpitations and a severe respiratory crisis requiring intubation. ECG showed aspecific alterations, while the ultrasound showed mild pericardial and pleural effusion. Echocardiogram revealed left ventricular dysfunction without dilatation (Ejection Fraction 20%) and severe mitral/tricuspid insufficiency without valvopathy. Inotropic support and diuretics were started with benefit. Endomyocardial biopsy was performed revealing interstitial oedema, myocardial fibrosis and mild morphologic changes at histological exam, not conclusive for myocarditis. Cardiac MRI revealed EF 35% and subepicardial/transmural late gadolinium enhancement. Coronary imaging excluded ischemic aetiology. After 2 months of extensive treatment, the woman was discharged, with partial cardiac function recovery (EF45%) and no neurologic sequelae, continuing fluconazole as maintenance therapy for cryptococcosis.
Discussion: This is a case of cryptococcal meningitis in a HIV late presenter woman complicated with severe cardiac insufficiency. The severe immunodepression and inflammation induced by cryptococcus and AIDS could contribute to cardiac impairment. Despite not meeting all the defining criteria for myocarditis diagnosis, the severe ventricular insufficiency observed in this patient strongly suggests HIV-associated cardiomyopathy (HIVAC). Both cryptococcosis and HIVAC are now rare in high income countries thanks to ART. Nevertheless, clinicians should remain vigilant due to the rise of late-presenting AIDS cases.

Clinical HIV

P 56 EXPLORING EFFECTIVENESS AND TOLERANCE: SWITCHING TO LONG-ACTING CABOTEGRAVIR PLUS RILPIVIRINE THERAPY IN VIROLOGICALLY SUPPRESSED INDIVIDUALS WITH HIV

C. Rigamonti[1], D. Marzolla[1], M. Giglia[1], S. Cretella[2], D. Cicetti[2], S. Vitale[2], L. Calza[1,2]

[1]Department of Medical and Surgical Sciences, Alma Mater Studiorum University of Bologna, Bologna, Italy, [2]Infectious Diseases Unit, Department for Integrated Infectious Risk Management, IRCCS Azienda Ospedaliero-Universitaria di Bologna, Italy

Background: The introduction of long-acting (LA) cabotegravir (CAB) combined with rilpivirine (RPV) offers a promising alternative to conventional oral HIV regimens. While it enhances patient convenience and quality of life, this approach also presents potential side effects, posing new challenges for clinicians.

Materials and methods: This retrospective single-center study explores the effectiveness and tolerability of LA CAB +RPV antiretroviral therapy (ART) in 34 individuals, each receiving a minimum of 3 intramuscular injections. We evaluated various parameters, including the immuno-virological profile, prevalent side effects, and anthropometric/metabolic data, comparing baseline measurements with those obtained at the third administration. Additionally, we investigated potential drug interactions between the ART and concurrent medications.

Results: All subjects involved in this study maintained virological suppression throughout their CAB+RPV treatment, and there were no statistically significant changes observed in CD4+ T lymphocyte counts. Only 4 discontinuations were reported because of adverse events (usually local pain).

Throughout treatment, all patients experienced at least one side effect, primarily mild in nature. Myalgia and injection site pain were the most frequently reported (by 29 and 27 individuals, respectively), with fewer instances of fever, fatigue, and headache. Notably, these side effects diminished in prevalence from the initial to the third administration of CAB+RPV. Specifically, myalgia decreased from 58.8% to 32.3%, injection site pain from 55% to 20.5%, and fever from 8.8% to 2.9%.

Furthermore, we analyzed patients' anthropometric and metabolic data at baseline and during the third administration of CAB+RPV. No statistically significant differences were detected in either anthropometric parameters (such as BMI and abdominal circumference) or metabolic parameters, including total cholesterol, LDL, triglycerides, and blood glucose levels, between the third and first administrations.

Finally, we assessed potential drug interactions between the ARV regimen and other ongoing therapies. Prior to the switch to LA therapy, potential interactions were observed in 7 subjects. However, with the current LA regimen and additional therapies, no potential interactions were found.

Conclusions: Our experience confirms the efficacy of switching to CAB+RPV, although we observed a notable occurrence of mild side effects, which tended to decrease with subsequent administrations. The unnegligible incidence of reported adverse reactions might be attributed to diligent monitoring during subsequent follow-up visits, where specific attention was given to identifying and recording patient-reported side effects.

Clinical HIV

P 57 MONITORING QUALITY OF LIFE IN PLWH USING A PATIENT REPORTED OUTCOMES (PRO) AND SCREENING TOOLS FOR EMOTIONAL AND COGNITIVE VULNERABILITY

S. Capodieci, A. Latini, S. Stingone, M. Zaccarelli, L. Gianserra, M.G. Donà, E. Giuliani, V. Cafaro, M. Giuliani

HIV/AIDS Unit, San Gallicano Dermatological Institute IRCCS, Rome, Italy

Background: Recently, the achievements in treatments of people living with HIV (PLWH) have prolonged life expectancy, simplified clinical management and extended time interval between follow-up visits. Thus, some real-life needs may remain undetected during routine attendance, particularly those related to somatic, emotional and cognitive well-being. To optimize the retention-in-care of PLWH to intercept early signs of somatic, emotional and cognitive vulnerability and impairment, a screening program was conducted.

Material and methods: All consecutive patients attending at the HIV/AIDS Unit of the San Gallicano Dermatological Institute in Rome, Italy, were administered: i) the Italian version of the Hospital Anxiety and Depression Scale (HADS) to assess anxiety and depression vulnerability; ii) a symptoms scale (PRO), derived from the ISS-Quality of Life (ISSQoL) questionnaire, to measure frequency and intensity of symptoms during the previous month; iii) the Italian version of Montreal Cognitive Assessment (MoCA) to screen cognitive functions in seven different domains.

Results: From January to March 2024, 126 PLWH on ART were screened. Of these, 112 were men (88.9%) and 14 were women (11.1%), with a median age of 53 (IQR=43.25-58.75) and 47 years (IQR=38-58.25), respectively. Demographic and clinical characteristics are reported in Table 1. Almost the totality of patients was virologically supressed and immunologically reconstituted. Overall, 35 (27.77%) and 18 (14.28%) reported anxiety and depression levels above the cut-off score, respectively. At the PRO, 64.8% of the patients declared fatigue at different level of intensity, 55.6% sleep disturbances, 51.6% pain, 34.4% decreased sexual interest, 32.5% mental confusion, and 26.1% erectile dysfunctions. Several reported symptoms were associated with emotional vulnerability for anxiety and depression, particularly fatigue, mental confusion and pain (Table 2). Forty-five patients (35.7%) obtained a MoCA total score below the cut-off level of 26/30. Poor performances at MoCA screening were not significantly associated with the time of infection adjusted for age (AOR=1.53;95%CI=0.66-3.55; p=0.08) or with emotional vulnerability (Anx: p=0.41, Dep: p=0.59). Finally, fatigue and pain as PRO tended to be reported from patients on dolutegravir-based (p=0.04) and bictegravir regimen, respectively (p=0.004) (Table 3).

Conclusions: A high proportion of PLWH reports recent somatic symptoms associated with a measurable vulnerability for anxiety and depression and over a third of the patients need a deeper neurocognitive assessment. Although these preliminary findings need to be confirmed at the clinical assessment and in a larger sample, they suggest the value of screening tools to intercept measurable QoL discomfort among viro-immunologically reconstituted PLWH.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_171.png

Clinical HIV

P 58 PERONEAL OSTEOMYELITIS BY MYCOBACTERIUM HAEMOPHILUM IN A PATIENT LIVING WITH HIV

E. Ghidoni[1], A. Cervo[2], B. Fontana[1], C. Mussini[1]

[1]Infectious Disease Unit - University of Modena and Reggio Emilia, Modena, Italy, [2]Infectious Diseases Unit - AOU Policlinico of Modena, Modena, Italy

Background: Infections caused by non tuberculous mycobacteria (NTM) still represent a diagnostic and therapeutic challenge in people living with HIV, especially if immunocompromised.
Clinical case: A 45-year-old Thai woman was hospitalised in Infectious Diseases Unit of University Hospital of Modena for pneumonia. She revealed to have had diagnosis of HIV infection in Thailand 10 years earlier; she stopped antiretroviral therapy (ART) since 8 years when she moved to South Africa and then Italy. She had HIV RNA 917014 copies/ml and CD4 21 cells/mmc(3%). During hospitalisation, pulmonary tuberculosis and other opportunistic infections were excluded; she started ART with BIC/TAF/FTC, PJ prophylaxis with TMP/SMX and treatment for CMV reactivation.
At 4-week follow-up (FU) in Outpatient Clinic, she complaint swelling of the left lateral ankle, painful and slightly erythematous and warm. Ultrasonography revealed hypoechoic spherical collection of about 4 x 3 cm with poorly defined borders. At X-ray there was a peroneal superficial osteolytic area, suspected for osteomyelitis(Fig. 1). Needle aspiration was performed with drainage of hemato-purulent fluid: negative bacterial culture, positive microscopic examination for acid-fast bacilli with Ziehl Neelsen stain, negative M. tuberculosis PCR. 16s rRNA Gene Sequence Analysis was performed, resulting positive for Mycobacterium haemophilum. Mycobacterial culture was negative.
Treatment with Azithromycin 500mg, Moxifloxacin 400mg and Rifampicin 600mg was started, switching ART to DTG bid + TAF/FTC due to drug interactions. The patient returned in Thailand twice for 3-month period, assuring therapy compliance without any side effects. No alterations of liver function nor QT prolongation were detected during FU. At last visit, HIV RNA 25 copies/ml and CD4 145 cell/mmc(55%). The treatment was continued for 12 months with completely resolution of the swelling and pain and reduction of the osteolytic area at FU X-ray.
Discussion: Mycobacterium haemophilum is recognized as the most common non-tuberculous mycobacteria causing osteomyelitis in patients with impaired cell-mediated immunity, in particular HIV/AIDS. Diagnosis could be challenging: it is important to obtain a prompt diagnosis even with more invasive approach. The use of genotypic sequencing could be extremely useful if first level exams are inconclusive. Treatment is not standardised: in general, a 2 or 3-drug regimen is suggested according to severity of infection and susceptibility test, if available, with a variable duration from 6 to more than 12 months, if tolerated and checking interactions with ART. The decision to use secondary prophylaxis until immune restoration is controversial.
In this case, the infection was indolent and rapidly diagnosed, the treatment was prolonged and characterised by significant pill burden that luckily did not impact patient's adherence. Secondary prophylaxis was not chosen but clinical follow up should be warrant.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_296.jpg

Clinical HIV

P 59 NEUTRAL METABOLIC IMPACT OF LONG-ACTING CAB+RPV IN PLWH: A TUSCAN MULTICENTER OBSERVATIONAL STUDY (LAHIV)

F. Lagi[1], G. Formica[2], E. Francalanci[2], M. Fognani[2], R. Paggi[2], G. Gasparro[2], M. Piccica[3], A. Pampaloni[4], D. Messeri[5], B. Rossetti[6], F. Panza[7], S. Costarelli[8], E. Riguccini[9], G. Sarteschi[10], M. De Gennaro[11], P. Corsi[1], M. Pozzi[1], G. Sterrantino[2], M. Tumbarello[7], P. Blanc[5], F. Bartalesi[3], D. Aquilini[4], C. Nencioni[6], S. Luchi[11], D. Tacconi[9], S. Sani[8], A. Vincenti[10], A. Bartoloni[1,2]

[1]Azienda Ospedaliero-Universitaria Careggi, Università degli Studi di Firenze, Italy, [2]Dipartimento di medicina sperimentale e clinica, Università degli studi di Firenze, Italy, [3]Ospedale Santa Maria Annunziata, USL Toscana Centro, Italy, [4]Azienda Ospedaliera Prato, USL Toscana Centro, Italy, [5]Azienda Ospedaliera Pistoia, USL Toscana Centro, Italy, [6]Azienda Ospedaliera Grosseto, USL Toscana Sud-Est, Italy, [7]Azienda Ospedaliero-Universitaria Siena, Università degli Studi di Siena, Italy, [8]Azienda Ospedaliera Livorno, USL Toscana Nord-Ovest, Italy, [9]Azienda Ospedaliera Arezzo, USL Toscana Sud-Est, Italy, [10]Nuovo Ospedale Apuane, USL Toscana Nord-Ovest, Italy, [11]Azienda Ospedaliera Lucca, USL Toscana Nord-Ovest, Italy

Background: Since its introduction in Italy in June 2022, the Cabotegravir (CAB) and Rilpivirine (RPV) combination — a bimonthly intramuscularly administered regimen — represents the inaugural long-acting treatment to maintain virological suppression in HIV-1. This study evaluates shifts in creatinine, total cholesterol, CD4, and triglyceride levels from baseline to weeks 28 and 44 post-transition to this regimen.
Methods: We conducted a multicenter observational study across 10 of the 11 Infectious Disease units in Tuscany. We included all virologically suppressed (HIV-RNA <50 cp/mL) persons living with HIV (PLWH) older than 18 years who initiated CAB+RPV and who had creatinine, cholesterol, triglycerides, and CD4 measured at week 28 and week 44. PLWH missing any test or lacking sufficient follow-up were excluded.
Results: The study comprised 33 PLWH evaluated at week 28 and 13 PLWH at week 44. Demographic clinical characteristics are reported in Table 1. In the 28-week group, nearly half reported dyslipidemia at baseline, but less than 30% were on statin treatment. In both groups, the most frequent pre-switch regimen included and integrase strand inhibitors. At 28 and 44 weeks, we observed no significant changes in triglycerides, cholesterol, creatinine, and CD4 count [Figure 1]. A modest and not significative cholesterol increase was discernible post-switch, predominantly in PLWH not on statins (Figure 2). Although sample size constraints precluded comprehensive stratification, no marked biomarker fluctuations were noted even when stratifying by pre-switch regimen (PI, INSTI, and NNRTI). A median increase of 114 CD4 lymphocytes was observed at week 44, although not statistically significant, inPLWH already showing elevated CD4 lymphocyte levels.
Conclusion: Preliminary findings suggest the metabolic impact of transitioning to CAB+RPV is negligible.
To confirm these findings and allow for more accurate stratification, further studies with extended follow-up and larger numbers of participants are required.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_297.png

Clinical HIV

P 60 EFFICACY, SAFETY AND DISCONTINUATION OF RILPIVIRINE AND CABOTEGRAVIR IN HIV-1 VIROLOGICALLY SUPPRESSED ADULTS: A MULTICENTER OBSERVATIONAL STUDY IN TUSCANY (LAHIV STUDY)

F. Lagi[1], G. Formica[2], E. Francalanci[2], M. Fognani[2], R. Paggi[2], G. Gasparro[2], M. Piccica[3], A. Pampaloni[4], D. Messeri[5], B. Rossetti[6], M. Fabbiani[7], S. Costarelli[8], E. Riguccini[9], G. Sarteschi[10], M. De Gennaro[11], P. Corsi[1], M. Pozzi[1], G. Sterrantino[2], M. Tumbarello[7], P. Blanc[5], F. Bartalesi[3], D. Aquilini[4], C. Nencioni[6], S. Luchi[11], D. Tacconi[9], S. Sani[8], A. Vincenti[10], A. Bartoloni[1,2]

[1]Azienda Ospedaliero-Universitaria Careggi, Università degli Studi di Firenze, Italy, [2]Dipartimento di medicina sperimentale e clinica, Università degli studi di Firenze, Italy, [3]Ospedale Santa Maria Annunziata, USL Toscana Centro, Italy, [4]Azienda Ospedaliera Prato, USL Toscana Centro, Italy, [5]Azienda Ospedaliera Pistoia, USL Toscana Centro, Italy, [6]Azienda Ospedaliera Grosseto, USL Toscana Sud-Est, Italy, [7]Azienda Ospedaliero-Universitaria Siena, Università degli Studi di Siena, Italy, [8]Azienda Ospedaliera Livorno, USL Toscana Nord-Ovest, Italy, [9]Azienda Ospedaliera Arezzo, USL Toscana Sud-Est, Italy, [10]Nuovo Ospedale Apuane, USL Toscana Nord-Ovest, Italy, [11]Azienda Ospedaliera Lucca, USL Toscana Nord-Ovest, Italy

Background: Cabotegravir (CAB) + rilpivirine (RPV), available in Italy from June 2022, dosed intramuscularly every 2 months is the first long-acting (LA) regimen used to maintain HIV-1 virological suppression. We evaluated the efficacy, safety and durability of this regimen.
Methods: It is an observational multicenter study in which 10 out of 11 Tuscan Infectious Disease units participated. We included all virologically suppressed (HIV-RNA <50 cp/mL) persons living with HIV (PLWH) older than 18 years who initiated CAB+RPV with at least one follow-up visit. Discontinuation was defined as a regimen switch or 2 consecutive missed injections. Virological failure (VF) was defined as two consecutive HIV-RNA >50 copies/mL detections or a single HIV-RNA >50 copies/ mL followed by ART modification. Participants were monitored after the first injection until the date of CAB+RPV discontinuation, death, or last visit to the center.
Results: We enrolled 102 PLWH. We grouped participants based on their duration of follow-up: all completed 4 weeks; 77 remained for 12 weeks; 60 for 28 weeks; and 26 reached 44 weeks. [Figure 1]. The combined at-risk period for analysis totaled 55,493 days, with a median follow-up of 28 weeks [IQR 11-44]. Of the participants, 82 (80.4%) were male, with a median age of 51 years (IQR, 42-57). Participants discontinuing LA showed no clinical/demographic differences from those continuing, except a shorter time from the last detectable HIV-RNA and CAB+RPV introduction and more often lacking the historical genotype before switching; details in Table 1. Overall, we observed 9 discontinuations: 6 from adverse events, 1 by patient choice, 1 from being lost to follow-up, and 1 from VF. The participant who experienced VF had pre-existing high-level mutations for RPV. The genotype at failure showed no mutations for CAB and was suppressed again with TAF/FTC/DRVc. Notably, 4 of the 6 adverse events occurred within the initial 4 weeks and spontaneously regressed after the LA discontinuation. The discontinuations are detailed in Table 2. The discontinuation rate due to all causes was 16.2 x 100 py [95%CI 8.4-31.2]. This rate ishigher compared to to RCTs but it could be overstated due to short follow-up times; a 4-week timepoint is the last observation for over 25% of patients. Apart from the 6 discontinuations due to adverse events (10.8 x 100 py 95%CI 4.8-241), we observed 76 adverse events of grade 1: 63 local reactions and 13 systemic ones. Over time, the frequency of these reactions lessened, as shown in Figure 2. [Figure 2]
Conclusions: Our preliminary findings suggest the RPV+CAB effectively sustains virological suppression: the only VF observed was linked to a pre-existing RPV resistance. Safety is acceptable; only 5% stopped due to toxicity. However, data could be skewed by the small sample and short follow-up. The decrease in mild local adverse reactions with use may indicate an increasing adaptation of patients to the regimen.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_299.png

Clinical HIV

P 61 SALMONELLA SPONDYLODISCITIS AND ILIOPSOAS ABSCESSES IN A PATIENT WITH HIV

A. Boccia[1,2], I. Capriglione[1,2], G. Martone[1,2], A. Masiello[2], V. Iodice[2], F. Simeone[2], A. Iodice[2], F. Colucci[1,2], G. Di Caprio[2], A. Salzillo[2], P. Maggi[1,2]

[1]UOC Malattie Infettive, Università della Campania "L. Vanvitelli" Napoli, Italy, [2]UOC Malattie Infettive, AORN "S. Anna e S. Sebastiano" Caserta, Italy

Background: The clinical association between spondylodiscitis and iliopsoas abscesses are typically seen in patients with infection from Mycobacterium tuberculosis. With improvements in treating Mycobacterium tuberculosis and subsequent decline in its incidence, there has been a shift to Staphylococcus aureus as the predominant organism, responsible for nearly 90 % of the cases Salmonella accounts for just 0.45% of osteomyelitis cases and psoas abscesses have only been reported rarely. We report the case of a 37-year-old man with HIV. Investigation presenting lumbar pain and remitting fever found vertebral osteomyelitis, discitis and psoas abscesses secondary to Salmonella enterica.

Case presentation: We present the case of a 37-year-old patient HIV positive, who presented in May 2023 to our hospital with symptoms of fever and back pain. He has a clinical story of i.v. drug abuse and alcohol consumption. He was HIV positive from 2010 with a Stage 3. He regularly assumed his Antiretroviral therapy (ART) with TAF/FTC/BIC. MRI of the spine showed a picture suggestive for lumbar spondylodiscitis (L3-L4) with diffuse muscle involvement and abscess of the iliopsoas muscles (Figure). The patient was admitted to our MD where he underwent FNAB with collection of L4 bone sample for microbiological examination. At a first microbiological analysis, a non-tubercolous mycobacterium was isolated (Mycobacterium abscessus), but it was not confirmed by molecular examination. Empiric therapy with cotrimoxazole and amoxicillin/clavulanic acid was then started but cotrimoxazole was discontinued after only two weeks due to the appearance of a rash and pancytopenia. However the patient reported a slow improvement of the symptoms. After 8 weeks of therapy the patient complains of the recurrence and worsening of lumbosacral pain. A new MRI was performed with evidence of a partial regression of bone inflammation at L3-L4 but greater involvement of the iliopsoas muscles and extension of the known abscess. He was then hospitalized and underwent a new CT-guided sampling procedure from the left iliopsoas muscle with drainage of small amount of blood serum material with contextual culture examination for common germs, microscopic research for BAAR and DNA BK with a negative result. During hospitalization, a Widal Wright reaction was performed with positive O antigen (title 1:320). It was therefore started therapy with ceftriaxon for further 8 weeks that lead to a gradual but steady improvement of the clinical conditions.

Conclusions: Salmonella typhi is considered an extremely rare cause of psoas abscess, both in immunocompetent and in immunocompromised hosts like HIV patients. Our case report reflects a particolar clinical condition characterized by difficulties in diagnosis and treatment of uncommon spondylodiscitis with antibiotic therapy that had to be based on serological rather than microbiological data.

(Figure)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_328.jpeg

Clinical HIV

P 62 VIRAL BLIPS IN PATIENTS WITH INTESTINAL BOWEL SYNDROME (IBS): CLINICAL CASE OBSERVATION. IS DOLUTEGRAVIR PLUS LAMIVUDINE SUFFICIENTLY PROTECTIVE AGAINST THE RISK OF VIRAL ESCAPE?

M. Di Gregorio[1], C. Colangelo[1], P. Nasta[2]

[1]Clinica di Malattie Infettive e Tropicali, Università degli Studi di Brescia e ASST Spedali Civili di Brescia, [2]Clinica di Malattie Infettive e Tropicali, ASST Spedali Civili di Brescia

Background: In patients with irritable bowel syndrome, microbial translocation has been shown to activate the immune defenses of the GALT, which is the main viral reservoir in HIV individuals. Dysbiosis and GALT activation could lead to viral escape phenomena and increase the risk of worsening chronic inflammation. There is no data on the risk of inflammatory marker activation and viral blips in individuals with chronic inflammatory bowel disease undergoing therapy with dual therapy Dolutegravir/lamivudine (DTG/3TC) compared to triple therapy (BIC/TAF/FTC).
Methods: We studied 9 HIV-infected patients over the age of 50 who were receiving regular follow-up at the Clinic of Infectious and Tropical Diseases at ASST Spedali Civili of Brescia and reported symptoms related to IBS. We evaluated potential changes in metabolic profile (blood sugar levels, cholesterol, triglycerides/high-density lipoprotein cholesterol ratio, TG/HDL), viroimmunological status, frequency of viral blips, and inflammatory markers (Neutrophil-to-lymphocyte ratio, NRL, platelet to lymphocyte ratio, PLR, beta-2-Microglobulin, ferritin, and relative monocyte count).
Results: Nine patients with newly reported IBS symptoms during the visit were included in the case series: 7 (77.77%) men with a median age of 56 years (IQR 11.5) and a mean Charlson Comorbidity Index of 5.1 (SD 2.62). 8 patients reported recent pathological or stressful events: 1 bladder neoplasia, 2 diffuse joint pain, 2 exertional dyspnea, 2 psychological trauma, and 1 elevation in liver enzymes. 6 patients were on DTG/3TC therapy, 2 on BIC/TAF/FTC, and 1 on DTG+TAF/FTC. All patients showed good compliance and viroimmunological status at baseline. A decrease in CD4/CD8 ratio was observed in all patients during the event, with a mean reduction of 0.16, and 5 of those on DTG/3TC therapy experienced a viral blip. Changes in metabolic profile, including an alteration in TG/HDL ratio in 8 patients, N/L ratio in 1 patient, and PLR in 1 patient, were noted. In terms of inflammation, 5 patients had an elevated relative monocyte count, with no other alterations in inflammatory markers reported. A switch to BIC/TAF/FTC therapy was proposed for 3 patients based on their CD4/CD8 ratio and viral blips, which resulted in an improvement in CD4/CD8 ratio and undetectable viral load in subsequent tests.
Conclusion: The observation of 9 IBS subjects revealed that during stressful events, inflammatory markers were altered with a decrease in the CD4/CD8 ratio. In patients on DTG/3TC therapy, viral blips occurred, which resolved after switching to BIC/TAF/FTC. This case series demonstrates the potential utility of analyzing the intestinal microbiome to assess the risk of viral escape and the limitations of DTG/3TC therapy in controlling inflammaging and CD4/CD8 ratio reduction, potentially leading to reservoir activation.

Clinical HIV

P 63 PROSPECTIVE MEMORY AND ANTIRETROVIRAL MEDICATION ADHERENCE IN HIV

V. Massaroni[1], V. Delle Donne[2], F. Lombardi[3], S. Lamonica[3], G. Lenzi[1], D. Farinacci[3], A. Borghetti[4], A. Ciccullo[5], C. Torti[1,3], S. Di Giambenedetto[1,3]

[1]Infectious Diseases Institute, Department of Safety and Bioethics, Catholic University of Sacred Heart, Rome, Italy, [2]Clinical Psychology Unit, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy, [3]UOC Infectious Diseases, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy, [4]Department of Clinical and Experimental Medicine, University of Pisa, Pisa, Italy, [5]Infectious Diseases Unit, San Salvatore Hospital, L'Aquila, Italy

Background: Prospective Memory (ProM) is a form of episodic memory. It enables "remembering to remember", planning and storing intentions for the future, then executing them later. It is essential for monitoring and executing behaviours based on internal or external cues in interfering contexts. It turns out to be an important feature for functional autonomy. ProM requires activation of the medial temporal lobe and prefrontal cortex. In particular, the prefrontal cortex is the neuroanatomical substrate of executive functions. Executive functions enable us to plan, implement, and conclude goal-oriented behaviours in everyday life. People living with HIV (PLWH) may have difficulty managing daily activities. The purpose of this study was to evaluate how ProM outcomes affect the management of medical aspects in PLWH such as adherence to antiretroviral therapy (ART).

Material and Methods: This study assessed ProM ability in a sample of 70 PLWH with the use of the Memory for Intentions Screening Test (MIST). Cognitive domains were screened through the Montreal Cognitive Assessment (MoCA) and self-reported therapeutic adherence in the past month was collected. Exclusion criteria were age <18 years and difficulties with the Italian language.

Results: Many of PLWH were male (91.4%, n=64), aged 46 to 55 (37.1%, n=26), with upper secondary school degree (58.6%, n=41). Most of the PLWH (68.6%, n=48) were >10 years ago diagnosed with HIV and 55.7% (n=39) of them received >10 years ago for the first time ART. On a scale of 1 to 10, patient-reported adherence was 7.83 (SD 1.58). The mean obtained in MoCA was 26.51 (SD 2.90). The mean obtained in MIST was 35.27 (SD 11.35). PLWH with age >55 years, low education, in disease and on therapy for 1-5 years reported poor performance in ProM (p=0.023; p=0.058; p=<0.001; p=<0.001, respectively). A high MIST score was positively associated with high adherence to self-reported therapy (β 6.24; 95% CI 5.40/7.08; p=<0.001). There was a positive correlation between MIST and MOCA (r=.286; p=0.016). The mean of the errors emerged in the MIST was 3.04 (SD 2.42). PLWH who make fewer errors reported higher adherence (p=<0.001).

Conclusions: In conclusion, our results emphasized that ProM performance correlates with maintenance of therapeutic adherence and cognitive functioning in the normal range. Increasing age, decreasing educational attainment, and shorter time since diagnosis and shorter time on therapy seem to be factors related to lower performance in ProM. An analysis of ProM may bring out difficulties that impact with the medical management of PLWH health status. Last, assessment of ProM results should be considered in the clinical assessment of PLWH.

Clinical HIV

P 64 MULTICENTRIC HIV PATIENTS TRACER FOR CLINICAL ASSISTANCE AND RESEARCH: FEASIBILITY, PRELIMINARY DATA FROM THE MULTIFACE STUDY

F. Frondizi[1], E. Matteini[1], R. Iacopini[2], M. Chiuchiarelli[1], A. Luraschi[2], S. Lamonica[1], M.V. De Girolamo[2], S. Kyriazakos[3], K. Kostopoulou[3], A. Pnevmatikakis[3], E. Visconti[4], A. di Biagio[5,6], E. Quiros Roldan[7], C. Torti[1,4], A. Cingolani[1,4], for MULTIFACE Working Group

[1]Dipartimento di Sicurezza e Bioetica - Sezione di Malattie Infettive, Università Cattolica del Sacro Cuore, Rome, Italy, [2]Gemelli Digital Medicine & Health Srl, Rome, Italy

[3]Innovation Sprint Srl, Brussels, Belgium, [4]Dipartimento di Scienze Mediche e Chirurgiche, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy, [5]IRCCS Ospedale Policlinico San Martino, Genoa, Italy, [6]Department of Health Sciences, University of Genoa, Italy, [7]ASST Spedali Civili, Università degli Studi di Brescia, Italy

Background: E-health-based clinical tracking is emerging as a crucial tool for remotely monitoring people with HIV (PWH) in order to optimize clinical resources, with particular regard to Patient Reported Outcomes (PROs), which are emerging as a key aspect in the monitoring of PWH.
Objectives: The aim of this study was to develop a model for remote PROs monitoring, assisting clinicians in disease tracking and patients management by establishing collaborative remote care.
Materials and Methods: A three-center intervention study on adult PWH undergoing antiretroviral therapy, diagnosed with HIV for more than 3 months, providing informed content and capable of using smart devices was designed. We developed and implemented a remote monitoring program leveraging on the Healthentia mobile App, able to submit and collect a set of questionnaires (HIVSRQ, ADH5Q, GAD-7, PHQ-9, HSS), tailored to individual needs identified from the screening questionnaire (EQ5D3L) thanks to an algorithm-based pathway. Any altered answers in the questionnaires generate alerts that are reported to the clinical team via a dashboard in real-time. Data privacy is ensured through a multisite setting, with each hospital acting as a site, thereby restricting patient and healthcare professional data to their centers.
Results: As of March 31, 2024, after 1 month from study starting, 136 PWH were enrolled, of whom 84 were men (61.8%), with an average age of 50.97 (SD: 11.1). Among them, 119 PWH filled-in at least 1 questionnaire (83.8% EQ5D, 18.4% HIVSQR, 16.2% ADH5d, 38.2% GAD-7, 38.2% PHQ-9, as reported in Figure 1). The mean VAS score of screening EQ5D-3L questionnaire was 80.5 (IQR 71.0-91.0). Overall, 90 alerts were generated, of which stratification by cathegories is shown in Figure 2. Furthermore, a preliminary analysis of the responses to the questionnaires was performed. In particular 50% of the alerts came from psychological distress (PHQ-9 and GAD-7) and 26% from symptoms (HIVSQR). The most frequently occurring domain of HIVSQR generating alerts was related to neuromuscular symptoms, as shown in Figure 3.
Conclusions: The collection of PROs is a means to optimise management of PWH if there is an immediate return to the physician that allows intervention in clinical practice. The most relevant interaction between PWH and physicians is related to mental health issues followed by neuromuscolar symptoms. The results of this study, although preliminary, demonstrate feasibility of such an approach and suggest that patient need-based interviews with real-time return to the physicians may represent an advanced model of patient-centered interactive management thanks to IT applications. Relevance and scalability will be assessed.
This study was made possible thanks to an unconditional grant from the "Fondazione Salute e Sanità"

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_393.png

Clinical HIV

P 65 EXPLORING POTENTIAL INTERACTIONS BETWEEN INTRAMUSCULAR CABOTEGRAVIR(CAB)/RILPIVIRINE (RPV) AND METHADONE: A CASE REPORT

P.F. Salvo[1], G. Baldin[2], V. Iannone[1], M. Petrucci[2], F. Onorati[2], E. Visconti[2], G. Lenzi[1], A. D'angelillo[1], S. Di Giambenedetto[1,2]

[1]Dipartimento di Scienze Mediche e Chirurgiche, Università Cattolica del Sacro Cuore, Rome, Italy, [2]UOC Malattie Infettive, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy

Background: Antiretroviral drugs may impact the plasmatic levels of methadone in PWH who are receiving methadone treatment. Methadone is metabolized by enzymes CYP2B6 and CYP3A4. Existing literature indicates that concurrent use of oral RPV and methadone does not affect the maximum concentration, area under the curve (AUC), or minimum concentration of RPV, but reduces the AUC of methadone, even though no alterations in dosage are necessary when initiating the concurrent use of methadone and RPV. However, clinical monitoring may be advisable, as methadone maintenance therapy might require adjustments in certain individuals.

Case presentation: this is a case of a 64-yo female living with HIV for 39 years, with history of HCV infection and drug addiction under methadone treatment. The history of the patient is characterized by a CD4 cells nadir of 170/mmc and a zenith of HIV-RNA of 680.000 cps/mL, with a CDC classification stage C. She has consistently shown low levels of adherence to ART and follow-up visits, leading us physicians to propose to the patient a switch from non-STR oral therapy (3TC + DRV/c) to long-acting intramuscular antiretroviral therapy with CAB/RPV, which the patient accepted. At the latest follow-up visit prior to the switch she had 930 CD4/mmc and non detectable HIV-RNA. No genotypic resistance testing was available at time of switch.

The first dose was injected in November 2023, with no reported adverse events. After 28 days a second dose was injected. Ten days after the second injection, the patient began to exhibit withdrawal symptoms, prompting her to seek assistance from Addiction Services (AS). She reported absence of such symptoms in recent years, indicating that they had been completely controlled with a daily dosage of 60 mg/die of methadone. This crisis was managed by temporarily increasing the dosage to 80 mg/day. Suspecting a potential interaction with the new ART, 8 weeks after the second intramuscular administration, a switch to oral therapy was performed to TAF/FTC/BIC. Over the following weeks, in accordance with her AS, the patient managed to reduce the daily dosage of methadone, returning it to 60 mg/day. However, after 4 weeks, she again reported adherence issues and severe nausea associated with taking the pill, expressing a desire to return to intramuscular therapy. A new administration of CAB/RPV was performed in March 2024, resulting in the recurrence of withdrawal symptoms after a few days, necessitating the patient to seek assistance once again from her AS. Currently, the patient is again tapering off the methadone dosage, in anticipation of transitioning back to an oral regimen 8 weeks after the last injection.

Conclusions: PWID are generally individuals with adherence issues to antiretroviral therapy, where long-acting intramuscular therapeutic strategies can certainly be helpful. However, further studies are needed regarding the potential interaction between methadone and intramuscular rilpivirine.

Clinical HIV

P 66 PATIENTS' ATTITUDES TOWARDS TELEHEALTH FOR HIV CARE: A SINGLE CENTER SURVEY

L. Sasset[1], M. Mazzittelli[1], D. Leoni[1], S. Gardin[1], A. Ferrari[1], E. Listori[2], L. Ferrara[2], A.M. Cattelan[1]

[1]Infectious Diseases Department of Padova - University –Hospital. Italy, [2]Centre for Research on Health and Social Care Management - SDA Bocconi, Italy

Background: The emergence of SARS-CoV-2 has indeed accelerated the use of telehealth for providing HIV care and treatment However, limited information are available regardingthe impact and acceptability of telemedicine among PLWH. In this context, our study aimed to conduct a survey to understand the perspectives of PLWH on using telemedicine for HIV care compared to traditional in-person visits.

Material and methods: We conducted a cross-sectional, single-center survey on PLWH treated with cART at the HIV Outpatient Unit in Padova from August 2021 to August 2022 using an anonymous, self-administered questionnaire. The questionnaire covered 11 items divided into four categories: 1) information on the availability of tools for telehealth; 2) willingness to substitute in-person visits with online contacts; 3) benefits perceived by using telehealth; 4)concerns felt towards the use of telehealth.We analyzed the demographics and clinical characteristics of our sample and conducted a multivariate regression analysis to understand how these factors influence the likelihood of using telehealth, including reported benefits and concerns.

Results: 587 PLWH were included in the survey. Main characteristics of study population are detailed in Table 1. 13 % of respondents did not have a device for video calls. Individuals aged 50-59, over 59 and foreign subjects were less likely to have digital tools (OR r0.18, 0.06 and 0.36, respectively). 58% of PLWH were in favour of integrating telemedicine into clinical practice. The benefits cited include better schedule organization and avoiding physical visits to the clinic (both at 62%). Concerns were most frequently related to the doctor not being able to accurately assess the patient's condition (47%). Having access to digital tools reduces the likelihood of perceiving concerns about telehealth (OR 0.28). Older patients (>50) were more likely to perceive concerns related to exchanging personal data online. Individuals with comorbidities were more likely to worry about not being able to communicate effectively. While 38% of subjects reported no concerns, 10% opposed telemedicine and 18% were unwilling to accept it.

Conclusions: The study reveals that PLWH see telemedicine as a valuable option, especially in stable clinical conditions. However, it is not a substitute for traditional visits, especially for the most vulnerable individuals. This highlights concerns about potential healthcare inequalities, particularly for the more vulnerable HIV population.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_442.jpg

Cooperation projects in low income countries

P 67 PREVALENCE OF WATER-BORNE DISEASES AMONG PEOPLE EXPOSED TO CLIMATE DISASTERS IN MOZAMBIQUE: A CROSS-SECTIONAL STUDY

F. Di Gennaro[1], F. Vladimiro Segala[1], E. Occa[2], E. Chambisse[2], F. Cavallin[3], A. Nanomba[2], S. Cotugno[1], S. Cadorin[2], K. Chitnis[4], A. Ghelardi[4], G. Putoto[5], A. Mussa[6], A. Saracino[1]

[1]Clinic of Infectious Diseases, Department of Precision and Regenerative Medicine and Ionian Area - (DiMePRe-J), University of Bari "Aldo Moro", Bari, Italy, [2]Doctors with Africa CUAMM, Maputo, Mozambique, [3]Independent statistician, Solagna, Italy, [4]UNICEF Mozambique, [5]Operational Research Unit, Doctors with Africa CUAMM, Padua, Italy, [6]NIOP Nucleo de Investigaçao Operacional del Pemba, Pemba, Mozambique

Introduction: Climate change – caused by greenhouse gas emissions primarily produced by the Global North – is subjecting Mozambique to increasingly frequent extreme weather events 1. In April 2023, cyclone Freddy affected 1.3M people and lead to 23,000 cases of cholera2. Aim of this study is to explore factors associated with the prevalence of severe diarrhea and cholera among people exposed to cyclones and floods in Mozambique.
Methods: This was a cross-sectional, community-based study assessing prevalence of diarrhea and other gastro-intestinal syndromes among people living in Cabo Delgado province, Mozambique. Data collection was carried out by trained community health workers by face-to-face administration of a structured survey in July 2023. Outcome of the study was self-reported severe diarrhea or cholera in the three months prior to interview. Association of collected variables with study outcome was explored with chi-squared or Mann Whitney U test, as appropriate. A p-value < 0.05 was considered statistically significant.
Results: This study included a total of 408 households and 2,255 people from six districts of Cabo Delgado province. Participant characteristics are summarized in Table 1. Overall, 26/408 households (6.4%, 95% CI 4.3 to 9.3%) experienced severe diarrhea or cholera in the last three months, and 12/26 (46.2%) involved child aged <5 years. Few households (102/408, 25.0%) were vaccinated against cholera. Factors associated with severe gastro-intestinal syndrome included study district (p=0.01), households with internally displaced people (IDP) (p=0.01), access to electricity (p=0.003), access to soap for handwashing (p=0.01), and source for health information (p=0.01).
Conclusions: Among people affected by Cyclone Freddy, factors associated with cholera or severe diarrhea were being IDP, having access to electricity and having non-healthcare personnel as primary source of health information. These data could guide policymakers in designing targeted climate adaptation interventions.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_41.png

Epidemiology of viral infections

P 68 RECENT INFECTIONS IN NEW HIV DIAGNOSES: RESULTS OF THE NATIONAL SURVEILLANCE SYSTEM

L. Pugliese, V. Regine, B. Suligoi

Istituto Superiore di Sanità, Rome, Italy

Background: Recent HIV infection is defined as an infection acquired in the few months before diagnosis. The aim of this study is to assess the proportion of recent infections among new HIV diagnoses, and factors associated with being recently infected.

Material and methods: We used data from the national HIV surveillance system which collects information from people with a new HIV diagnosis. We defined as “recent" an infection diagnosed within 6 months of HIV acquisition. Date of infection was estimated by either using HIV avidity test, or recent infection algorithm, or presence of acute HIV infection. Prevalence of recent infection and associated factors were evaluated among individuals for whom an estimated date of infection was available.

Results: From 2012 to 2022, 6,039 (18.0%) new HIV diagnoses were tested for recent infection and among these, 17% were identified as recent. The majority were tested in Piemonte (27.0%), Emilia Romagna (25.4%), Lazio (18.9%) and Campania (12.3%). The annual proportion varied from a minimum of 8.3% in 2017 to a maximum of 27.7% in 2022. Compared to individuals with an old infection, those with a recent infection were significantly younger [37 years (IQR 29-45) vs. 40 years (IQR 31-48)], were more frequently MSM (61.1%), Italians (80.1%), and reporting having had at-risk sexual behavior (34.4%). The lowest proportion of recent infections was observed among individuals who acquired HIV through heterosexual contact (11.7%), migrants (10.9%), and those who were tested for HIV because of the presence of HIV indicator conditions or AIDS defining diseases (12.9%).

Conclusions: These results show that there is a low early access to HIV test, in particular among people who acquired the infection through heterosexual contact and among migrants. It is also highlighted there is still a high circulation of HIV among young people and MSM while migrants and heterosexuals seems to have a low perception of risk. Although data on recent infections may be conditioned by various factors (as availability of tests), these results underline the need to promote HIV testing by using new testing strategies (rapid tests, POC tests, community testing, opt-out testing), systematically test new HIV diagnoses for recent infection, and activate targeted information and awareness campaigns.

Epidemiology of viral infections

P 69 APPLICATIONS OF EXCESS EVENT ESTIMATION TO INVESTIGATE MORTALITY AND INFECTION SPREAD DURING THE COVID19 PANDEMIC

L. Palla[1], D. Del Re[2], P. Meridiani[3], L. Soffi[3], M.T. Loiudice[4], M. Antinozzi[1], M.S. Cattaruzza[1]

[1]Department of Public Health and Infectious Diseases, Sapienza University, Rome, Italy, [2]Department of Physics, Sapienza University, Rome, Italy, [3]Istituto Nazionale Fisica Nucleare, Rome, Italy, [4]Department of Developmental and Social Psychology, Sapienza University, Rome, Italy

Background: In the Covid19 pandemic (C19P), official Covid19 mortality rate was a more reliable indicator of the virus spread compared to the count of positive cases. However biases affect ascertainment of covid deaths too and this is why methods based on the estimation of excess mortality come into play. Excess statistics can be calculated for other health-related events too. We show the use of excess event estimation as a useful tool in two instances: (i) using past national statistics mortality (NSM) data to evaluate retrospectively the actual impact of the C19P in different areas of Italy (North, Centre, South) and in different pandemic waves and (ii) using time series of past Accidents and Emergency (A&E) calls to highlight signals of extraordinary events in Lombardy, where the pandemic started in Europe.

Materials and methods: In the first application, NSM data from 2015 to 2019 were used to estimate a Poisson regression model of the pre-pandemic mortality pattern (PMP). The excess COVID-19 deaths were derived as the difference between the NSM data and the extrapolation of the PMP to the C19P period (23/02/2020–30/04/2022), separately for North/Centre/South regions. In the second application, A&E calls in Lombardy were first filtered to include those reporting respiratory and cardiological issues, between 2015 and 2019, and were used to estimate a Poisson regression model of the pre-pandemic A&E call pattern; the excess calls were then derived as the difference between the actual calls during the pandemic period (2020 and 2021) and the estimated previous call pattern.

Results: The gap between the estimated excess and the official C19P mortality shows (Figure 1) that during the 1st wave there was an underestimation of deaths (largest in absolute numbers for the North but in relative terms highest for the South) while subsequently there is a reasonable match between estimated and official C19P mortality. During the 4th wave (late 2021 and 2022), a substantial discrepancy appears again, driven by the South. The time-series of the excess of relevant A&E calls (2015-2021) after subtraction of the estimated baseline pattern shows peaks corresponding to the major waves. The excess relevant calls in the C19P period plotted alongside the confirmed covid19 cases in Lombardy suggest a large underestimation of covid cases in the 1st wave but a similar trend thereafter.

Conclusions: The results confirm the underestimation of cases and deaths in the first wave of C19P. Excess event methods provide (i) an unbiased estimate of Italian mortality rates in C19P and indicate an issue of underestimation specific to the South in late 2021 and 2022; they show (ii) the usefulness of A&E relevant calls as a proxy for cases in monitoring the spread of an epidemic after the initial period. Overall, excess event estimation methods are useful as monitoring tools to investigate the public health system performance and resilience during an epidemic.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_207.jpg

Epidemiology of viral infections

P 70 BACK TO THE MEASLES – FIRST EVIDENCE OF VIRAL CIRCULATION IN LIGURIA, NORTHERN ITALY, 2024

G. Garzillo[1], F. Stefanelli[2], N. Randazzo[2], G. Guarona[1], M. Lucente[2], C. Fraccalvieri[2], N. Nigro[2], V. Ricucci[2], E. Massaro[1], M. Ogliastro[1], A. Orsi[1,2]

[1]Department of Health Sciences, University of Genoa, Genoa, Italy, [2]Hygiene Unit, Policlinico San Martino Hospital, Genoa, Italy

Background: After a prolonged period characterized by substantial absence of viral detection, during the COVID-19 pandemic in 2020–2022, measles activity began to increase in 2023 with sporadic cases and local-regional outbreaks in several WHO European regions.
In Italy the surveillance network MoRoNet reported 64 measles cases in January and February 2024, 40% of which classified as imported; confirmed cases were mostly unvaccinated, with a median age of 35 years, and at least one third of patients reported a complication.
Material and methods: As a Subnational Reference Laboratory of MoRoNet for Liguria region, Northern Italy, we currently perform serologic and molecular assays (extraction by ELITe InGenius®, ELITechGroup Empowering IVD; amplification by Real-Cycler Chic-Out Measles virus, Progenie Molecular) to confirm suspected measles cases and Sanger sequencing (SS) of the 450 nt region in the C-terminal of the N gene (N-450), which is recommended for routine genotyping by the World Health Organization. Basic Local Alignment Search Tool (BLAST) was used for genotype identification, confirmed by phylogenetic analysis inferred with Neighbour Joining method. Sequences will be uploaded on the GenBank database.
Results: Since February 2024, 8 measles cases were detected in the surveyed area, from 3 of the 5 local health units in Liguria: patients had an average age of 31 years (±15.7), a median age of 34,5 years (min 7, max 50, IQR 25 -39) and 75% were male.
All cases reported at least one complication (diarrhoea, pneumonia, thrombocytopenia, hepatitis) and all but one required hospitalization or access to Emergency Department.
There were no clear epidemiological links between cases; 2 were classified as imported (recent history of travel); 7 patients were unvaccinated, 1 patient reported one dose of a measles containing vaccine.
All cases were confirmed by real-time RT-PCR assay performed on urine and/or oropharyngeal swabs. Seven samples were genotyped by SS: 6 belonged to genotype D8 (99.9% identity between strains, 100% BLAST identity with strains identified in Moscow – Russia in 2023), 1 sample collected from one of the two imported cases belonged to genotype B3 (BLAST 99.7% identity with strains identified in Florida – USA in 2016). Figure 1 shows the phylogenetic tree based on the N-450 region sequences of Ligurian and various strains of measles virus.
Noteworthy, none of the genotyped measles strains possessed the mutations previously identified as a possible issue for molecular diagnostics failure.
Conclusions: Our results represent the first evidence of measles circulation in Liguria, after a period of low or no activity, and support the hypothesis of a sustained spread on the territory, with the possibility of a certain degree of underreporting.
Measles molecular surveillance is a fundamental tool to track viral variants, transmission routes and outbreak evolution, allowing an accurate identification of imported cases.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_208.png

Epidemiology of viral infections

P 71 SHORT-TERM MORTALITY IN PEOPLE WITH HIV INFECTION OVER THE PAST TWO DECADES

M. Melchio[1,2], M. Bavastro[1,2], L. Taramasso[2], C. Marelli[2], M. Bassetti[1,2], A. Di Biagio[1,2]

[1]Division of Infectious Diseases, Department of Health Sciences, University of Genova, Genova, Italy, [2]Division of Infectious Diseases, IRCCS Ospedale Policlinico San Martino, Genova, Italy

Background: In recent years, important progress in antiretroviral therapy has led to a significant improvement in the life expectancy and quality of life of people living with HIV (PWH). At the same time, recent studies have shown that the incidence of HIV diagnoses is not decreasing. The aims of this study are to describe the cohort PWH diagnosed with HIV in the last 20 years at a large Italian Hospital, assess risk factors for short-term mortality, and determine whether there has been a change over time in the epidemiology of HIV.

Material and Methods: Data were collected from the Regional "HIV survey" registry. All PWH with a new diagnosis between January 2004 and December 2023 were included. For each PWH, demographic characteristics, risk factors for HIV and immunovirological status at the time of diagnosis were collected. Mortality or any loss to follow-up within the first 12 months was assessed. Short-term mortality was defined as death from any cause within 1 year of HIV/AIDS diagnosis. Deaths reported by the end of March 2024 were included in the analysis.

Risk factors independently associated with mortality and loss to follow-up were assessed using logistic regression and presented using odds ratio (OR) and confidence interval (C.I.); to assess the trend of epidemiological variables, a comparison between the decade 2014-2023 vs. 2004-2013 was conducted.

Results: Over the course of the 20 years of the study, 696 new diagnoses of HIV were performed, with a median of 34 diagnoses per year (range 25-46). The median age was 40 years (interquartile range, IQR 31-50), 72.7% were male, 66.9% were Italian, 53.2% were heterosexual, and 58.8% were late presenters (CD4+ lymphocytes count at diagnosis <350 cells/mmc).

Overall, 26 PWH died during the first year after diagnosis, with a short-term mortality rate of 3.7%, with death occurring with a median of 41 days (IQR 28-136) after diagnosis. The main factor associated with increased mortality was having CD4 count <200 cells/mmc at diagnosis (OR 14.96, 95% CI 3.4-65.5). Seventy-five PWH (10.8%) were lost to follow-up in the first year after diagnosis, with male sex and non-Italian nationality being the main risk factors (OR 3.02, 95% C.I. 1.6-5.8 and OR 1.96, 95% C.I. 1.1-3.4, respectively).

When comparing the decades 2004-2013 vs. 2014-2023, an increase in HIV diagnoses was observed (319 vs. 377). The percentage of males and late presenters remained stable over the years, as did the mortality rate (Fig. 1). Conversely, diagnoses decreased among intravenous drug users and increased among men who have sex with men (although this may be explained by more accurate collection of medical history), among people older than 45 years, compared to younger individuals, and among people from geographic areas outside Italy (all p <0.01).

Conclusions: In order to drastically reduce the number of HIV infection cases and short-term mortality, it is mandatory to promote screening and remove barriers to HIV testing.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_314.png

Epidemiology of viral infections

P 72 HIV SCREENING AND TREATMENT IN TWO PENITENTIARIES IN NORTHERN ITALY: A RETROSPECTIVE ANALYSIS

A. Cambianica[1], S. Calza[2], S. Rapino[1], M. Inverardi[1], B. Fioretti[1], L.A. Visentin[1], I. Rossetti[3], F. Roda[3], F. Castelli[1], E. Quiros Roldan[1], E. Focà[1]

[1]Division of Infectious and Tropical Diseases, University of Brescia and ASST Spedali Civili Hospital, Brescia, Italy, [2]Unit of Biostatistics and Biomathematics, Unit of Bioinformatics, Department of Molecular and Transitional Medicine, University of Brescia, [3]Unit of Prison Health ASST Spedali Civili Hospital, Brescia, Italy

Background: The prevalence of communicable diseases is higher among people in prison than in the general population. International guidelines strongly recommend HIV screening at admission to all people in prison and require that all prisoners living with HIV (PrWHIV) have access to combined antiretroviral therapy (cART). However, available data regarding HIV cascade of care in prison settings are insufficient. Here, we offer an insight of the management of HIV in two penitentiaries in Brescia, Northern Italy.

Material and methods: The city of Brescia has two correctional facilities. All prisoners are offered a voluntary screening for HIV at admission. Disease specialists perform periodical in-prison consultation for those with positive results at screening or known HIV infection. Routine immune-virological assays and access to treatment are granted to all PrWHIV. We performed a retrospective observational study including all the subjects admitted annually to the penitentiaries from 01/01/2015 to 31/10/2023 who accepted screening and/or had HIV infection.

Results: During the study period, we observed a screening rate of 51,9%: screening was performed in 3609 cases out of 6959 registered accesses. Screening rate decreased considerably in 2020 and 2021 (42,8% and 36,3% respectively), a mild increase was noted in 2023 (49,2%).

Overall, 127 PrWHIV were included, 98 (77%) of which were already followed at our outpatients' clinic. Adherence to cART improved during the years: only 77% of people took cART during the whole detention in 2015, this number increased to 88% in 2023. People who were not on cART often self suspended or refused therapy (50,0% and 19,0%, respectively). The administration of PI-based regimens was reduced during the years in favor of INSTI-based ones (67,9% and 9,4% in 2015 vs. 13,8% and 82,8% in 2023 respectively).

We observed a steady increase in virological control during the study period: the probability of viral suppression increased from 64% in 2015 to 98% in 2023 (Figure 1). Immunological control improved as well: the mean level of lymphocyte CD4+ cell count was near to 450 in 2015, closing up to 600 in 2023. However, 8,9% of people had a lymphocyte CD4+ cell count <200/ul during the whole study period.

Notably, 8/127 PrWHIV (6.3%) were never visited by an ID specialist during detention. No information about treatment administration and viro-immunological control was available for them.

Conclusions: We observed an increase of adherence to cART through the years, leading to an important increase in viro-immunological control. Also, new switches to INSTI-based therapies were observed, guaranteeing updated therapies with less toxicity as happens in out-of-prison outpatients clinics. However, HIV screening acceptance is still scarce and some inmates went missing on the follow-up. This shows that much more work is needed to offer proper counseling, to prevent new infections between inmates and allocate resources in the best way possible.

Epidemiology of viral infections

P 73 CLINICAL AND EPIDEMIOLOGICAL INSIGHTS IN SEVERE INFLUENZA PATIENTS ADMITTED TO EMERGENCY DEPARTMENT WITH RESPIRATORY SYMPTOMS IN THE FOURTH YEAR OF SARS-COV-2 PANDEMIC

A. Parente[1,2], B. Kertusha[1,2], T. Tieghi[1], R. Marocco[1,2], C. Giambi[3], G. Blanco[5], F. De Cave[5], A. Grimaldi[2], S. Corazza[2], U. Basile[6], M. Lichtner[4], C. Del Borgo[1,2]

[1]Infectious Diseases Unit, S.M. Goretti Hospital, Latina, Italy, [2]Sapienza University of Rome, Department of Infectious Diseases and Public Health, Italy, [3]Public Health Service, ASL Latina, Italy, [4]Sapienza University of Rome, Department of NESMOS, Italy, [5]Microbiology Unit, S.M. Goretti Hospital, Latina, Italy, [6]Clinical Pathology Unit, S.M. Goretti Hospital, Latina, Italy

Introduction: Since the onset of the COVID-19 pandemic, there has been a decline in respiratory infections caused by other viruses. During the 2023-2024 season, an increase in influenza cases has been observed. According to RespivirNet, out of 52246 respiratory specimens analyzed, 7784 tested positive for Influenza: 93% were Influenza A, predominantly subtype H1N1, only 7% were of type B. The majority of cases were reported during the end of 2023 and the start of 2024. At our Hospital, where patients with pneumonia or respiratory failure are routinely admitted to both intensive care units(ICU) and standard care units, understanding the epidemiological and clinical data of these patients is crucial. Such insights can enhance treatment protocols, expedite diagnosis, and facilitate the development of more effective prevention strategies

Materials and Methods: All patients presenting in the emergency department with respiratory symptoms such as fever, cough, dyspnea or radiological findings of pneumonia, are screened both for SARS-CoV-2 and influenza. All positive cases are then notified to the Public Health Department, until clinical cure or death. Data was collected retrospectively through Public Health Department Sources and Infectious Diseases Consultation Program. Demographic characteristics, symptoms, comorbidities, clinical course and management were all reported. The data were collected from November 2023 to February 2024

Results: In our Hospital we observed 10 reported cases of influenza, 60% men and 40% women. The median age was 57 years (with an interquartile range [IQR] of 47.25-73.5), slightly higher in males compared to females (59 vs 53). Dyspnea was the most commonly reported symptom, affecting nearly 90% of patients, followed by fever (70%) and myalgia (50%). All patients received oseltamivir treatment, which was initiated more than 48 hours after symptom onset in all cases. Diagnosis was confirmed through multiplex RT-PCR assays, with influenza A virus identified in all cases but one. Of the 10 patients, 80% required treatment in ICU, with 4 needing orotracheal intubation, 3 non-invasive ventilation, and one receiving non-rebreathing oxygen mask. 2 patients received low-flow nasal cannulas. The mortality rate was 50%. Among patients in ICU, 37% developed secondary bacterial infections, with Pseudomonas aeruginosa DTR sepsis leading to death in two cases. The most common comorbidity was pulmonary disease, including COPD and pulmonary fibrosis.A moderate positive correlation was observed between ARDS at the time of diagnosis and clinical outcome, defined as death ($r=0.65$, $p<0.05$)

Conclusions: The incidence of influenza infections is increasing, leading to consistently high levels of morbidity and mortality, even among younger individuals.Despite the timely administration of antiviral prophylaxis to those with significant comorbidities and SARS-CoV-2 infection, influenza cases often remain undiagnosed, resulting in delayed or absent antiviral treatment until the disease has progressed significantly. The severity of influenza and its high mortality rate have been overshadowed by the COVID-19 pandemic.

Epidemiology of viral infections

P 74 THE CHANGING LANDSCAPE OF HOSPITALIZED PLWH: HOW THE REFERRAL OF CASES IN A CENTER ITALY WARD CHANGED DURING THE SARS-COV-2 PANDEMIC

F. Pallotta[1,2], S. Fioriti[1], G. Cesaretti[1,2], I. Luchetti[1,2], A. Di Fortunato[1,2], A. Ficola[1,2], A. Iannacone[1,2], A. Ianovitz[1,2], V. Perticaroli[1,2], G. Gelo Signorino[1,2], V. Lauria[1,2], L. Brescini[1,2], O. Cirioni[1,2], A. Giacometti[1,2]

[1]Dipartimento di Scienze Biomediche e Sanità Pubblica, Università Politecnica delle Marche, Ancona, Italy, [2]Clinica di Malattie Infettive, Azienda Ospedaliero-Universitaria delle Marche, Ancona, Italy

Background: A great number of cases of HIV infection is diagnosed late, often presenting with opportunistic infections or neoplasms. A timely diagnosis is essential to avoid the greater morbidity and mortality associated with AIDS-defining conditions.
However, the SARS-CoV-2 pandemic lead to a delayed access to diagnostic tests because of the increased burden of work that healthcare practitioner faced.
The aim of our study was to investigate the impact of the SARS-CoV-2 pandemic on PLWH admitted in our ward because of AIDS or new diagnosis of HIV infection.
Material and Methods: We conducted a retrospective observational analysis of patients admitted in our department in the period from January 2016 to December 2023. Demographical, clinical and laboratory characteristics all patients were collected through consultation of clinical records. A comparison was carried out between patients admitted in the 2016-2019 period and patients admitted in the 2020-2023 period using univariate analysis.
Results: A total of 63 patients were identified. The number of cases admitted each year is depicted in figure 1.
Characteristics of the populations are shown in table 1. The majority of patients (76%) were males, the median age was 50 years and they were mostly from Italy (68%).
A new HIV diagnosis was made in 40 patients (63%). Of the 23 patients with a known HIV infection, the median duration of HIV infection was 11 years and 18 patients had received antiretroviral therapy for a certain period, but had a poor compliance or can't replenish their therapy supplies. The remaining 5 patients with a know HIV infection didn't started antiretroviral therapy of their own will. The median number of CD4+ cells at admission were 80/mmc.
87% of cases were diagnosed in a CDC C3 stage. The most frequent AIDS-defining events were Pneumocystis jirovecii pneumonia (11 cases), wasting syndrome (8 cases), lymphomatous disease, Cytomegalovirus disease (7 cases each) and tuberculosis (6 cases).
Concerning differences between the two study periods, the only significant differences was that in the 2020-2023 period patients presented with a lower CD4+ count (p= 0.044). Furthermore, although not significant (p=0.053), a greater number of East European patients were admitted in 2020-2023, probably due to the increase in the flow of migrants because of the Ukrainian crisis.
Conclusions: Even in our small experience, the SARS-CoV-2 pandemic were impactful in determining a delay in the diagnosis of HIV infection. In fact, patients admitted in the 2020-2023 period showed a lesser CD4+ count compared with patients admitted in the pre-pandemic period.
However, an influence of the Ukrainian-Russian war on delayed diagnosis cannot be ruled out, since we observed an increased number of East European patients in the 2020-2023 period. A thorough vigilance and fast track diagnostic testing would be necessary to allow Ukrainian refugees to receive a timely access to care.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_428.png

HIV coinfections and comorbidities

P 75 WEIGHT GAIN AND LIPID CHANGE ACCORDING TO BASELINE COMORBIDITIES AND PREVIOUS ANTIRETROVIRAL REGIMEN IN COHORT OF PEOPLE TREATED WITH BICTEGRAVIR/EMTRICITABINE/TENOFOVIR ALAFENAMIDE

L. Taramasso[1], L. Labate[2], E.D. Ricci[3], S. Blanchi[1], F. Centorrino[1], M. Bassetti[1,2], A. Di Biagio[1,2]

[1]Infectious Disease Clinic, IRCCS Polyclinic San Martino Hospital, Genoa, Italy, [2]Department of Health Sciences (DISSAL), University of Genoa, Genoa, Italy, [3]Fondazione ASIA, Milan, Italy

Background: Modern antiretrovirals such as integrase inhibitors (INSTIs) and tenofovir alafenamide (TAF) have been associated with excess weight gain (WG) in people living with HIV (PWH). The single tablet regimen bictegravir/emtricitabine/TAF (B/F/TAF) contains the INSTI+TAF combination, and its role in further weight gain is object of investigation. The aim of the present study is to assess metabolic and weight changes in ART-naïve (nPWH) and experienced (ePWH) people initiating B/F/TAF, focusing on non-infectious comorbidities and, in ePWH, according to previous ART regimen.

Material and methods: Observational retrospective single centre study including all PWH starting B/F/TAF between January 2020 and August 2022. Demographics, laboratory data and comorbidities were extracted from electronic charts. Data are showed as means (standard error). Changes of continue variables over time were studied by paired t-test. A GLM procedure was used to perform the multivariable analysis.

Results: We enrolled 475 PWH, of which 47 nPWH. Females were 156 (32.8%) and people in CDC stage C were 50 (10.5%). Mean age at enrolment was 49 (0.6) years, and 81% were Caucasian.

Blood lipids showed a different trend in nPWH or ePWH, as total cholesterol, TC [-6 (2) mg/dL, p=0.005], LDL [-9 (3) mg/dL, p=0.0008] and triglycerides [-21 (5) mg/dL, p<0.0001] all significantly decreased in ePWH, while TC [+17 (6) mg/dL, p=0.009] and HDL [+8 (2) mg/dL, p=0.002] increased in nPWH (Figure 1). Weight significantly increased in either nPWH [+3.6 (1.0) kg, p=0.0008] and ePWH [+1.1 (0.4) kg, p=0.002], with a sharper increase in nPWH (p=0.0387).

Among study participants, five (1.0%) had a history of myocardial infarction (MI), 21 (4.4%) of dyslipidemia, 44 (9.3%) of hypertension, 24 (5.1%) of diabetes, 10 (2%) of chronic kidney disease (CKD), and 29 (6.1%) of depression. PWH with at least one comorbidity experienced on average a reduction in blood lipids, while weight did not change significantly, except in people with CKD, in which a slight increase was reported (Figure 2).

At multivariable analysis, in a model including the above reported comorbidities, age (>50 or < 50 years), sex, being ART naïve/experienced and baseline weight, this last variable was the only one significantly linked to WG (p=0.0064).

Finally, we explored if weight change, in ART experienced PWH, was different in people who were on INSTI (N = 351), PI (N=59) or NNRTI (N=18) before switching to B/F/TAF (Figure 3). After correcting for age, sex and baseline weight, the anchor drug resulted not correlated to different WG after the switch.

Conclusions: In this large cohort of people taking B/F/TAF, PWH with comorbidities associated with increased cardiovascular risk, such as previous MI, diabetes, dyslipidemia and hypertension, experienced favorable changes in lipids and indifferent changes in weight. Switching to B/F/TAF from PI or NNRTI did not result in a greater WG than switching from INSTI-based regimens.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_80.png

HIV coinfections and comorbidities

P 76 MULTIDIMENSIONAL CHARACTERIZATION OF ERECTILE DYSFUNCTION IN YOUNG MAN LIVING WITH HIV: A CROSS-SECTIONAL STUDY

G. Tiecco[1], M. Di Gregorio[1], C. Colangelo[1], P. Facondo[2], A. Delbarba[2], C. Cappelli[2], S. Storti[1], M. Salvi[1], M. Alberti[1], E. Focà[1], F. Castelli[1], E. Quiros-Roldan[1]

[1]Department of Clinical and Experimental Sciences, SD of Infectious and Tropical Diseases, University of Brescia and ASST Spedali Civili di Brescia, Brescia, Italy, [2]Department of Clinical and Experimental Sciences, SSD of Endocrinology and Metabolism, University of Brescia and ASST Spedali Civili di Brescia, Brescia, Italy

Background: Erectile dysfunction (ED) is a prevalent concern among young men living with HIV (yMLWH). We conducted a cross-sectional study to comprehensively characterize ED in yMLWH, considering metabolic, hormonal, vascular, and psychological factors.
Methods: This is a monocentric cross-sectional study in which we enrolled yMLWH attending our Unit of Infectious Diseases in Brescia. Inclusion criteria were a HIV-infection and age between 18 and 50 years old. All yMLWH from June 2023 to December 2023 were asked for symptoms of ED during the routinary follow up visits. In case of referred ED, the severity and its psychological aspects were assessed using the International Index of Erectile Function-5 (IIEF-5) and the Structured Interview on Erectile Dysfunction (SIEDY). Metabolic and hormonal assays were performed, and the Score2 was used to assess the cardiovascular risk. Additionally, a dynamic penile color-doppler echography (dpCDE) performed by an Endocrinology and Andrology Specialist was employed to evaluate functional and structural vascular issues contributing to ED.
Results: In the study period, 310 yMLWH were assessed for eligibility, 50 (50/310, 16.1%) were enrolled with a median age of 45.5 (range 29-50) years old, a median Body Mass Index of 25.9 (range 17.7-39.1), and a median Score2 of 2.5% (range 1%-5.5%). Comorbidities were absent in 32 (64%) yMLWH, while 10 (20%) and 9 (18%) were receiving treatment for arterial hypertension and dyslipidemia, respectively. All yMLWH were virologically suppressed with a median CD4/CD8 ratio of 0.75 (range 0.27-2.23). Twenty-four (48%) taking a dolutegravir-based dual regimen. According to the IIEF-5, severe ED was observed in 14 yMLWH (28%), while 35 (70%) were identified with a psychological etiology for their ED based on the SIEDY scale 3. As regards dpCDE, 17 (34%) yMLWH exhibit a suboptimal/delayed R-ICI (response to intracavernous injection). Evaluation of penile artery flow indicated that 15 (30%) yMLWH had frankly pathological peak systolic velocity (PSV) values bilaterally or unilaterally, reaching 28 (46%) with age-related PSV pathological scores. As regards structural vascular abnormalities, 43 (86%) yMLWH exhibit elevated intima-media thickness (IMT) bilaterally or unilaterally, and 30 (60%) display at least one significant arterial anastomosis that could contribute to erectile potency reduction.
Conclusions: ED in YMLWH has a multifactorial etiology. No ED was solely explained based on hormonal levels, rather, substantial functional or structural vascular alterations were observed in nearly all enrolled yMLWH. Clinicians should recognize that relying solely on validated questionnaires to assess erectile dysfunction in yMLWH may obscure early signs of vascular impairment. Given the potential predictive value of ED for major cardiovascular events within specific populations, all yMLWH were instructed to undergo a carotid artery echocardiogram and treadmill test.
(Table 1)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_93.png

HIV coinfections and comorbidities

P 77 THE INFLUENCE OF BLOOD BRAIN BARRIER PERMEABILITY ON SERUM-TO-CSF RATIOS OF CENTRAL NERVOUS SYSTEM BIOMARKERS IN PEOPLE WITH HIV

J. Cusato[1], M. Antonucci[2], M. Trunfio[3], D. Imperiale[4], E. Vuaran[3], A. Palermiti[1], G. Di Perri[3], A. D'Avolio[1], S. Bonora[3], A. Calcagno[3]

[1]Laboratory of Clinical Pharmacology and Pharmacogenetics, Department of Medical Sciences, University of Turin, Amedeo di Savoia Hospital, Turin, Italy, [2]SCDU Infectious Diseases, Amedeo di Savoia Hospital, ASL Città di Torino, Turin, Italy, [3]Unit of Infectious Diseases, Department of Medical Sciences, University of Turin, Amedeo di Savoia Hospital, Turin, Italy, [4]Unit of Neurology, Maria Vittoria Hospital, ASL Città Di Torino, Turin, Italy

Background: People with HIV (PWH) have a higher risk of Central Nervous System (CNS) diseases and a timely differential diagnosis may be essential for patients' management. Several cerebrospinal fluid (CSF) biomarkers resulted effective in diagnosing neuronal and astrocyte involvement in several neurological disorders but data on their use in PWH are limited.
Material and Methods: Available CSF and serum specimens from PWH enrolled in different clinical studies were analysed through Single Molecule Array (Simoa SR-X, Quanterix®). We masured markers of neuronal damage (NfL, tau, ptau), β-amyloid peptides (Aβ1-40 and Aβ 1-42), signaling and plasticity (BDNF), astrocyte activation (GFAP), ubiquitin-proteasome involvement (UCHL-1) and programmed death ligand-1 (PD-L1). BBB permeability was assessed through CSF-to-serum albumin ratio (CSAR). Data were described as median values (interquartile ranges, IQR) and tested through non-parametric methods (Mann-Whitney, Spearman's tests, S).
Results: We included 286 samples: patients's age was 42.1 years (IQR 30.6;51), 69.2% were male. Median CSAR was 5.4 (3.9; 7.3). We observed statistically significant correlations for all serum/CSF pairs, but rho values > 0.5 for tau, NfL and GFAP only. Significant differences were observed when using single or multiplex kits, when assessing NfL and tau levels. NfL CSF-to-plasma ratios were higher in participants with higher CSAR ($p < 0.001$, $S = 0.416$), with higher ratios in participants with age-adjusted abnormal BBB ($p = 0.001$, figure 1).
Conclusions: We observed an average-to-high correlation between serum and CSF biomarkers in PWH, suggesting the possible use of serum levels for assessing CNS involvement. BBB permeability may influence this correlation and it needs to be accounted for.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_106.jpg

HIV coinfections and comorbidities

P 78 NUTRITION SUPPORT SERVICE FOCUSED ON WEIGHT LOSS IN AN HIV OUTPATIENT CLINIC: OUR EXPERIENCE

P. Vitiello[1], A. Arcuri[2], C. Abeli[1], J. Testa[1], B. Menzaghi[1], D. Radrizzani[1], F. Strambio De Castilla[1], M. Farinazzo[1], F. Franzetti[1]

[1]ASST Valle Olona, Infectious Diseases Unit, Busto Arsizio (VA), Italy, [2]Fondazione IRCCS Policlinico San Matteo, Tropical and Infectious Diseases Unit, Pavia, Italy

Introduction: In our HIV outpatient-clinic 497/1131 patients (pts)(43,9%) have a BMI (Body mass index)> 25 and 128/1131 (11,31%) ≥30. Considering that 55,2% of our pts are overweight/obese, we assumed that a nutritional support service could be an effective intervention to reduce this high percentage and therefore to improve the quality of life of our HIV population. This pilot project aims to help the pts to lose weight while attending their usual HIV-clinic.
Methods: pts with BMI>25 were selected on their motivation to follow a hypocaloric diet. Body weight (Kg), height (cm), left arm, waist, abdomen, hip and left thigh circumferences (cm) were measured at baseline(BL) and about every 1-2 months after the diet start. Tanita scales BC-587 was used to measure weight, body fat(%), body water(%), muscle mass(Kg), visceral fat(index), bone mass(Kg), basal metabolism(Kcal). Basal metabolism was also calculated by the Harris-Benedict algorithm. Total daily energy expenditure was calculated by Metadieta software, the same software used for the diet creation.
At BL pts underwent an abdomen ultrasound-scan, liver elastography (Fibroscan) and a nutritional anamnesis to get, at the same BL-visit, a personalized Mediterranean hypocaloric diet.
Results: from July 2022 to March 2024, 34 pts have been evaluated in our Nutritional HIV Clinic. Characteristics of the pts at BL are described in table1. All were PWH except 3 that were HIV seronegative affected by steatohepatitis.
9 pts(26,4%)(all HIV-positive) never started the prescribed diet and they were lost since the first follow up visit (T1). 10 pts(29,4%)(all HIV-positive) were totally lost at the second follow up. Body composition and anthropometric parameters at BL and their variations at T1 are represented in table 2, anthropometric parameters measured over different timepoints (from BL to T3) in table 3.
Biochemical parameters did not significantly change at T1; change at T2 are described in table 4.
Conclusions: Although this pilot study is limited by the small number of pts on follow up, we conclude that a nutritional intervention can be effective in contributing to reduce the onset or the grade of metabolic syndrome. At T1 pts got, in fact, significant reductions of body weight, waist, and abdominal circumferences, which are confirmed at T3. This favorable weight reduction is also associated with a significant reduction of LDL cholesterol and with a decreasing trend of the blood glucose levels. Weight loss and its benefic consequences on lipids and glucose blood-level can also save from statins or glucose-lowering drugs prescription, limiting patients' pills burden and risk of drug-drug interactions.
Unfortunately, 26,4% of our population was lost at the first follow up. This observation confirm the poor propensity of PWH to undergo extra blood or instrumental tests as we observed i.e for oncological and cardiovascular screenings. However, we aim to extend the project to a wider range of patients.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_125.jpg

HIV coinfections and comorbidities

P 79 HIGH-RISK HPV GENOTYPES ARE ASSOCIATED WITH ANAL CYTOLOGIC ABNORMALITIES BUT NOT WITH MALIGNANT HISTOLOGICAL LESIONS IN A COHORT OF PEOPLE WITH HIV (PWH)

N. Squillace[1], D.P. Bernasconi[2], V. Cogliandro[1], G. Lapadula[1], A. Soria[1], F. Sabbatini[1], E. Colella[1], M. Rossi[1], A. Cappelletti[1], G. Spreafico[1], A.M. Tamburini[3], B.E. Leone[4], S. Malandrin[5], A. Cavallero[5], A. Di Lucia[6], M. Braga[6], P. Bonfanti[1]

[1]Infectious Diseases Unit, Fondazione IRCCS San Gerardo dei Tintori, University of Milano-Bicocca, Monza, Italy, [2]Bicocca Bioinformatics Biostatistics and Bioimaging Centre - B4 School of Medicine and Surgery University of Milano-Bicocca, Monza, Italy, [3]Department of Gastrointestinal Surgery, Scientific Institute San Raffaele, Milan, Italy, [4]Pathology, Department of Medicine and Surgery, University of Milano-Bicocca, Fondazione San Gerardo Hospital, Monza, Italy, [5]Microbiology Unit, Fondazione IRCCS San Gerardo dei Tintori, Monza, Italy, [6]Department of Surgery, Fondazione IRCCS San Gerardo dei Tintori, University of Milano-Bicocca, Monza, Italy

Background: Anal cancer is highly prevalent in people with HIV (PWH). Our aim was to describe a long-term follow up of PWH that were screened for anal cytological abnormalities (CA) and HPV genotypes.
Methods: Screening for anal cancer (cytological exam and HPV detection in anal swabs) were offered to all PWH of our center since March 2010. All PWH were recommended to perform high resolution anoscopy (HRA) if CA were found. The following HPV genotypes (other than 16 and 18) were defined as high risk HPV (HR-HPV) genotypes: 31, 33, 35, 39, 45, 51, 52, 56, 58, 59.
Results: 436 PWH were screened. 369 (84.6%) were male, 226 (51.8%) men who have sex with men (MSM), 73 (16.7%) men who have sex with women (MSW) and 67 (15.4%) women (W). Prevalence of CA was 28.9% (116 ASCUS/LSIL and 10 ASC-H/HSIL).
The following variables were associated with CA vs normal cytology: positivity for HPV 16 or/and 18 (65/126, 51% vs 71/310, 22.9%; p<0.001), positivity for any other HR-HPV (102/126 [81%] vs 163/310 [52.6%]; p<0.001), previous sexually transmitted Infections (STI) (88/126 [69.8%] vs 138/310 [44.5%]; p<0.001), duration of infection (median 9.42 [Interquartile range, IQR 3.37-18.20] vs 6.92 [2.87-14.97]; p<0.05).
Prevalence of CA was not significantly different in MSM vs MSW and vs W (78/226 [34.5%] vs 16/73 [21.9%] vs 13/54 [24.1%], respectively; p=0.081). No association was found with age, CD4 nadir, current CD4, HIV-RNA, duration of ART, current or previous exposure to different classes of ART, and HPV vaccination.
Comparing ASC-HSIL vs ASCUS/LSIL, an association with a longer duration of antiretroviral treatment (ART) was also found: 15.79 (8.62-17.25) vs 6.04 (2.17-13.78) years, respectively; p=0.018.
79 PWH had at least one histological evaluation. 44/79 (55.7%) had a negative HRA, 15/79 (18.9%) had benign lesions, 20/79 (25.3%) showed malignant lesions: eleven anal intraepithelial neoplasia (AIN)-1, four AIN-2, four AIN -3 and one squamous cell carcinoma. The number of histological evaluations for each PWH with a median follow up of 39 months (IQR 18-47) are shown in Figure 1.
Only the presence of a previous STI was found to be associated with malignant vs benign lesions (16/20 [80%] vs 4/20 [20%], respectively; p=0.002).
Interestingly no significant difference was found in malignant vs benign lesions for positivity for HPV 16 and 18 (14/20 [70.0%] vs 8/15 [53.3%]; p=0.095) and any other HR-HPV (1/19 [5.0%] vs 3/15 [20.0%]; p= 0.38).
Previous Protease Inhibitors' (PI) exposure was associated with a negative HRA vs benign and malignant lesions (18.13 [IQR 0.00, 85.54] vs 0.00 [0.00, 0.00] vs 0.00 [0.00, 31.43] months, respectively; p=0.014).
Conclusions: CA are associated with HPV 16 and/or 18, other HR-HPV and a previous STI. Malignant histological lesions are only associated with a previous STI. PI exposure is associated with negative HRA.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_139.jpg

HIV coinfections and comorbidities

P 80 CHALLENGING THE BOUNDS OF CO-INFECTION: A CASE STUDY ON SEVERE MONKEYPOX IN AN UNTREATED HIV PATIENT AND THE ROLE OF TECOVIRIMAT IN TREATMENT EFFICACY

T. Semenzin[1], G. Matusali[3], E. Sozio[2], P. Della Siega[2], F. Colavita[3], E. Cimini[3], V. Mazzotta[3], F. Maggi[3], C. Tascini[1,2], S. Lanini[1,2]

[1]Department of Medicine (DAME), University of Udine, Udine, Italy, [2]U.O. Malattie Infettive, Azienda Sanitaria Universitaria Friuli Centrale, Udine, Italy, [3]Laboratory of Virology, National Institute for Infectious Diseases Lazzaro Spallanzani IRCCS, Roma, Italy

A 32-year-old MSM with a history of multiple unprotected sexual and untreated HIV infection, presented with a severe Monkeypox virus infection. He was referred to our unit by a local STI unit with a positive rectal swab for Mpox (Clade II) in January 2024. His clinical manifestations included fever, lymphadenopathy, and rash (about 25-30 lesions). Laboratory evaluations showed detectable HIV RNA, low CD4 counts, and high inflammatory markers (Table 1). Molecular diagnostics revealed the presence of M. hominis and U. urealyticum on the rectal swab, as well as HSV-1; M. hominis was also detected in urine. He tested negative for N. gonorrhea and C. trachomatis. The results for TPHA and VDRL were 1:5120 and <1:2, respectively. Several HPV lesions were identified on the perianal skin. The patient experienced severe, intractable pain, which necessitated the initiation of opioid therapy. He began treatment with tecovirimat, ganciclovir, doxycycline, and antiretroviral therapy with BIC/TAF/FTC (Table 1). Despite receiving tecovirimat for an extended duration of 21 days, it was well tolerated with no signs of renal or liver toxicity observed. Imaging studies, including a CT scan, identified pseudonodular pulmonary lesions (Fig. 1B), and colonoscopy revealed severe proctitis without lesions in the sigma and colon (Fig. 1A). Although no respiratory tract lesions were found during bronchoscopy, a molecular test on the bronchoalveolar lavage fluid was positive for Mpox. Over the course of treatment, there was a noted progressive reduction in HIV following antiretroviral therapy, while Mpox persisted in all significant sites. The patient remains hospitalized.

This case is significant in the context of the evolving epidemiology of Mpox, following the European outbreak. The presentation underscores the importance of including Mpox in the differential diagnosis of STIs when suggestive skin lesions are present; especially in populations at risk. Furthermore, the severe manifestation of Mpox in this patient, alongside with HIV, suggests that Mpox could be considered a new AIDS-defining illness. This aligns with ongoing discussions in the medical community about the implications of labeling severe Mpox as such, considering the need for awareness against the potential for stigmatization. The well-tolerated extended use of Tecovirimat without signs of toxicity adds valuable real-world evidence to the ongoing evaluation of Tecovirimat's efficacy and safety profile. However, discussions regarding the actual efficacy of Tecovirimat persist, emphasizing the need for continuous research.

This case highlights the critical aspects of the current understanding and management of Mpox in high-risk populations and the ongoing assessment of therapeutic options like Tecovirimat. It underscores the importance of integrating clinical findings with epidemiological insights to inform public health strategies and therapeutic approaches in managing emerging infectious diseases.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_144.jpg

HIV coinfections and comorbidities

P 81 RISK FACTORS ASSOCIATED WITH NAFLD IN PEOPLE LIVING WITH HIV

V. Brogna[1], N. Squillace[1], V. Cogliandro[1], E. Ricci[2], B. Menzaghi[3], P. Maggi[4], F. Colucci[4], A. Di Biagio[5,6], L.A. Nicolini[5], K. Falasca[7], E. Salomoni[8], P. Bonfanti[1]

[1]Infectious Disease Unit, Fondazione IRCCS San Gerardo dei Tintori, University of Milano-Bicocca, Monza, Italy, [2]Fondazione ASIA Onlus, Buccinasco, Milano, Italy, [3]Unit of Infectious Diseases, ASST della Valle Olona – Busto Arsizio, Varese, Italy, [4]Infectious Diseases Unit, AORN Sant'Anna e San Sebastiano, Caserta, Italy, [5]Infectious Diseases, IRCCS Ospedale Policlinico San Martino, Genoa, Italy, [6]Department of Health Science (Dissal), University of Genoa, Genoa, Italy, [7]Department of Medicine and Science of Aging, Clinic of Infectious Diseases, University "G. D'Annunzio", Chieti, Pescara, Italy, [8]Unit of Infectious Diseases, Santa Maria Annunziata Hospital, Florence, Italy

Background: NAFLD (Non-alcoholic fatty liver disease) is an emerging cause of morbidity and mortality in People living with HIV (PWH) due to its association with cirrhosis and HCC (Hepatocellular carcinoma) as well as cardiometabolic risk factors. The aim of this study is to highlight the risk factors associated with NAFLD in a cohort of PWH.

Materials and methods: In this multicentric prospective cohort study we enrolled PWH > 18 years old (yo) with NAFLD diagnosed by Ultrasound sonography. We excluded patients with HBV or HCV co-infection, BMI > 40 and those with an excessive daily alcohol intake. Fibroscan with Controlled Attenuation Parameter (CAP) was performed; two cut-offs were used to define the presence of NAFLD (CAP ≥ 248 dB/m) and for grading of NAFLD (CAP≥ 268 dB/m).

Results: We enrolled 101 PWH with NAFLD, 72 of them (71.3%) had CAP≥ 248 dB/m. The mean age of our cohort was 55.2 [Standard deviation (SD) ±12] yo, most of them were male [87 (86.1%)] and the mean BMI was 28.1 (SD ± 4.2) kg/m². The majority had Metabolic Syndrome [51 (69.9%)], 25 PWH had diabetes (24.8 %). The mean CD4+ cell count was 768 [Interquartile range (IQR) 562-1013] cell/mm3, a detectable HIV-RNA viral load was only found in 5 (5%) patients and the mean duration of infection was 12.6 (IQR 8-24.2 years).

Considering combination-antiretroviral therapy (cART) 69 patients had a regimen containing INSTI (68.3%), NNRTI [31 (30.7%)], PI [9 (8.9%)], TAF based [51 (50.5%)] and TDF based [10 (9.9%)].

For the characteristics of PWH according to presence and grading of NAFLD see table 1.

At univariate analysis the following factors were associated with NAFLD (CAP≥ 248 dB/m): higher BMI [Odds Ratio (OR) 1.16; 95% Confidence interval (CI) 1.03-1.30], Waist circumference (men) (OR 1.12; CI 1.03-1.21) , diabetes (OR 3.81; CI 1.04-13.93), triglycerides (OR 1.08; CI 1.01-1.16), duration of infection (by one year , OR 1.09; CI 1.03 -1.15), Fibroscan-AST (FAST) score (OR 1.46; CI 1.06-2.03).

The risk factors associated with moderate/severe NAFLD (CAP≥ 268 dB/m) were: waist circumference (men) (OR 1.08; 1.01-1.16), diabetes (OR 3.07; CI 1.04-9.04), triglycerides (OR 1.08; CI 1.01-1.14), LDL-Cholesterol (OR 0.86; CI 0.77-0.98), duration of HIV infection (OR 1.08; CI 1.02-1.13), Exposure to TAF (OR 0.98; CI 0.97-0.99), Exposure to DTG (OR 1.02; CI 1.00-1.04) and FAST score (OR 1.58; CI 1.15-2.16).

At multivariate analysis for CAP ≥ 248 dB/m and for CAP ≥ 268 dB/m both BMI and duration of infection were confirmed as risk factors [(OR 1.31; CI 1.12-1.54) (OR 1.15; CI 1.00-1.33) and (OR 1.11; CI 1.03-1.19) (OR 1.08; CI 1.01-1.15), respectively].

DTG exposure was found as a risk factor for CAP ≥ 268 dB/m (OR 3.67; CI 1.16-11.64).

Conclusions: Longer duration of HIV infection and a higher BMI are the main drivers of NAFLD in PWH.

TAF exposure doesn't seem to be a risk factor for NAFLD while exposure to INSTI (especially DTG) could be associated with NAFLD severity.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_150.png

HIV coinfections and comorbidities

P 82 CORRELATION BETWEEN LIPID PROFILE, SUBCLINICAL ATHEROSCLEROSIS, HEPATIC FIBROSTEATOSIS, AND BONE MINERAL DENSITY IN PLWH: COMPARISON BETWEEN TAF/FTC/BIC AND TDF/3TC/DOR

V. Iodice, A. Masiello, A. Del Villano, A. Boccia, I. Capriglione, F. Simeone, A. Iodice, P. Maggi

UOC Malattie Infettive - AORN "Sant'Anna e San Sebastiano" - Via Palasciano, Caserta, Italy

In patients with HIV infection (PLWH), the risk of developing cardiovascular, metabolic, and bone comorbidities is significantly higher than in non-infected patients, despite the virosoppression of HIV with the use of effective antiretroviral therapies. Forty HIV-positive patients were enrolled; twenty were treated with TDF/3TC+DOR and twenty with TAF/FTC+ BIC. All patients were permanently virosoppressed with effective STR regimens. The study group were compared by age, sex, duration HAART, to assess the impact of TARV on individual cardiovascular-metabolic and bone risk factors (Table 1). All the patients were assessed for carotid intima-media thickness (IMT) by sonographic examination of epiaortic vessels (ecoTSA), for bone mineral density by bone impedance, and for hepatic fibrosteatosis by fibroscan. Moreover, we evaluated blood test during 12-24 months after antiretroviral treatment. The T-student and Chi-square tests were used for statistical analysis. From the examination of the ecocolordoppler TSA, only 15% of the patients treated with TDF/3TC+DOR, showed arterial wall intima-media thickness (IMT) between 0.9 and 1.3 mm, against 40% of the patients treated with TAF/FTC+ BIC (p=0.00204). In contrast, there was no difference between the two groups with regard to the presence of carotid plates (IMT 1.3 mm). Concerning laboratory tests, TDF/3TC+DOR treated patients showed a better lipid profile, with lower values of total serum cholesterol (p=0.004); however, no statistically significant difference was detected between the two groups with regard to the absolute value of blood triglycerides. In contrast, levels of cholesterol blood >200 mg/dl and levels of triglycerides blood >150 mg/dl were higher in patients treated with TDF/3TC/DOR to TAF/FTC/BIC (p=0.01997 and p=0.00997). On the elastometric examination, patients in TDF/3TC+DOR showed lower values of hepatic steatosis compared to patients with TAF/FTC+ BIC (p=0.00194); no statistically significant difference in fibrosis was detected between the two groups. Bone densitometric alterations, osteopenia, and osteoporosis, as assessed by T/Z score alterations in the impedance analysis, were observed more inTAF/FTC+BIC than in TDF/3TC+ DOR treated patients (p= 0.00092). The analysis of our data, supports how a pro-active approach, through the control of the risk of cardiometabolic - bone factors, and the use of antiretroviral regimens with better safety profile, could be useful to prevent the clinical manifestations of the different comorbidities (myintimal damage, osteopenia-osteoporosis, steatosis). Our aim will be to confirm or disprove the statistical data by extending the study to a larger group of patients.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_173.jpg

HIV coinfections and comorbidities

P 83 INCIDENCE OF LUNG-CANCER IN A COHORT OF PWH: A RETROSPECTIVE SINGLE-CENTER OBSERVATIONAL STUDY

G. Carrozzo[1,2], S. Reato[1,2], G. Pozza[1,2], F. Sabaini[1,2], M.L. Colombo[1,2], M. Zacheo[1,2], A. Giacomelli[1,2], C. Gervasoni[1], M.L. Oreni[3], A.L. Ridolfo[1], S. Antinori[1,2]

[1]III Infectious Diseases Unit, ASST Fatebenefratelli Sacco, Luigi Sacco Hospital, Milan, Italy, [2]Università degli Studi di Milano, DIBIC Luigi Sacco, Milan, Italy, [3]IRCCS Fondazione Don Carlo Gnocchi, Milan, Italy

Background: Lung cancer is currently one of the leading causes of death among people with HIV (PWH), whose prognosis has been shown to be worse compared to general population. Its incidence is higher in PWH compared to the general population, possibly due to increased smoking rates and other independent virus- and comorbidity-related factors. Our study aims to estimate the incidence of lung cancer in a cohort of PWH.

Material and methods: We conducted a retrospective, observational, and monocentric study. We observed PWH accessing the outpatient service of the III Infectious Disease Division at L. Sacco Hospital (Milan) from January 1st, 2000, to December 31st, 2022. We collected demographic, clinical, laboratory, and cancer-related information from individuals diagnosed with primary lung cancer. AIDS-history was defined by either an AIDS-defining illness or a CD4 count < 200/mmc. We calculated overall and sex-specific crude incidence of lung cancer per 100,000 person-years in our cohort of PWH from 2000 to 2022. We used the Kaplan-Meier curve to estimate 5-year survival after lung cancer diagnosis.

Results: Among the 4,715 PWH who accessed our clinics from 2000 to 2022, we observed 49 cases of primary lung cancer, with an overall incidence of 110.6 per 100,000 person-years. The median age of our cohort had progressively increased from 37 (IQR 34-42) in 2000 to 54 (IQR 45-60) in 2022. A progressive increase in lung cancer incidence was observed starting from 2000-2005 (79.0 per 100,000 person-years) to 2018-2022 (193.8 per 100,000 person-years) (Figure 1). In the period 2018-2022, the sex-specific incidence was 257.5 and 171.1 per 100,000 person-years in females and males, respectively.

The observed cases of lung cancer primarily involved males (73.5%), Caucasians (95.9%), heterosexuals (49%), and those with an AIDS-history (69.4%). Of the 39 smokers (79.6%), the median daily cigarette consumption was 20 (IQR 15-29) (Table 1).

The median age at cancer diagnosis was 58 years (IQR 51-61). 18.4% of subjects had a HIV-RNA > 200 copies/mL at diagnosis, with a median CD4 count of 428 cells/mm³ (IQR 214-666), similar between those with and without a history of AIDS. The most represented cancer histologic subtype was adenocarcinoma (32.7%), while all cases of small cell carcinoma were reported among subjects with a history of AIDS. 40 subjects (81.6%) died, with a median age at death of 58 years (IQR 51-63) and a median survival from diagnosis of 8 months (IQR 2-16) with a 5-year survival probability of 21.4% [95% CI: 10.6-34.6] (Figure 2).

Conclusions: The incidence of lung cancer in our cohort has been progressively increased, mainly due to the aging of PWH who access our Center. This should prompt us to reflect and take action to reduce the major risk factors influencing the incidence (e.g. smoking) and to implement lung cancer screening by performing chest CT scans in individuals with significant risk factors, as outlined by the 2023 EACS guidelines.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_217.jpg

HIV coinfections and comorbidities

P 84 PREVALENCE, CHARACTERISTICS AND OUTCOMES OF TB-IRIS AMONG A COHORT OF PWH AND TB

C. Sepulcri[1], L. Crupi[1,2], E. Delfino[2], M. Cerchiaro[1,2], L. Taramasso[2], M. Bassetti[1,2], A. Di Biagio[1,2]

[1]Clinic of Infectious Diseases, Department of Health Sciences, University of Genoa, Genoa, Italy, [2]Clinic of Infectious Diseases, IRCCS Ospedale Policlinico San Martino, Genova, Italy

Introduction: Tuberculosis-immune reconstitution inflammatory syndrome (TB-IRIS) occurs in 8-54% of people with HIV (PWH) with TB and is associated with increased mortality, longer hospital stay and longer time to virological control. Among the factors associated to TB-IRIS are low CD4 count and high viral load at diagnosis and timing of ART initiation, while the role of INSTI, especially double-dose DTG has been postulated but not confirmed. Diagnosis of TB-IRIS is challenging and relies on multiple parameters. Current guidelines consider but do not recommend corticosteroid prophylaxis in the presence of specific risk factors. We evaluated the prevalence and clinical characteristics of TB-IRIS in PWH and its associated risk factors.

Methods: In this single centre study, we retrospectively included all PWH with active TB followed by our HIV Unit from 01/01/2013 to 31/12/2023 and stratified them by the occurrence of TB-IRIS. Data on general characteristics, TB disease, immunovirological status at TB diagnosis and follow-up and data on IRIS diagnosis and management were collected. In our clinic, corticosteroid prophylaxis for TB-IRIS is not routinely prescribed. Categorical variables were described using absolute number and percentage, continuous variables were presented using the median and interquartile range (IQR), and compared, with $\chi 2$ or Fisher exact test if applicable and Mann-Whitney test. Correlation analysis was performed using Pearson and Spearman correlations.

Results: In the study period, 21 PWH (n=10 [47.6%] treatment-naïve and n=11 [52.4%] treatment-experienced) were diagnosed with active TB. Among them, 5 cases of TB-IRIS were reported (n=2 unmasking and n=3 paradoxical), with a prevalence of 23.8% overall and 40% among treatment-naïve patients. Mean age was 42.6 years (SD 8.73), 5 (23.8%) were females, 16 (76.2%) were foreign-born, median CD4 count at TB diagnosis was 120 N/mmc (48-339). For 16 TB cases (80% of those with evaluable outcome), treatment success was reached (Table 1). All TB-IRIS cases were successfully managed. Individual characteristics and management of TB-IRIS cases are outlined in Table 2.

Female gender, being foreign born, being treatment-naïve, having disseminated TB and treatment with double-dose DTG were significantly correlated with TB-IRIS. Hospital stay duration was longer in case of TB-IRIS.

Conclusions: We report a high prevalence of TB-IRIS in PWH and TB, with some risk factors compatible to the literature and others specific to our cohort. Multicentric studies addressing prevalence, diagnostics and management of TB-IRIS are warranted to lead to definitive recommendations on prophylaxis and more accurate diagnostics strategies.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_224.jpg

HIV coinfections and comorbidities

P 85 CORRELATION AMONG BONE, ENDOTHELIAL AND HEPATIC DAMAGE IN PLWH

A. Masiello[1], V. Iodice[1], F. Laguardia[2], A. Boccia[2], I. Capriglione[2], A. Iodice[1], F. Simeone[1], P. Maggi[1]

[1]Infectious Diseases Unit, AORN Sant'Anna e San Sebastiano, Caserta, Italy, [2]Infectious Disease Unit, University Hospital Luigi Vanvitelli, Naples, Italy

Introduction: Patients with HIV infection (PLWH) are at increased risk of non-AIDS-related comorbidities such as osteoporosis and atherosclerosis, but there are currently few studies on their correlation. Some studies have evaluated the association between liver damage, in terms of liver fibrosis, (HF), and steatosis, (HS) and atherosclerosis in PLWH. The aim of our study is to evaluate the possible correlation between bone, endothelial and hepatic damage in PLWH.

Patients and methods: We enrolled 200 patients, 56 females and 144 males. We divided the patients in 2 groups based on cIMT: A) (#121) with normal cIMT (<1.3 mm) and B) (#79) with pathologic cIMT (>1.3 mm). Patients were submitted to measurement of carotid intima-media thickness (cIMT) with high resolution B mode Doppler USG and evaluation of HF using a process based on vibration-controlled transient elastography (Fibroscan) and HS by an ultrasonic controlled attenuation parameter (CAP) and assessment of mineral bone density with bioelectrical impedence analysis The cut-off value for defining the presence of c-IMT is 1,3 mm, for significant HS is CAP > 260 dBm and for HF is > 7 kPa. For both groups we evaluated T and Z score values. For patients >50 years and for menopausal women we have considered the T score (normal >-1, osteopenia between -1 and -2,5, osteoporosis < -2,5) , for patients<50 years we have considered the Z score(<-2 pathologic, >-2 normal) For each group we also considered CD4, CD4 nadir, CD4/CD8 ratio, years of HAART, type of ART, total, HDL and LDL cholesterol and triglycerides levels. For statistical analysis we used t-student and X-square tests.

Results: Data are shown in Table 1. No statistically significant differences emerged between the two groups for age, CD4, CD4/CD8 ratio, years of ART, and vitamin D. A statistical significance was highlighted for the type of ART, showing that in group A there is a prevalence of dual therapies (2DR) compared to group B (p 0.03), for CD4 nadir, triglyceridemia, total cholesterolemia and LDL values. In addition, statistical significance was found in T/Z scores values and in HS with pathological bone density and higher steatosis values in group B (p<0.006 and p0,00000, respectively). We did not observe statistically significant differences between the two groups in fibrosis values (p 0.69).

Conclusions: These data confirm a strong correlation between bone and endothelial damage in ART-treated PLWHs: patients with increased cIMT (>1.3 mm) more often show bone density alterations with osteopenia or osteoporosis. Furthermore, PLWH show higher values of liver steatosis than patients with normal c-IMT suggesting that in PLWH liver, bone and heart are closely connected and the type of ART may play a decisive role in the development or in the protection from of comorbidities based on the alteration of lipid metabolism. However, these data suggest the importance and need for broader diagnostic evaluation in PLWH.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_229.jpg

HIV coinfections and comorbidities

P 86 EXTRAPULMONARY TB DIAGNOSED DURING CABOTEGRAVIR/RILPIVIRINE LONG ACTING THERAPY: A NOVEL PHARMACOLOGIC CHALLENGE

G. Picchi[1], M. Tempestilli[2], C. Temperoni[1], P. Vassalini[1], A. Emiliozzi[1], J. Vergari[1], S. Farinelli[1], R. Preziosi[1], L. Caterini[1]

[1]Infectious Disease Department, "Belcolle" Hospital, Viterbo (VT) Italy, [2]Laboratory of Cellular Immunology and Pharmacology, National Institute for Infectious Diseases "L. Spallanzani" IRCCS, Rome, Italy

Background: The new Cabotegravir/Rilpivirin-Long Acting (CAB/RPV-LA) regimen recently introduced for persons living with HIV (PLWH) will modify clinicians perspectives on HIV comorbidities and drug-drug interactions (DDI) management, mainly for the long dosing interval.
Case Presentation: We present the case of a 43-y East-African woman with HIV infection diagnosed in 2011, B3 stage for ophthalmic zoster with post-herpetic neuropathy, hypercholesterolemia, wild type GRT, many cART regiments (included Dolutegravir,DTG) discontinued for multiple intolerance (headache, vertigo, nausea, diarrhea, anxiety). Previous clinical history reported in 2012 right ovariectomy for cyst and histologically confirmed retroperitoneal abscess, followed by persistent abdominal pain in right lower quadrant (RLQ) suspected for adhesive syndrome. She switched to CAB/RPV-LA/2 months and few days later the 1st injection she started to report fever, flu-like symptoms and exacerbation of RLQ pain. After two weeks fever and pain persisted and she was admitted in Infectious Disease Yard. Diagnostic test showed normal White Blood Cell and Procalcitonin, C-reactive-protein(CRP) 135 mg/l (n.v.<5), normal chest x-ray. An abdominal CT-scan showed an irregular RLQ mass of 5x4 cm and colliquated lymphadenitis. Blood culture were negative and Quantiferon positive. PCR for Mycobacterium Tuberculosis (MTB) on endotracheal aspirate was negative. An antibiotic empirical therapy (piperacillin/tazobactam) was introduced, with incomplete fever disappearance. After one week a laparotomic biopsy confirmed a tuberculous abscess. During hospitalization, the 2nd CAB/RPV injection was renewed.
The choice of anti-MTB therapy was challenging considering that coadministration of CAB/RPV-LA is controindicated with rifamycines (Bettonte S,2023). Considering the importance of Rifampin(RIF), the impossibility of waiting so long, the pill-burden and the unavailability of CAB and RPV Therapeutic Drug Monitoring (TDM), anti-MTB therapy (RIF 600+Isonyazid 300+Etambutol 1200) was started together with a new cART with DTG 50 mg BID and FTC/TDF QD.
Seeing the high potentiality of both cumulative neuropsychiatric toxicity (Senneker T, AIDS. 2021) and decreased dolutegravir concentrations due to DDI, after 5 days TDM of DTG was performed, and an adequate therapeutic level of 1511 ng/ml was found (Ruel TD 2022). Follow-up blood test didn't show any alteration. The patient was discharged 1 week later with mild residual abdominal pain, mild CRP elevation. Two months later HIV-RNA is <20 cp/ml, CD4+ 253 cell/µl, she assumes all therapy reporting no particular side effects. Blood culture for MTB were negative.
Conclusions: Long term CAB/RPV-LA interactions must be taken in account. TDM is an useful option in managing cART in patients with comorbidities, especially when CAB/RPV-LA need to be discontinued. This case enhance the indication of screening all PLWH for latent TB infection especially before starting CAB/RPV-LA.

HIV coinfections and comorbidities

P 87 BULEVIRTIDE: TREATMENT IN PEOPLE LIVING WITH HIV

L. Pagnucco, R. Gulminetti, R. Bruno

S.C Malattie Infettive 1, Dipartimento Medico, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy

Background: Chronic hepatitis delta (HDV) remains the most severe and difficult-to-treat viral hepatitis, characterized by rapid progression into liver cirrhosis and dismal prognosis in most patients; people living with HIV (PLWH) are at higher risk of developing cirrhosis and its complication. A recent study on an Italian cohort of PLWH demonstrated a 19% prevalence of anti-HDV with HDV-RNA detected in 55.3% of these patients. Bulevirtide (BLV) is an entry inhibitor approved for the treatment HDV.

Material and methods: We analyzed retrospective data from 3 patients with HIV/HBV/HDV coinfection treated with BLV in Outpatients of Infectious Diseases Clinic of Pavia. Baseline characteristics are collected in Table 1. All patients were on antiretroviral therapy with a regimen effective also against HBV and had both HBV-DNA and HIV-RNA undetectable. BLV was administered at 2 mg per day up to 36 weeks. Treatment safety and tolerability, changes of liver functions parameters, virologic response, biochemical response, HIV-RNA and CD4 count were assessed during treatment.

Results: In all patients ALT declines since wk 4 and were normalized at wk 24.

HDV-RNA slowly decreased in all patients and at week 36 two patients achieved respectively, a 2 and 3 log reduction of HDV-RNA. HIV-RNA remained undetectable and no changes in CD4 counts were observed. No drug interaction with antiretroviral therapy were detected. 1 patient suffered from headache, which then resolved spontaneously, during the first month of therapy. No serious AEs were reported. All patients experienced a reduction in the fatigue they reported before starting treatment.

Conclusions: According to this case series reported BLV appears to be safe, effective and well tolerated in PLWH. An early biochemical response and a slowly decline of HDV-RNA was observed in all patients at week 36. Further data and studies and longer follow-up are needed to clarify the impact of HDV treatment in coinfected patients.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_286.jpg

HIV coinfections and comorbidities

P 88 INFLUENCE OF AIDS-DEFINING EVENTS ON PLWH HOSPITALIZATION: IMPLICATIONS FOR DRGS AND LENGTH OF STAY. A RETROSPECTIVE ADMINISTRATIVE DATA ANALYSIS

G. Cavazza[1,2], N.B. Bana[1,2], F. Peracchi[1,2], E.D. Gennaro[1,2], A. Mulè[3], L. Denti[4], C. Baiguera[1], M.C. Moioli[1], A. Raimondi[1], M. Merli[1], R. Rossotti[1], M. Puoti[1,2]

[1]Department of Infectious Diseases, ASST Grande Ospedale Metropolitano Niguarda, Milan, Italy, [2]Department of Health Science, University of Milano-Bicocca, Milan, Italy, [3]Department of Clinical and Experimental Sciences, Unit of Infectious and Tropical Diseases, University of Brescia and ASST Spedali Civili di Brescia, Brescia, Italy, [4]Unit of Infectious and Tropical Diseases, University of Sassari, Sassari, Italy

Background: Despite effective antiretroviral therapy, HIV infections still have huge impact on hospitalization burden with AIDS-defining illness remaining a primary cause of hospitalization. However, the characteristics of hospitalized individuals living with HIV (PLWH) have evolved, with a rise of haemato-oncologic diseases and challenges of an aging HIV population. This study aims to understand the current landscape of HIV-related hospitalizations focusing on the burden of AIDS on diagnostic-related group (DRGs) and hospital stays duration.
Material and methods: A retrospective analysis was conducted on 318 hospitalized PLWH between January 2017 and February 2024. Demographic data were collected with length of hospital stay, primary diagnoses, comorbidities, and procedures documented using International Classification of Diseases, Ninth Revision (ICD-9) codes listed in discharge letters. Descriptive statistics summarized demographic and clinical characteristics. The Cochran-Armitage test assessed temporal trends in AIDS diagnoses. Poisson regression models analyzed factors associated with higher DRG and longer hospital stays, adjusting for relevant variables.
Results: Most patients were male (78.3%) and admitted to Infectious Diseases (ID) department (40.57%). Leading diagnoses included not AIDS-defining infections (29.3%) and haemato-oncologic diseases (26.1%), followed by AIDS-defining illnesses (24.6%) with a tendency of the opportunistic infections to cluster together, while AIDS-defining cancers were typically diagnosed alone (fig.1). Other co-pathologies, such as neurological, cardiovascular, and diabetic conditions accounted for a smaller proportion of hospitalizations (table 1). Incidence of new AIDS cases remained stable over the time (p=0.751). Factors associated with higher DRG included surgical admission (IRR=1.711, 95% CI 1.705-1.717, p<0.001), AIDS-defining illnesses (IRR=1.048, 95% CI 1.045-1.051 p<0.001) and older age (IRR=1.080 per decade, 95% CI 1.079-1.081 p<0.001), while being hospitalized in a non-surgical department was associated with a lower DRGs. AIDS was strongly associated with a longer hospital stay (IRR=1.582, 95% CI 1.487-1.684, p<0.001), alongside departmental changes (IRR=1.422, 95% CI 1.327-1.523, p<0.001) and having multiple ICD-9 listed diagnosis (IRR=1.333, 95% CI 1.302-1.364, P< 0.001). Certain departments like haemato-oncology (IRR=0.612, 95%CI 0.563-0.665, p<0.001) and surgery (IRR=0.890, 95%CI 0.803-0.987, p=0.027) were associated with shorter stays.
Conclusion: HIV-related hospitalizations continue to strain healthcare systems, mainly due to infectious events or malignancies. AIDS and its comorbidities extend hospital stay and increase DRGs. Conversely, department like haemato-oncology or surgery tend to have shorter stays, likely due to scheduled admission. Tailored care strategies are crucial to adapt to evolving PLWH needs and optimize resource allocation.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_310.jpg

HIV coinfections and comorbidities

P 89 PREVALENCE OF METABOLIC SYNDROME AMONG PLWH ASSUMING NVP CONTAINING REGIMENS AND INSTI BASED DUAL THERAPY

F. Conti[1], L. Bradanini[1], A. Chiesa[1], N. Gemignani[1,2], C. Molteni[1], V. Morena[1], A. Pandolfo[1], S. Volpi[1], S. Pontiggia[1], G. Valsecchi[1], S. Piconi[1]

[1]Malattie Infettive Ospedale Manzoni ASST Lecco, Lecco, Italy, [2]University of Milan, Milan, Italy

Background: Nevirapine (NVP) is a 1st-generation NNRTI no more recommend as first line therapy for PLWH. NVP toxicity is mainly represented by hepatotoxicity and skin reactions occurring in the first 18 weeks of therapy. Despite this,NVP shows an acceptable long term safety profile.
EACS guidelines state that in case of ongoing therapy with a regimen that is no longer a preferred option treatment modification is not mandatory, unless to avoid toxicity or drug-drug interaction, regimen fortification,simplification or cost reduction.While switching from NVP may increase genetic barrier, removing NVP to reduce long term toxicity is more challenging. In fact,NVP shows a favorable lipid profile, no CNS side effects, and is relatively safe in pregnancy. Moreover,generic formulations of NVP are relatively inexpensive.
INSTI dual therapies have been proposed as switch strategy to reduce long-term toxicity,but it is unknown whether they show an advantage over NVP in term of metabolic toxicity.
Methods: We performed a cross-sectional study comparing the prevalence of metabolic syndrome(MS) among PLWH aged >18 on NVP containing regimens and on DTG/3TC or DTG/RPV attending our clinic during 2023. Data were collected from the last available routine visit.MS was defined according to the 2005 diagnostic criteria of the National Cholesterol Education Program Adult Treatment Panel III.
Primary outcome was the prevalence of MS. Non-superior prevalence threshold for MS in the NVP group was set at +10%.
Characteristics across group where compared using chi-square or Wilcoxon rank-sum test as appropriate. Multivariate logistic regression was performed to asses factors associated with MS.
Results: We enrolled 198 subjects, 62 in the NVP group and 136 in the INSTI group. Characteristic across group were similar, except gender,time of therapy and route of transmission.Notably, the NVP group had more women (41,9% vs 20,6%;p=0,0018) and subjects with a longer time of therapy (median 17,5 vs 11 years,p<0,0001).Study population is detailed in table 1.
Overall prevalence of MS was 38,5%. Prevalence of MS in the NVP group was 48,8% (95%CI 28,9-55,9%) and 37,0% (95%CI 28,4-46,4%) the INSTI group, thus not meeting the criteria for non-superiority(figure1). Levels of total and HDL cholesterol were higher in the NVP group (median 204 vs 176 p=0.0004 and 59 vs 46 mg/dl p<0,0001 respectively).
At multivariate analysis only age (OR 1,048 per years, 95%CI 1,003-1,096) and male gender (OR 3,548 per years, 95%CI 1,195-10,532)were associated with MS, while NVP regimen (OR 0,76, 95%CI 0,29-2,01),time of therapy (OR per years 1,04, 95%CI 0,98- 1,11),smoke (OR 2,07, 95%CI 0,90-0,82) and ethnicity(OR for European 0,723, 95%CI 0,17-3,07) were not (figure2).
Conclusions: Despite not being able to demonstrate a non-superior incidence of MS in the NVP group, our study showed a significant correlation of age and sex,but not therapy, with MS. NVP was associated with higher HDL and total cholesterol.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_312.jpg

HIV coinfections and comorbidities

P 90 PLASMA MARKERS OF GASTROINTESTINAL MUCOSAL BARRIER DYSFUNCTION IN PLWH RECEIVING CART

V. Artusa[1], R. Zamarato[1], A. De Nicolò[2], A. D'Avolio[2], L. Benedetti[3], M. Compagno[3], V. Malagnino[3], M. Iannetta[3], L. Duca[4], F. Ceccherini Silberstein[4], M. Biasin[1], D. Trabattoni[1], M.S. Clerici[5,6]

[1]University of Milan, Department of Biomedical and Clinical Sciences, Milan, Italy, [2]University of Turin, Department of Medical Sciences, Turin, Italy, [3]Tor Vergata University, Department of System Medicine, Rome, Italy, [4]Tor Vergata University, Department of Experimental Medicine, Rome, Italy, [5]University of Milan, Department of Pathophysiology and Transplantation, Milan, Italy, [6]IRCCS Don Carlo Gnocchi Foundation, Milan, Italy

Background: Despite effective cART people living with HIV (PLWH) still encounter elevated rates of morbidity and mortality. HIV-1 replication in the gastrointestinal (GI) tract leads to CD4 depletion and epithelial barrier disruption resulting in inflammation. The invasiveness of gut biopsies emphasizes the need for validated non-invasive plasma biomarkers to measure GI damage. We analyzed possible links between structural and immune-related gene expression in colon mucosa with plasma biomarkers indicative of gut dysfunction and microbial translocation in cART treated PLWH.

Material and methods: Colonic mucosal biopsies and plasma from 40 cART responder patients were analyzed. Expression of 14 structural genes (TJP1, TJP2, TJP3, OCLN, CLDN1, CLDN2, CLDN3, CLDN4, CLDN7, CLDN15, MMP3, MMP9, F11R, MYLK) and 14 immune-related genes (MAPK3, STAT3, STAT6, TGF-β1, IFN-γ, IL-1β, IL-6, IL -13, IL-17A, IL-22, TNF, SLPI, β-DEF1, β-DEF2) was assessed by RT-PCR. Plasma biomarkers of intestinal damage (I-FABP, zonulin, OCLN, E-cadherin, REG3α, and TFF3), microbial translocation and systemic inflammation (LPS, LBP, sCD14, and IL-6) were measured by ELISA. Correlation analyses and multiple linear regression models were applied to verify possible associations between colonic and plasmatic markers.

Results: Spearman correlation analysis showed that: 1) plasma OCLN positively correlates with CLDN4 (r=0.362, p=0.022), β-DEF2(r=0.313, p=0.049), IL17A (r=0.425, p=0.006), and STAT3 (r=0.391, p=0.012) expression in biopsies, and with I-FABP (r=0.312, p=0.050), E-cadherin (r=0.902, p<0.001), TFF3 (r=0.347, p=0.028) and IL-6 (r=0.346, p=0.029) detection in plasma; 2) plasma E-cadherin positively correlates with CLDN4 (r=0.431, p=0.006), IL-17A (r=0.390, p=0.013), STAT3 (r=0.515, p=0.001) and STAT6 (r=0.314, p=0.049) expression in biopsies, and with OCLN plasma levels (r=0.902, p<0.001); 3) plasma IL-6 negatively correlates with CLDN3 (r=-0.323, p=0.042), CLDN15 (r=-0.480, p=0.002), F11R (r=-0.373, p=0.018), OCLN(r=-0.333, p=0.036), TJP1 (r=-0.375, p=0.017), and TJP2 (r=-0.330, p=0.038) expression in biopsies while positively correlate with plasmatic OCLN (r=0.346, p=0.029) and TFF3
(r=0.629, p<0.001). Adjusted R square of multiple linear regression models showed a strong linear association between OCLN and E-cadherin (0.991).

Conclusions: Measuring OCLN, E-cadherin and IL-6 in plasma offers an indirect evaluation of gut barrier function. These results could help in developing noninvasive diagnostic strategies to assess GI integrity in virologically suppressed PLWH and might be useful to identify risk biomarkers for non-AIDS comorbidities.

HIV coinfections and comorbidities

P 91 CHARACTERIZATION OF BACTERIAL INFECTIONS IN PEOPLE LIVING WITH HIV FROM JANUARY 2018 TO JANUARY 2023

C. Nonne[1], D.E. Compagnino[1], D. Tomolillo[3], G. Sfara[1], R. Campagna[1], M.G. Leone[1], G. Antonelli[1,2], G. Raponi[2,3], O. Turriziani[1]

[1]Department of Molecular Medicine, Sapienza University of Rome, Rome, Italy, [2]Laboratory for Clinical Microbiology, Sapienza University Hospital "Policlinico Umberto I", Rome, Italy, [3]Department of Public Health and Infectious Diseases, Sapienza University of Rome, Rome, Italy

Background: According to UNAIDS, since the start of the epidemic around 85.6 million people have acquired HIV. Over the ensuing decades, the rate of people living with HIV (PLHIV) rised dramatically, as did the rate of fatalities.
In Italy, a total of 140.000 individuals aged 15 or more of PLHIV were estimated at the end of 2022.
Despite the high incidence of HIV, the effectiveness of antiretroviral therapy (ART) in the past decade has significantly reduced HIV-related morbidity and mortality. However, hospitalization still remains a significant concern among PLHIV.
Material and methods: We conducted a retrospective evaluation of bacterial infections in 2067 PLHIV who were either newly diagnosed with HIV infection, regularly followed up, or hospitalized at the Policlinico Umberto I in Rome, from January 2018 to January 2023.
Bacteria were isolated on standard culture media (BD BBL™, Italy), identification was performed using the Matrix-Assisted Laser Desorption Ionization-Time of Flight (MALDI-TOF) Biotyper (Bruker Daltonics Inc., Germany).
Results: Out of a total of 2067 PLHIV, the following infections were documented: 63 (3%) bloodstream infections (BSI), 46 (2,2%) respiratory infections (RI), and 67 (3,2%) urinary tract infections (UTI). Among these, 33% with BSI, 57% with RI, and 48% with UTI also had HIV viremia detected at the time of infection.
Additionally, 53 swabs from various body sites resulted positive for 14 vaginal tract infections, 20 upper respiratory tract infections, and 19 skin infections. Worthy of mention were 2 Cryptococcal infections, 1 Campylobacter Jejuni infection, 4 Clostridium difficile infections, and 11 infections of the male genital tract.
Furthermore, 11 individuals tested positive for tuberculosis infection. Among them, 9 had detectable HIV viremia and 6 Citomegalovirus (CMV) reactivation at the time of tuberculosis infection.
CMV reactivation was also detected in individuals with BSI (19%), RI (26%), UTI (18%).
Furthermore, it was found that individuals with BSI, RI, and UTI had detectable viremia for Hepatitis C virus (HCV) and Hepatitis B virus (HBV) at the following percentages: 27% for HCV and 30% for HBV (BSI), 19% for HCV and 21% for HBV (RI), and 12% for HCV and 18% for HBV (UTI).
Conclusions: Although immunological data are needed to better define prevalence, types, and patterns of bacterial infections among PLHIV, these data show that despite the success of ART, hospitalization and severe infections remain a concern among PLHIV. This type of analysis can help understand the burden of bacterial infections in this population, identify any trends or changes over time, and define strategies for prevention, diagnosis, and management.

HIV coinfections and comorbidities

P 92 SEVERE NEUROLOGICAL MANIFESTATIONS AND MEDICATION CHALLENGES IN AN ELDERLY FEMALE CANCER PATIENT: A MISSED OPPORTUNITY

L. Bresciani[1], S. Di Bari[1], V. Filippi[2], A. Pennica[1], A. Cascianelli[3], C. Pasquazzi[2], D. Bello[1], G. Kelmendi[1], F. Talamoni[1], S. Figliomeni[1], C. Torre[1], L. Fionda[4], R. Reine[4], M. Salvetti[3], G. Fiorentino[1], M. Lichtner[1]

[1]U.O.C Malattie infettive, Azienda ospedaliero-universitaria Sant'Andrea- Università La Sapienza – Roma, [2]U.O.C Malattie infettive, Azienda ospedaliero-universitaria Sant'Andrea- Roma, [3]U.O.C Neurologia, Azienda ospedaliero-universitaria Sant'Andrea- Università La Sapienza – Roma, [4]U.O.C Malattie infettive, Azienda ospedaliero – Roma

Background: Since the introduction HAART there has been a significant decrease in the incidence of HIV-associated neurocognitive disorders (HAND)[1]. This decline may have led to a decreased consideration HNCI in the differential diagnosis of neurological syndromes resulting in unfavorable outcomes for patients.
Case Presentation: Our case involves a 65-year old female, who, whilst undergoing chemotherapy for a breast tumor, developed prolonged fever and psychomotor slowing. Subsequentially, attention memory deficits and apathy appeared, followed by motor decline, over the course of several months. The subacute cognitive impairment (consistent with subcortical involvement) gait disturbance, and urinary incontinence, resembled the Hakim-Adams' triad. However, within a few weeks, the patient developed severe encephalopathy, with stupor and muteness that progressed to catatonia associated with myoclonic jerks of the upper and lower limbs. MRI images, showing signs of trans-ependymal edema and bilateral hyperintensities in the temporo-polar areas (image a), were compatible with communicating hydrocephalus. CSF analysis showed mononuclear pleocytosis with normal protein and glucose.
An ID consult was requested and HIV infection was found. Plasma analysis revealed an HIV viremia of 150000 copies/ml with nadir CD4 count of 28 cells/mm^3. A second CSF testing identified: HIV RNA at 9040 copies/ml, CMV DNA at 347 copies/ml. A high CMV plasma replication was also found (931000 copies/ml). Equipped with this data, the possibility of HIV-associated CMV encephalitis manifesting as ventriculoencephalitis and hydrocephalus[2] was finally considered. Clearly HIV diagnosis occurred late, at 5 months from symptom onset, with the disease having progressed to stage C3.
At diagnosis, antiviral treatment was started with ganciclovir and bictegravir/emtricitabine/tenofovir alafenamide. Given the catatonic state and unavailability of liquid HAART, Biktarvy (50mg/200mg/25mg) was crushed and administered via nasal gastric tube, raising concern for possible reduced drug absorbance. INSTI therapeutic drug monitoring was therefore carried out at day 20 of therapy (at 14hrs from the last administration) revealing a bictegravir plasma concentration of 1902 ng/ml. According to in vitro experiments revealing minimum effective concentrations this value is well within effective range[3]. Indeed the patient rapidly showed virological improvement: at 25 days of therapy, CSF analysis revealed a 1-log reduction in CMV DNA and a 6-fold reduction in HIV RNA with similar decreases in plasma viremia. Unfortunately, the patient died of a probable cardiac complications at day 27 of observation.
Conclusions: Our case underscores the necessity of enhancing HIV awareness in fields like neurology and oncology. Addressing issues such as identifying HANDs, optimizing treatment strategies for HIV and its opportunistic infections, and managing patient non-compliance are crucial.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_369.png

HIV coinfections and comorbidities

P 93 EXPERIENCE OF COLLABORATION BETWEEN A PLWH CLINIC AND A CLINICAL NUTRITION CENTRE AT A HOSPITAL IN THE NORTH-EAST OF ITALY

G. Battagin[1], S. Nicolè[1], F. Rigo[1], S. Milan[2], G. Giaretta[2], P. Pavan[2], V. Manfrin[1]

[1]UOC Malattie Infettive, AULSS8 "Berica"Vicenza, Italia, [2]Servizio Igiene degli Alimenti e della Nutrizione, AULSS8 "Berica" Vicenza, Italia

Background: Nowadays, weight gain and obesity among people living with HIV (PLWH) are serious problems that often occur after initiation of antiretroviral therapy (ARVt) and they have been associated in particular with the use of integrase inhibitors (INSTIs). Recent studies support the fact that weight gain is also related to patients' lifestyle and the general trend of world population.

Materials and Methods: This abstract shows our experience with the Nutrition service of our Hospital in the North-East of Italy. We perform an observational study, selecting patients during routine visits depending on BMI (Body Mass Index) and patient's interest in being involved. Virological inclusion criteria were having an HIV-RNA <20 copies/ml for 6 months or longer and were on stable ARVt. We included in the analysis only patients who completed at least one year of nutritional follow-up. At each nutritional visit the following anthropometric data were collected: body circumferences (WC), body weight, BMI and the execution of BIA (bioelectrical impedance analysis) for estimating body composition (fat mass, fat free mass and visceral fat). The nutritionist and the dietitian set the target weight to be achieved and select the most suitable dietary intervention.

Results: From December 2022 to today, we have sent 26 patients for nutrition visits, of which 15 patients should have completed 1 year of follow-up. We collected data from these 15 patients (table 1). The average BMI was 32 kg/m² (1st degree obesity) at the first visit. Four of these patients were lost at follow-up. The remaining 11 patients can be divided into 3 groups based on the results achieved. The first subgroup (table 2): 3 of 11 people achieved the target set at the first visit. These patients have improved BMI, waist circumference (WC) and visceral fat reducing cardiovascular risk. The average decrease in weight is 17,5% of basal body weight. Second subgroup (table3): 6 of the 11 patients didn't achieve the target set at the first visit, but reduced BMI. All of these patients reduced WC and 50% of them moved from high to increased cardiovascular risk. All of these patients reduced visceral fat volume. Third subgroup: 2 of the 15 patients didn't change BMI's values.

Conclusions: Obesity and in particular the increase in visceral fat negatively influence insulin resistance and contribute to the increase in cardiovascular risk in patients with HIV infection. Collaboration between infectious disease specialists and the nutrition service can help to reduce the impact of these factors. These preliminary results, even if they have no statistical value, are encouraging to continue with this project because and to be an inspiration for other realities to consider starting similar projects.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_375.JPG

HIV coinfections and comorbidities

P 94 NK CELL PROFILE IN THE ANAL MUCOSA OF MSM LIVING WITH HIV: RESULTS FROM A SINGLE CENTER CLINICAL TRIAL

L. Santinelli[1], L. Maddaloni[1], G. Bugani[1], F. Romano[1], I. El Abboubi[1], M. Fracella[1], A. D'Auria[1], E. N. Cavallari[1], G. Ceccarelli[1], A. Pierangeli[1], C.M. Mastroianni[1], C. Scagnolari[1], G. d'Ettorre[1]

[1]Department of Public Health and Infectious Diseases, Sapienza University of Rome, Italy, [2]Laboratory of Virology, Department of Molecular Medicine, affiliated to Istituto Pasteur Italia, Sapienza University, Rome, Italy

Background: Like all oncogenic viruses, HPV has developed multiple evasion strategies to subvert control of the immune response, with long-term HPV persistence causing low-grade squamous intraepithelial lesions that may progress to dysplasia, carcinoma in situ and ultimately invasive carcinoma. Although the impairment of NK cell activity during HPV infection in women is well documented, there is a paucity of data on the profile of NK cells in anal HPV-infected tissues in the context of HIV-HPV co-infection in men who have sex with men (MSM).
Material and Methods: 52 successfully ART treated MSM living with HIV (MSMLWH) were enrolled. Participants underwent anal HPV test and high resolution anoscopy (HRA) to collect biopsies close to anal mucosal areas defined as normal (Healthy mucosa-HM) or dysplastic (LSIL) based on the histological examination. The frequencies of total CD56+CD16+, CD56bright CD16+, CD56dim CD16+ NK cells and NKT were evaluated on the anal biopsies by multiparametric flow cytometry.
Results: Differences in the frequencies of CD56bright CD16+ (p=0.009), CD56dim CD16+ (p=0.004) NK cells and NKT (p=0.01) were observed in the LSIL of HPV positive (43/52, 82.7%) compared to HPV negative subjects (9/52). Moreover, HPV infected MSMLWH had higher percentages of CD56brightCD16+ (p=0.002) NK cells and NKT (p<0.01) in healthy mucosa than in HPV negative subjects; by contrast the distribution of CD56dim CD16+ NK cells in healthy mucosa differed between HPV positive compared to HPV negative MSMLWH (p=0.006). Flow cytometry analysis showed also that the frequencies of CD56dim CD16+ NK cells were impaired in LSIL of HPV positive MSMLWH as compared to those found in the healthy mucosa (p=0.007); However, no difference between HM and LSIL were found regarding Total, CD56bright CD16+ NK and NKT among HPV positive MSMLWH (p>0.05). Considering the carcinogenic potential of HPV genotypes, the frequencies of total CD56+CD16+ NK cells were reduced in MSMLWH with infection with an IARC Group 1 genotype (40%), considered HR, compared to those with an IARC Group 3 HPV (low risk, p=0.005). Moreover, the distribution of CD56dim CD16+NK cells (p=0.04) and NKT (p=0.02) in the LSIL of MSMLWH with IARC Group 1 HPV genotype differed from those of IARC Group 3. By contrast, no differences were found in the distribution of total CD56+CD16+, CD56bright CD16+, CD56dim CD16+ NK cells and NKT cells in the healthy mucosa between MSMLWH positive for IARC Group 1 and patients with IARC Group 3 HPV genotypes (p>0.05).
Conclusions: These results emphasize the importance of mucosal NK-mediated innate immune effector responses during HPV-HIV co-infection, and suggest that the impairment of NK cell frequencies may contribute significantly to the progression of HPV-related anal lesions in MSMLWH.

HIV coinfections and comorbidities

P 95 PREVALENCE AND CORRELATES OF HEPATIC STEATOSIS AND METABOLIC-ASSOCIATED FATTY LIVER DISEASE IN A COHORT OF PEOPLE LIVING WITH HIV

F. Panza[1,2], M. Crispo[1,2], D. Romano[1], M. Sambo[1,2], A. Bailoni[1,2], M. Barsotti[1], F. Pippi[2], M. Trezzi[2], F. Montagnani[1,2], M. Tumbarello[1,2], M. Fabbiani[1,2]

[1]Department of Medical Biotechnologies, University of Siena, Siena, Italy, [2]Infectious and Tropical Diseases Unit, Siena University Hospital, Siena, Italy

Background: Fat accumulation in the liver is increasingly being recognised in people living with HIV (PLWH), potentially due to a combination of traditional risk factors and HIV- or antiretroviral therapy-related variables. Therefore, the prevalence and correlates of Hepatic Steatosis (HS) and Metabolic-associated Fatty Liver Disease (MAFLD) need to be adequately investigated in PLWH.

Methods: A prospective single-center cross-sectional study was conducted, consecutively enrolling PLWH during routine visits at the University Hospital of Siena. Exclusion criteria were: age <18 years, active viral hepatitis, pregnancy, hazardous alcohol intake. Patients underwent transient elastography to measure HS by controlled attenuation parameter (CAP) and liver fibrosis by liver stiffness. MAFLD was defined according to literature criteria. Lifestyle habits were investigated by a structured questionnaire. Clinical and laboratory variables were retrieved through medical record review. Variables associated with CAP were explored by linear regression analysis, while those associated with MAFLD were investigated by logistic regression.

Results: Overall, 119 PLWH were included (24.4% females, median age 55 years, 86.6% with HIV-RNA<50copies/mL, median CD4 761 cells/mmc) (see Table 1 for main characteristics). Main comorbidities were: hypertension (31.9%), previous cancer (15.9%), chronic kidney disease (14.3%), peripheral vascular disease (11.8%) and diabetes (10.9%). Median BMI was 25.6 Kg/m2. Overall, advanced S2 and severe S3 steatosis were observed in 24 (20.2%) and 40 (33.6%) PLWH, respectively. Of these patients, 59 (92.2% of S2-S3 and 49.6% on the total population) met criteria for MAFLD. Significant liver fibrosis (F2-F4) was observed in 23 (19.3%) PLWH. After adjustment for several confounding factors, only BMI was found to be associated with CAP (mean change +6.2 dB/m for +1 Kg/m2, 95% CI 3.7-8.7, p<0.001). Regular physical activity was independently associated with reduced risk of MAFLD (aOR 0.32, 95% CI 0.12-0.87, p=0.026). HIV- and ART-related variables did not show any association with CAP or MAFLD. Both S2-S3 steatosis (OR 3.91, 95% CI 1.34-11.39, p=0.012) and MAFLD (OR 3.64, 95% CI 1.32 -10.05, p=0.012) were found to be associated with higher risk of significant liver fibrosis (F2-F4).

Conclusions: HS and MAFLD show a high prevalence in PLWH. BMI and lifestyle factors were strongly associated with HS and MAFLD, whereas a role of HIV- and ART-related variables was not demonstrated in this cross-sectional analysis. Given the association between HS/MAFLD and significant liver fibrosis, these metabolic conditions should be adequately approached in PLWH to avoid progression to advanced liver disease.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_392.jpg

HIV coinfections and comorbidities

P 96 CNS-ASSOCIATED VZV VASCULOPATHY IN A YOUNG WOMAN LIVING WITH HIV

V.M. Vitaletti[1], F. Bai[1], R. Castoldi[1], E. Zaninetta[1], G. Giannetta[1], T. Beringheli[1], A. Copes[1], A. Dusina[1], M. Chiamenti[1], K. Khouri Chalouhi[2], L. Gazzola[1], G.C. Marchetti[1]

[1]Infectious Diseases Department, San Paolo Hospital, University of Milan - Milan, Italy, [2]Neuroradiology Department, San Paolo Hospital, University of Milan - Milan, Italy

Background: CNS-associated vasculopathy is a rare complication of VZV characterized by risk of cerebral stroke and hemorrhage; most cases are diagnosed in immunocompromised patients. To date, few cases describing VZV-induced vasculitis have been published and the optimal treatment strategy is not yet standardized.
Case description: A 31-year-old woman, with a history of childhood HIV-infection and poor adherence to antiretroviral therapy developed thoracic Herpes Zoster (August 2023: HIV-RNA 1000 copies/mL; CD4+ cells 280/mmc). In September 2023 she presented to our Emergency Department with headache and fever. Examination revealed resolving thoracic VZV and negative brain-CT, leading to patient discharge. Two days later, she returned with a right brachio-crural sensory-motor hemisyndrome. Brain imaging showed left thalamic ischemia. Brain-MRI confirmed the known lesion and revealed an additional lacunar ischemic lesion in the right paramedian pontine region, along with signs of leptomeningitis (Figure 1). A lumbar puncture showed WBC count of 166/μL and CSF VZV positive PCR. Intravenous acyclovir was initiated. Due to persistent severe headache, a second brain-CT excluded hemorrhagic lesions. Giving the ongoing headache and neck stiffness, a brain-MRI was repeated and revealed multiple nodules compatible with newly onset mycotic aneurysms and hyperintensity in bilateral hemispheric sulci. A brain-CT confirmed a subarachnoid hemorrhage. Cerebral angiography showed more than 20 aneurysms affecting most intracranial arteries (Figure 2). A larger right-sided aneurysm was identified as the cause of the subarachnoid hemorrhage and endovascular embolization was performed. The patient began intravenous methylprednisolone 500 mg, gradually tapering, while continuing intravenous acyclovir. Steroid and antiviral therapy concluded after 16 days and 1 month, respectively, due to progressive resolution of fever and headache. The patient was transferred to a subacute facility for motor rehabilitation.
Discussion: We here describe a case of CNS-associated VZV vasculopathy with cerebral ischemia, hemorrhage and several mycotic aneurisms in a woman living with HIV and low CD4+ counts. Early suspicion of VZV vasculopathy and a multidisciplinary approach in patients diagnosed with cerebral ischemia and recent history of VZV are crucial; a brief course of steroids in association with antiviral therapy, reducing the inflammatory response to VZV, seems associated with clinical benefit.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_402.jpg

HIV coinfections and comorbidities

P 97 EXPLORING CARDIOVASCULAR RISK IN PEOPLE WITH HIV: THE CRITICAL ROLE OF INTIMA-MEDIA THICKNESS

M.S. Paternò Raddusa[2], B.M. Celesia[1], A. Marino[1], B. Cacopardo[1], C. Giarratana[2], S. Spampinato[2], A. Montineri[3], M.C. Frasca[3], C. Coco[3], G. Madeddu[4,5], A. De Vito[4,5], G. Nunnari[1]

[1]Unit of Infectious Diseases, Department of Clinical and Experimental Medicine, ARNAS Garibaldi Hospital, University of Catania Catania, Italy, [2]Department of Clinical and Experimental Medicine, University of Messina Messina, Italy, [3]Department of Infectious Diseases and Tropical Medicine, AOU Policlinico 'G. Rodolico - San Marco', Catania, Italy, [4]Unit of Infectious Disease, Department of Medicine, Surgery and Pharmacy, University of Sassari, Sassari, Italy, [5]PhD School in Biomedical Science, Biomedical Science Department, University of Sassari, Sassari, Italy

Background: The association between HIV infection and cardiovascular diseases, particularly atherosclerosis, is a significant area of concern. Our study aimed to evaluate the correlation and risk factors between HIV infection and increased intima-media thickness (IMT) and assess differences between unilateral or bilateral localization.
Methods: We performed a cross-sectional study from April 2023 to January 2024. People with HIV (PWH) from ARNAS Garibaldi and San Marco hospitals in Catania (Italy) were screened using doppler ultrasound of the supra-aortic trunks. IMT ≥1 mm was considered pathological. Therefore, patients were distinguished in 2 different groups: A (IMT<1 mm), and B (IMT≥1 mm). Demografic, laboratory and clinical data were collected. We assessed differences using the chi-squared test, Fisher exact test and Mann–Whitney U, as appropriate. A logistic regression model assessed the association between demographical, viro-immunological, clinical characteristics, and IMT≥1mm. The study was conducted in accordance with the declaration of Helsinki and approved by the Provincial Ethics committee of Messina (SHICohorth-protocol code 34/17 of the 22/03/2017, date of approval 22/05/2017)
Results: 197 PWH [155 males (78,7%), median age 53.8 (IQR 44.1-60.6)] were screened. A IMT≥1 was found in 67 (34%) participants [group B: 55 males (82,1%); median age 58.2 years (IQR 52.4-63)].
Age, obesity, hypertension, smoking, and total and LDL cholesterol were higher in group B. Median duration of infection was 9 (IQR 15-19) years in group A and 15 (6-24) in group B, while the median of ART years was 9 years (5 -17) and 12.5 (6-22), respectively (Table 1). In both univariate and multivariate logistic regression models, age (p <0.0001), smoking (p 0.017), total cholesterol (p 0.03), serum LDL (p 0.045), were associated with IMT ≥1 mm (Table 2). In multivariate analyses, years of infection, hypertension, diabetes and obesity were not significantly associated with IMT ≥ 1 mm. In group B, years of infection is significantly associated with an IMT ≥1 mm bilaterally in both univariate (OR: 1.07, 95%CI: 1.02-1.14) and multivariate logistic regression adjusted for age (aOR = 1.01, 95% CI: 1.01-1.14), maintaining a p-value < 0.05 (p 0.016) (Table 3).
Conclusion: Our study highlights the significance of traditional cardiovascular risk factors such as age, smoking, and lipid profile in PLWH, showing their association with IMT≥1 mm. Notably, while certain factors like years of infection and comorbidities did not directly correlate with IMT, a sub-analysis revealed a potential link between longer infection duration and bilateral IMT ≥1 mm. These findings underscore the importance of early screening and targeted intervention for cardiovascular health in PLWH. Further research is needed to explore the underlying mechanisms and tailor preventive strategies for this population.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_414.jpg

HIV coinfections and comorbidities

P 98 PERIAORTIC BCGITE IN HIV

L. Abbate[1], T. Tibidò[1], M. Casarini[1], D. Marzolla[1], G. Martelli[2], A. Rubin[2], E. Magistrelli[2], G. La Martire[2], F. Cristini[2]

[1]Alma Mater Studiorum University of Bologna, Infectious Disease Department, S. Orsola-Malpighi hospital, Italy, [2]Azienda USL di Forlì, Infectious Disease Department, Italy

Infection with Bacillus Calmette-Guérin (BCG) is a rare complication of intravescical administration of BCG, applied as treatment for non-muscle invasive bladder cancer. BCG-itis normally involves most frequently kidneys (50 % of the cases), disseminated disease (30%), other organs (10 %).
We describe a case of BCG-itis in a HIV patient affected by high-grade papillary urothelial cell carcinoma.
A 70 year old man, with a history of HIV known since 2010, on ART with lamivudine and dolutegravir with optimal immunological status (CD4 count was 689 cell/mm^3, 20% in January 2024) and steady viral suppression. He was previously treated for pulmonary TB with a positive outcome. After being diagnosed with bladder cancer in 2021 (non invasive papillary high grade urothelial carcinoma), he underwent a cycle of 23 bladder instillations of BCG, completed in September 2023.
Since August 2023, he complained of remittent fever non responsive to broad spectrum antibiotics. Due to onset of abdominal pain, the patient was admitted in Infectious Diseases ward of Forlì Hospital (Emilia Romagna).
An abdomen CT scan detected a periaortic lesion, at the level of the second lumbar vertebra. Acid fast bacilli (AFB) urine microscopy and Xpert MTB/RIF Ultra of urine were both negative.
A diagnostic laparoscopy took place showing the presence of colliquated lymph nodes: performed standard culture and AFB were negative, but Xpert MTB/RIF Ultra turned out positive detecting a rifampin-sensitve strain. Furthermore, a next generation sequencing (NGS) also confirmed the presence of Mycobacterium tubercolosis complex. Antitubercular treatment with rifampin, isoniazid and ethambutol was promptly started. Pyrazinamide was avoided, given the high suspicion of Mycobacterium bovis strain (mycobacteria culture was still pending). In a few days the patient showed clinical response to fever and abdominal pain. Dolutegravir dosage was doubled due to know interactions with rifampin. The patient is currently follow up in outpatient clinic with no complains and good tolerance of the treatment. The treatment is meant to be continued for 9 months.
Aorta and in general vessels are very rarely described as sites of BCG-itis. Chronic fever after an history of BCG instillations must alert clinicians about mycobacteria infections, even when diagnosis is not immediately straightforward.
It is hard to say if HIV infection played a role in our case, since immunological status was very good.
The case highlights the relevance of a target diagnostic surgery, that together with new microbiological rapid amplification techniques allowed a fast and prompt diagnosis.

HIV coinfections and comorbidities

P 99 POOR SLEEP QUALITY IN PEOPLE LIVING WITH HIV

L. Pagnucco, R. Gulminetti, A. Tavano, R. Bruno

S.C Malattie Infettive 1, Dipartimento Medico, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy

Background: Sleep disorders can affect quality of life, physical and social functioning and can also cause chronic fatigue; PLWH seem vulnerable to various degrees of sleep problems. The purpose of the present study was to evaluate sleep quality and its related psychological and physiological factors in PLWH on antiretroviral therapy.
Methods: A cross sectional study was done. The Pittsburg Sleep Quality Index (PSQI), a 19-item self-rated scale which assesses sleep quality and disturbances over a 1-month time interval, assessing seven sleep components: sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of hypnotics, and daytime dysfunction during the last month, was administered to 203 outpatients on antiretroviral therapy, followed by Division of Infectious Diseases of Pavia.
Results: Based on the sleep quality assessment, 59.2 % of the patients had PSQI > 5 that was defined as sleep disturbances, among them 42 had a PSQI >10 defining very poor sleep quality. Before taking the questionnaire, 20% of patients with PSQI >5 reported having a good quality of sleep. 72 pts were males and 48 females with the mean age of 53.9. The most common routes of HIV transmission were injection drug use (51.1 %) and sexual contacts (48.9 %). The participants had been under ARV treatment for an average of 6.3 years, most were on treatment with INSTI; all regimens are summarized in figure 1. Only 17 patients reported taking hypnotics.
Conclusions: This study showed that people living with HIV suffer from sleep disorders at least as same as the general population and surprisingly most patient are unaware of suffering from sleep disorders. Sleep disorders should be investigated in all PLWH since timely treatment could improve patients' quality of life.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_456.jpg

HIV coinfections and comorbidities

P 100 EPICARDIAL ADIPOSE TISSUE IS INCREASED IN HIV INFECTED ADOLESCENT AND YOUNG ADULTS

M. Stracuzzi[1], F. Musto[1], C. Coppola[1], A. Marceca[2], G. Zuccotti[3], A. Barosi[2], V. Giacomet[1]

[1]Paediatric Infectious Disease Unit, Luigi Sacco Hospital, Università degli Studi di Milano, Milan, Italy, [2]Luigi Sacco Hospital, Cardiology Unit, Milan, Italy, [3]Department of Pediatrics, Vittore Buzzi Hospital, Università degli Studi di Milano, Milan, Italy

Background: The association between antiretroviral therapies in HIV positive subjects and the cardiovascular risk is already known in literature. To date, there are few studies investigating this association in adolescents and young adults with vertically transmitted HIV; it appears to be urgent to stratify as earlier as possibile cardiovascular risk in these patients.
Methods: In our study we enrolled 20 (mean 20 years, 10 male) vertically transmitted HIV patients aged at least 14 years with good immunovirological control. They underwent echocardiography with the evaluation of the following parameters: biventricular systolic function (LVEF, RVEF); biventricular global longitudinal strain (LVGLS, RVGLS); left ventricular diastolic function (E / A-MV, E / e ', TR, BSA); epicardial adipose tissue (EAT). The cohort thus identified was compared with a cohort of HIV-negative healthy controls matched for age and sex.
Results: Comparing HIV infected cohort to healthy controls, no statistically significant differences emerged except for the EAT, which appears to be greater in the HIV infected cohort, although the values detected are within normal limits. Using Sperman's linear correlation statistical function we evaluated whether the parameters of BMI, age and gender were related to EAT: no correlation was identified.
Conclusions: Our study revealed an increased thickness of EAT in the HIV infected cohort, while remaining within the normal range. Further data are needed to support these preliminary data.

Immunopathogenesis

P 101 AUTO-ANTIBODIES NEUTRALIZING TYPE I AND III IFNS IN PATIENTS WITH WNV INFECTION

F. Frasca[1,2], A. D'Auria[1], M. Fracella[1], M. Compri[3], E. Diani[4], G. Bugani[2], L. Maddaloni[2], E. Coratti[1], G. d'Ettorre[2], G. Antonelli[1,5], D. Gibellini[3,4], C. Scagnolari[1]

[1]Virology Laboratory, Department of Molecular Medicine, Sapienza University, Rome, Italy, [2]Department of Public Health and Infectious Diseases, Sapienza University, Rome, Italy, [3]Unit of Microbiology, AOUI Verona, Verona, Italy, [4]Department of Diagnostic and Public Health, Microbiology Section, University of Verona, Verona, Italy, [5]Microbiology and Virology Unit, Sapienza University Hospital "Policlinico Umberto I", Rome, Italy

Background: Mosquito-borne West Nile virus (WNV) infection represents a leading cause of neuroinvasive diseases in humans. While older age is the strongest known predictor of severe WNV infection, the role of antiviral immune determinants remains still elusive. Emerging evidence has described that circulating auto-antibodies neutralizing type I Interferon (IFN-I), a sort of autoimmunity, can underlie life-threatening COVID-19. Therefore, we aimed to evaluate the presence of autoantibodies in critically ill WNV patients by investigating the serum prevalence of auto-antibodies direct to a cytoplasmic sensor of WNV RNA, melanoma differentiation antigen 5 (MDA-5), as well as binding (BAB) and neutralizing (NAB) antibodies to type I and III IFNs. The relationship between anti-IFN NAB and IFN signature was also characterized.

Materials and Methods: Serum samples collected from WNV positive patients (n=35) were examined in our study. The analysis of anti IFN-alpha BAB as well as the quantitative detection of anti-MDA5 auto-antibodies was performed using ELISA assays. Investigation of anti IFN-I (IFN-alpha, IFN-beta, IFN-omega, and IFN-epsilon) and anti IFN-III (IFN-lambda 1-3) NABs were performed by a bioassay based on IFN-induced inhibition of encephalomyocarditis virus (EMCV) cytopathic effect on human lung carcinoma epithelial cells (A549). Transcript levels of IFN-stimulated gene 56 (ISG56) were analyzed through RT/Real Time PCR.

Results: Anti IFN-alpha BAB were found in 10 out of 35 WNV patients (28.6%). Among BAB positive patients, 9 WNV infected individuals (90%) had heterogenous levels of anti IFN-alpha2 NAB. All serum samples positive to anti IFN-alpha2 NAB showed cross reactivity to IFN-omega. A positive correlation was found between the levels of anti-IFN BAB and anti IFN-alpha2 NAB (p=0.0019; r=0.8768) as well as between anti IFN-alpha2 and anti IFN-omega NAB titers (p=0.050; r=0.660). In a subgroup of anti IFN-I NAB positive WNV patients (n=6), we found that the levels of anti IFN-alpha2 NAB titers negatively correlated with ISG56 gene expression (p=0.0167; r=-0.9411). Anti IFN-I NAB were associated with neuroinvasive disease (85.71%) rather febrile illness symptoms (14.28%) (p=0.0325). The only patient with febrile illness symptoms had NAB against IFN-lambda1-3 but not to IFN-lambda2. None of the WNV patients had anti IFN-beta/-epsilon NAB and auto-antibodies against MDA5.

Conclusions: Our findings demonstrate that NAB positivity to type I/III IFNs but not autoantibodies to MDA5 distinguishes WNV patients and suggest that the development of anti-IFNs NAB might imply in a dysregulation of IFN downstream signaling pathways leading to severe WNV infection.

Immunopathogenesis

P 102 HIV ACQUISITION AT BIRTH DOES NOT DRIVE T-CELL DYSFUNCTION IN HEAVILY TREATMENT EXPERIENCED (HTE): DATA FROM THE PRESTIGIO REGISTRY

V. Bono[1], C. Tincati[1], V. Spagnuolo[2], L. Galli[2], A. di Biagio[3], M. Augello[1], R. Rovito[1], E. Garlassi[4], M.C. Moioli[5], E. Focà[6], A. Castagna[2], G. Marchetti[1]

[1]Clinica di Malattie Infettive, San Paolo Hospital, University of Milan, Milan, Italy, [2]Infectious Diseases, IRCCS San Raffaele Scientific Institute, Milan, Italy, [3]Department of Infectious Disease, IRCCS AOU San Martino IST, (DISSAL), University of Genoa, Italy, [4]Malattie Infettive Arcispedale S. Maria Nuova-IRCSS, Reggio Emilia, Italy, [5]Department of Infectious Diseases, ASST Grande Ospedale Metropolitano Niguarda, Milan, Italy, [6]Division of Infectious and Tropical Diseases, ASST Spedali Civili Hospital, University of Brescia, Brescia, Italy

Introduction: Individuals with HIV vertical transmission (VT) are exposed to both HIV and combination antiretroviral therapy (cART) from young age. In this setting, suboptimal adherence to cART may lead to viral failure and therapeutic burden (HTE, Heavily Treatment Experienced individuals), which drive immune impairment. Indeed, unfavourable clinical and viro-immunologic outcomes have also been described in HTE without VT. Whether HTE with VT feature disrupted T-cell homeostasis is unknown. We therefore investigated T-cell dysfunction in HTE with and without VT, also according to viral load (VL).

Methods: HTE VT and matched HTE no-VT from the Prestigio Registry were enrolled and classified according to undetectable (VL<50 cp/mL) or detectable viremia (VL>200 cp/mL). We measured senescence (CD57), activation (HLA-DR/CD38) and exhaustion (PD-1/TIGIT) in CD4/CD8 T-cells by flow cytometry. Age/sex-matched HIV- individuals were enrolled as controls. Kruskal-Wallis and Mann-Whitney test were used for statistics.

Results: We evaluated 16 VT and 16 no-VT HIV individuals. In each group, 50% were viremic and 50% were aviremic . VT were younger than no-VT (31yrs, IQR 27-33 vs 56, IQR 54-59; p<0.0001), yet duration of HIV infection was comparable in the two groups (31yrs, IQR 27-33 vs 30yrs, IQR 25-32; p=0.7).

VT and no-VT HTE showed similar senescent, activated and exhausted T-cells. Interestingly, compared to HIV- controls, both VT and no-VT displayed higher: i) activated CD8+HLA-DR+CD38+ (HIV-: 0.4%, IQR 0.2-0.9; VT: 1.9%, IQR 1.1-8.5; p=0.001; no-VT: 1.7%, IQR 1.3-4.8; p=0.001, Fig.1A); ii) exhausted PD-1+TIGIT+ CD4+ (HIV-: 0.5%, IQR 0.3-0.9; VT: 2.4%, IQR 0.7-4.7; p=0.009; no-VT: 1.4%, IQR 0.9-2; p=0.02, Fig.1B) and CD8+ (HIV-: 0.3%, IQR 0.1-0.5; VT: 1.1%, IQR=0.4-3.4; p=0.02; no-VT: 1%, IQR 0.7-3; p=0.01, Fig.1C). In contrast, senescent CD57 +CD4+ were increased only in no-VT compared to controls (7.8%, IQR 5.4-15.4 vs 3.4%, IQR 2.6-7.9, p=0.03, Fig.1D).

When stratifying by viremia, these differences were retained in the viremic VT and no-VT groups, whereas no differences were registered in their aviremic counterparts, except for activated (1.6%, IQR 0.9-1.7 vs 0.4%, IQR 0.2 -0.9, p=0.003, Fig.1E) and exhausted (1% IQR 0.7-1.2 vs 0.3%, IQR 0.1-0.5, p=0.04, Fig.1F) CD8 T-cells which were consistently higher in no-VTs than in HIV-.

Conclusions: Irrespective of HIV transmission mode, compared to HIV-, HTE show greater T-cell senescence, activation and exhaustion which appear to be driven by uncontrolled viremia. Despite no differences according to transmission modality, our findings of higher CD8+HLA-DR+CD38+ and CD8+PD-1+TIGIT+ in no-VT with suppressed viral load compared to HIV-, point to greater immunological dysfunction in HTE without vertical transmission, that might possibly reflect their older age. The link(s) between age-related immunesenescence, HIV mode of infection and persistent viral replication in the pathogenesis of HTE merits further studies.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_279.jpg

Immunopathogenesis

P 103 MULTIDRUG RESISTANCE IS ASSOCIATED WITH DIFFERENT GENE METHYLATION IN PEOPLE WITH HIV: A MATCHED COHORT STUDY WITH DATA FROM THE PRESTIGIO REGISTRY

T. Clemente[1,2], G.M. Scotti[3], E. Guidi[3], A. Cervo[4], S. Rusconi[5,6], G.C. Marchetti[7], S. Diotallevi[2], S. Bagaglio[2], R. Lolatto[2], M. Tavio[8], C. Torti[9], B.M. Celesia[10], A. Castagna[1,2], V. Spagnuolo[2], on the behalf of the PRESTIGIO Study Group

[1]Vita-Salute San Raffaele University, Milan, Italy, [2]Infectious Diseases, IRCCS San Raffaele Scientific Institute, Milan, Italy, [3]Center for Omics Sciences, IRCCS Ospedale San Raffaele, Milan, Italy, [4]Infectious Diseases Unit, Policlinico di Modena, Modena, Italy, [5]Infectious Diseases Unit, ASST Ovest Milanese, Legnano General Hospital, Legnano, Italy, [6]DIBIC, University of Milan, Milan, Italy, [7]Clinic of Infectious Diseases, Department of Health Sciences, San Paolo Hospital, ASST Santi Paolo e Carlo, University of Milan, Milan, Italy, [8]Infective Diseases, AOU Ospedali Riuniti, Ancona, Italy, [9]Unit of Infectious and Tropical Diseases, University Magna Graecia, Catanzaro, Italy, [10]Unit of Infectious Diseases, Garibaldi Hospital, Catania, Italy

Background: DNA methylation (DNAm) predicts disease progression, frailty, and mortality in people with HIV (PWH). No data on this topic are available in PWH with 4-class drug resistance (4DR), characterized by a high burden of disease. Our aim was to investigate DNAm in PWH-4DR, as compared to PWH without drug resistance (no-DR).

Methods: Cross-sectional, propensity-score-matched cohort study on PWH on antiretroviral treatment (ART), with viral load (VL) <200 copies/mL, classified as: i) 4DR (defined as documented resistance to NRTIs, NNRTIs, PIs, and INSTIs) from the PRESTIGIO Registry (n=27); ii) no-DR (n=27). Groups matched by age (±1.5 years) and sex.

Genome-wide methylation patterns were determined by reduced representation bisulfite sequencing from peripheral blood mononuclear cells. Differential DNAm evaluated on cytosines covered by ≥10 reads in ≥10 PWH for each group: bases with a minimum difference of 25% in medium methylation and a false discovery rate <0.01 were identified as differentially methylated. The number of significant cytosines per chromosomes (chrs) and genes were normalized according to chr and gene length, respectively. Enrichment analysis was performed for genes with ≥10 differentially methylated cytosines in absolute count and ≥0.005% after normalization for gene length.

Results: Overall, 54 individuals evaluated: characteristics reported in Table 1.

Comparing PWH-4DR with PWH-no-DR, there were 27060 differentially methylated cytosines distributed throughout all chrs, with a notable enrichment in chr 19 (Figure 1).

The top 10 hypermethylated genes in PWH-4DR included 5 long non-coding RNAs (lncRNAs), 2 pseudogenes, C19orf13, IDH3B (coding for a subunit of isocitrate dehydrogenase, known to be downregulated in striatal cells of murine models of HIV), and MGAT4B (coding for a glycosyltransferase); the top 10 hypomethylated genes included 4 lncRNAs, 2 microRNAs, 2 pseudogenes, BHLHE22 (coding for a transcription factor involved in neural and retinal development, known to be upregulated in macrophages with integrated HIV proviruses), and B3GALT6 (coding for a galactosyltransferase involved in synthesis of glycosaminoglycans; it is a ligand of VISTA, a novel monocytic checkpoint regulator involved in immune tolerance and increased in HIV infection).

Enrichment analysis of differentially methylated genes highlighted two pathways: ‘estrogen response early’ and ‘serine/threonine kinases’; the last one was confirmed in the analysis with hypomethylated genes only, suggesting a possible upregulation of the genes in the pathway in PWH-4DR.

Conclusions: Even when HIV replication is controlled by ART, multidrug resistance is associated with a different DNAm, a proxy for different gene expression. DNAm might play a role in the high inflammation and disease burden observed in the fragile population with 4DR.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_291.jpg

Immunopathogenesis

P 104 HIV LATENCY IS ASSOCIATED WITH CHANGES IN THE WNT1, B-CATENIN, TGF-B AND BCL-2 SIGNALLING PATHWAYS

L. Maddaloni[1], L. Santinelli[1], G. Bugani[1], M. Fracella[2], F. Frasca[1,2], Z. Michelini[3], M. Andreotti[3], C.M. Mastroianni[1], C. Scagnolari[2], G. d'Ettorre[1]

[1]Department of Public Health and Infectious Diseases, Sapienza University of Rome, Italy, [2]Virology Laboratory, Department of Molecular Medicine, Sapienza University of Rome, Italy, [3]Department of Therapeutic Research and Medicines Evaluation, Istituto Superiore di Sanità, Rome, Italy

Background: Although ART has significantly improved the survival of people living with HIV (PLWH), lifelong treatment remains essential because it does not completely eradicate the infection. HIV persists in resting CD4+ T cells and can reappear when therapy is interrupted. The molecular mechanisms underlying latency are indeed numerous and complex. Recent evidence has highlighted the critical role of CD8 T cells in controlling HIV DNA levels, although data on this aspect remain limited. Of note, Wnt secretion by CD8+ T cells has observed to stimulate the Wnt/β-catenin pathway in CD4+ T cells, which regulates HIV latency by inhibiting its transcription. In addition, TGF-β enhances HIV-specific CD8+ T-cell function, which is negatively correlated with HIV-1 DNA levels. Both pathways affect the regulation of apoptosis, with Wnt/β-catenin inhibiting apoptosis and TGF-β promoting it in the context of HIV latency. We therefore investigated the role of Wnt1, β-catenin, TGF-β pathway and the anti-apoptotic gene BCL-2 in HIV latency by examining their expression levels in both CD4+ and CD8+ T cells.
Material and methods: Peripheral blood mononuclear cells (PBMCs) were collected from ART-naïve (n=10) and ART-treated (n=19) PLWH recruited at the Department of Public Health and Infectious Diseases of "Sapienza" University of Rome (Italy). Total HIV-1 DNA amount was determined using primers and probe that recognize the gag gene by real-time PCR. CD4+ and CD8+ T cells were isolated from PBMCs by positive immunomagnetic selection using CD4 or CD8 micro beads (Miltenyi Biotec). For each cell population, mRNA levels of Wnt1, β-catenin, TGF-β, SMAD2, SMAD3, SMAD4 and BCL-2 were evaluated using RT/real-time PCR. Statistical analysis was performed using PRISM and $p<0.05$ were considered statistically significant.
Results: As expected, ART-treated individuals had reduced HIV-1 DNA levels compared to ART-naïve PLWH ($p<0.0001$). Wnt1 mRNA expression in CD8+ T cells increased in ART-treated compared to ART-naïve individuals ($p=0.0368$). β-catenin ($p=0.0017$; $p=0.0096$), TGF-β ($p=0.0003$; $p=0.0167$), SMAD2 ($p=0.0006$ for both), SMAD3 ($p=0.0021$; $p=0.0019$), SMAD4 ($p<0.0001$; $p=0.0002$) and BCL-2 ($p=0.0005$; $p=0.0003$) mRNA expression levels in both CD4+ and CD8+ T cells were increased in ART-naïve compared to ART-treated individuals. Moreover, HIV-1 DNA levels were correlated negatively with the expression levels of all analyzed genes in CD4+ T cells and Wnt1, SMAD4 and BCL-2 mRNA expression in CD8+ T cells.
Conclusions: These results suggest that low HIV-1 DNA levels correlate with increased expression of Wnt1, β-catenin, TGF-β pathway genes and BCL-2, suggesting a potential role for these cellular pathways in controlling HIV-1 latency.

Immunopathogenesis

P 105 IS CAB/RPV-LA ABLE TO MODULATE RESIDUAL IMMUNE ACTIVATION IN PEOPLE LIVING WITH HIV? A PILOT SINGLE-ARM LONGITUDINAL STUDY

M.A. Zingaropoli[1], A. Carraro[1], M. Guardiani[1], E. Tortellini[1], F. Dominelli[1], C. Del Borgo[2], R. Marocco[2], S. Garattini[1], S. Cacace[1], P. Zuccalà[2], V. Vullo[1], M.R. Ciardi[1], C.M. Mastroianni[1], M. Lichtner[3]

[1]Department of Public Health and Infectious Diseases, Sapienza University of Rome, Rome, Italy, [2]Infectious Diseases Unit, SM Goretti Hospital, Sapienza University of Rome, Latina, Italy, [3]Department of Neurosciences, Mental Health, and Sense Organs, NESMOS, University of Rome, Rome, Italy

Background: Cabotegravir/rilpivirine (CAB/RPV) long-acting (LA) has revolutionized the concept of ART, and immunological impact data are needed to understand whether this strategy with dual INI/NNRTI dual therapy can be less or more active in controlling residual immune activation in chronic aviremic PLWH.
Material and methods: On the blood samples obtained from PLWH before CAB/RPV-LA (T0), after 4 weeks (T1) and 28 weeks (T2), by flow cytometry, the percentages of CD4 and CD8, their subsets (CD27, CD45RO), their activation (CD38+HLA-DR+) and immunosenescent (CD28-CD57+) phenotypes and monocytes/macrophages/dendritic cells (HLA-DR, CD14, CD16, CD11c, CD123) were investigated. Moreover, plasma monocyte/macrophage activation markers (sCD14, sCD163) were investigated.
Results: Seventeen aviremic PLWH switching to injectable CAB/RPV-LA were enrolled. At both T1 and T2, no virological failures were observed. At T2, a significant reduction in the percentages of total CD8 compared to T0 were observed (38.7 [30.9-43.9] and 43.3 [31.0-51.0], respectively; p=0.0202) as well as significant reductions in the percentages of non-classical monocyte (4.6 [2.4-7.9] and 5.5 [4.3-7.7], respectively; p=0.0327) and in the plasma levels of sCD14 (1100 [857-1405] and 1355 [1135-1577], respectively; p=0.0202) were observed.
At T2 compared to T0, a significant decrease in the percentages of naïve CD4 (36 [26-48] and 49 [32-59], respectively; p=0.0202) and CD8 (16 [11-22] and 23 [12-33], respectively; p=0.0121) as well as a significant increase in the percentages of effector CD4 (2.7 [1.1-4.9] and 1.4 [0.6-2.5], respectively; p=0.0327) and CD8 were observed (32.9 [19.0-51.9] and 25.1 [12.0-53.9], respectively; p=0.0202). Similarly, a significant increase in the percentages of effector memory CD4 was observed (15.2 [11.5-21.3] and 11.3 [6.5-14.7], respectively; p=0.0022) as well as in the percentages of intermediate CD8 (6.1 [5.0-8-9 and 3.8 [2.8-5.3], respectively; p=0.0202). At T2 compared to T0, no significant differences in the percentages of HLA-DR+CD38+ T-lymphocyte were observed neither in the percentages of CD28-CD57+ T-lymphocyte. No differences in the percentages of central memory T-lymphocyte were observed neither in the percentages of effector memory CD8. Similarly, no differences in the percentages of classical monocytes, intermediate monocytes, M-DC8, pDCs, mDCs and in the plasma levels of sCD163 were observed.
Conclusions: Although our study presents several limitations especially due to the small sample size and absence of a control group, our preliminary results show that CAB/RPV-LA reduces some features of residual immune activation and modulate the effector compartment of T-lymphocyte. We can only speculate that the HIV reservoir was knocked down by a more stable ART with good tissue penetration, but a more careful analysis of viral load should be done in the study.

Immunopathogenesis

P 106 HIGHER IP-10 VALUES CORRELATE WITH A VIRAL CAUSE OF INFECTION: A RETROSPECTIVE STUDY BASED ON NOVEL TESTS

B. Kertusha[1,2], A. Parente[1,2], T. Tieghi[1], E. Tortellini[2], M.S. Guardiani[2], F. Dominelli[2], J. Ronci[3], C. Racco[3], U. Basile[3], R. Dal Piaz[4,2], M. Lichtner[5], C. Del Borgo[1,2]

[1]Infectious Diseases Unit, S. M. Goretti Hospital, Latina, [2]Sapienza University of Rome, department of Public Health and Infectious Diseases, [3]Clinical Pathology Unit, S. M. Goretti Hospital, Latina, [4]Emergency Department, S. M. Goretti Hospital, Latina, [5]Sapienza University of Rome, NESMOS Department

Abstract: COVID-19 pandemic has prompted development of many antiviral drugs. Immunopathogenesis of the infections is still debated. On the other hand novel tests are needed to distinguish between viral and bacterial infections, especially in the Emergency Department. In this retrospective study we describe the results of MeMed BV test in patients with viral infections, mostly COVID-19, and bacterial infections.

Introduction: CXCL10 also known as interferon γ-induced protein 10 kDa (IP-10) binds CXCR3 receptor to induce chemotaxis, apoptosis, cell growth. Alterations in CXCL10 expression levels have been associated with inflammatory diseases including infectious diseases, making CXCL10 a potential therapeutic target. MeMed BV can distinguish between viral and bacterial infections by dosing levels of CRP, TRAIL and IP-10. The aim of our study was to correlate TRAIL, CRP and IP-10 levels with type of infection.

Materials and methods: Blood serum of 54 patients from a database of serums collected for other studies was taken to perform MeMed BV test. Samples included 32 COVID-19 patients and 22 non COVID patients. 22 COVID 19 patients had only pneumonia, 10 had also ARDS. The non COVID group comprised 3 viral infections (infective mononucleosis, Dengue Fever and Parvovirus B19), the remaining 19 had bacterial infections (bacteremia, meningitis and bacterial pneumonia). 300 microliters of blood serum was taken from samples stored at -80°C. Data was analysed through GraphPad Prism 8.0.2. Pearson correlation test was used for bivariate analysis and One Way ANOVA for groups correlation.

Results: Serum of 54 adults, previously collected for other studies, was analysed. % patients were excluded from the exploratory analysis because of ambiguous values. Among those included in the exploratory analysis, 62.5% were male, the median age was 68 years (with an interquartile range [IQR] of 51-80). 65% were COVID-19 patients, 6% other viral infections and 29% bacterial infections.

Non significant differences in BV scores were observed among patients with COVID-19, patient with other viral infections and patients with bacterial infections (medians 78.6 vs. 56 vs. 74.3; $p = 0.4$). However, significant differences were found in IP-10 levels (795.4 vs. 1010 vs. 333.4; $p<0.05$), meaning higher levels in viral infections, with higher values in COVID-19 patients.

No difference was observed for TRAIL levels (37.1 vs. 56.87 vs.42.35) and CRP (64.7 vs. 61.3vs. 75.4).

In a multivariate analysis a significant negative correlation was observed between patients' age and TRAIL levels ($r = -0.39$, $p < 0.05$). This suggests that as age increases, there is a marked decrease in the protein expression.

Conclusion: Our study, even though with a limited sample size, shows that combined test failed to distinguish COVID-19 patients with ARDS, but IP-10 levels may be a marker of viral infection suggesting that IP-10 target treatments may be useful in viral diseases, especially in COVID-19.

Other infections in the immunocompromised host

P 107 CYTOMEGALOVIRUS SPECIFIC T-CELL RESPONSE IN PEOPLE WITH MULTIPLE SCLEROSIS UNDER DIFFERENT DISEASE-MODIFYING THERAPIES

F. Dominelli[1], M.A. Zingaropoli[1], P. Pasculli[1], F. Ciccone[1], G. Ferrazzano[2], M. Guardiani[1], E. Tortellini[1], M. Antonacci[1], Y.C. Fosso Ngangue[1], M. Lichtner[3], C.M. Mastroianni[1], A. Conte[2,4], M.R. Ciardi[1]

[1]Department of Public health and infectious diseases, Sapienza University of Rome, Rome, Italy, [2]Department of Department of Human Neurosciences, Sapienza University of Rome, Rome, Italy, [3]Department of Neurosciences Mental Health and Sensory Organs, Sapienza University of Rome, Rome, Italy, [4]IRCCS Neuromed, Pozzilli, Italy

Background: The risk of reactivation of latent herpesvirus infection, such as cytomegalovirus (CMV), is increased by therapies that affect cellular immunity, such as disease-modifying therapies (DMTs) that can reduce multiple sclerosis (MS) activity and progression. In this context, our study aimed to characterize CMV T-cell-specific response in people with MS (pwMS) under different DMTs.

Materials and methods: pwMS were enrolled and the IFNg, IL2 and TNFa production by T-cells upon CMV peptides library stimulation was investigated, defining “responding” those T-cells producing any of IFNg, IL2 and TNFa and “triple-positive” those T-cells simultaneously producing all the three cytokines. An evaluation of anti-CMV antibody titers was performed and pwMS were firstly divided into CMV-positive (CMV+) and CMV-negative (CMV-) groups. Then, pwMS were stratified according DMT into anti-CD20 (anti-CD20), anti-alpha-4-integrin (anti-a4), sphingosine-1-phosphate (S1P) antagonist and T-cell interfering drugs (Other).

Results: At the Neuroinfectious Unit, among the 254 pwMS (female/male:152/102; median age [IQR]: 51[42-60] years) routinely followed, a CMV seroprevalence of 50% (127/254) was seen. Among them, 22 pwMS (12/22 pwMS were under anti-CD20, 2 on anti-a4, 5/22 on T-cell interfering drugs, and 3/22 on S1P antagonists) were further studied (Table). No significant differences in the percentages of CD4+ and CD8+ responding T-cells were observed between CMV+ and CMV-. Similarly, no differences in the percentages of CD4+ and CD8+ triple-positive T-cells were found (Fig.1; Table). Interestingly, looking at the different cytokine production by T-cell, a prevalence of only IFNg producing T-cell was seen in pwMS, which persisted in both CMV+ and CMV- groups (Fig.2).

After stratifying according to DMT use, no significant differences in the percentages of CD4+ and CD8+ responding T-cells were observed among anti-CD20, anti-a4 and Other groups. Similarly, no differences in the percentages of CD4+ and CD8+ triple-positive T-cells were found (Fig.3;Table). Moreover, a prevalence of only IFNg producing T-cell was observed in both anti-CD20 and Other groups, compared to anti-a4 in which a polarization toward only IL2 production was found (Fig.4).

Conclusion: Our preliminary data showed a polarization toward only IFNg production by T-cell after specific stimulation by CMV peptides in pwMS. However, comparing CMV+ and CMV- pwMS no differences between T-cell responses and cytokine production profile were observed. After stratifying according to DMT use, no differences were observed, although a polarization toward IFNg production was found in both anti-CD20 and Other groups. These findings suggest that a potential dysfunction in CMV T-cell specific response might be seen in pwMS, supporting the possible correlation to frequent CMV reactivations in pwMS following starting of immunosuppressive treatments.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_119.png

Other infections in the immunocompromised host

P 108 ASPERGILLUS SPP INFECTION IN IMMUNOCOMPROMISED AND NON-NEUTROPENIC PATIENTS IN INFECTION INTENSIVE CARE: A RETROSPECTIVE OBSERVATIONAL STUDY

D. Rubino[1], C. Fontana[2], S. Leone[3], G.V. Stazi[1], A. Capone[5], C. Pinnetti[4], V. Sabatini[1], A. Vulcano[2], B. Bartolini[2], S. Carrara[2], S. Cicalini[5], A. Antinori[4], M.G. Bocci[1]

[1]Intensive Care Unit, National Institute for Infectious Diseases Lazzaro Spallanzani IRCCS, Rome, Italy, [2]Microbiology and BioBank Unit, National Institute for Infectious Diseases Lazzaro Spallanzani, Rome, Italy, [3]Clinical Epidemiologic Unit, National Institute for Infectious Diseases Lazzaro Spallanzani IRCCS, Rome, Italy, [4]Clinical and Research Infectious Diseases Department, National Institute for Infectious Diseases, Lazzaro Spallanzani IRCCS, Rome, Italy, [5]Systemic and Immune Depression-Associated Infection Unit, National Institute for Infectious Diseases, Lazzaro Spallanzani IRCCS, Rome, Italy

Background: Although Aspergillus spp infection (AI) is more prevalent in immunocompromised patients (IP), it is becoming more frequent in patients admitted to Intensive Care Unit (ICU) and not part of the traditional risk groups. The diagnostic criteria that define AI, , are still controversial. This study aims to describe AI in IP compared to non-neutropenic patients (N-NP) admitted to intensive care.

Material and methods: We conducted a retrospective observational study to evaluate cases of IA in patients admitted to ICU of National Institute for Infectious Diseases Lazzaro Spallanzani (INMI) from January 2021 to December 2023. Patients with AI were identified based on Real Time Polymerase Chain Reaction (PCR) assay results The following information was collected: age, sex, comorbidities, SARS-CoV-2 co-infection, tracheostomy, clinical outcomes (mortality within 28 days) and other microbiology results (Galactomannan [GALAG], 1-3 Beta-D-glucan [BDGLU] and culture). To explore any statistically significant differences between the group of patients with and without underlying immunocompromising conditions across the available characteristics, Chi-squared or Fisher's Exact test for continuous variables and Wilcoxon rank sum test for categorical variables were performed.

Results: A total of 82 patients with AI were identified during the study period according to the results of the PCR assay. Of these, 30 (36.6%) patients were IP and 52 (63.4%) N-NP.IP included 7 people living with HIV, 15 haematological/oncology patients and 8 transplant patients. Overall, males accounted for 68.3% of individuals. The median age was 66 years and the most frequent comorbidity was cardiovascular (34.1%). SARS-CoV-2 and tracheostomy occurred in 20.7% and 52.4%, of subjects, respectively. Mortality within 28 days occurred in 45.1% of patients. Compared with N-NP, IP with AI were more likely to be females (46.7% vs 23.1%) (p=0.027), with lower age (p=0.02) and with no SARS-CoV-2 concomitant infection (p=0.001). No statistically significant difference in clinical outcomes was observed (Table 1). Overall, simultaneous evidence of AI was detected in 31 (37.8%), 13 (15.9%) and 14 (17.1%) patients for GALAG, BDGLU and culture, respectively. The concordance results between PCR, GALAG and BDGLU are described in Table 2.

Conclusions: The study suggests that IP, particularly those who are female, younger in age, and uninfected with SARS-CoV-2, are more likely to develop AI, compared to N-NP. There wasn't a significant difference in outcomes and mortality rates between IP and N-NP. Notably, the study reports a higher incidence of GALAG positivity in the BAL of N-NP compared to IP. These observations highlight the importance of reevaluating the utility of the GALAG test in diagnosing AI in IP in the future.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_349.png

Other infections in the immunocompromised host

P 109 MULTIDRUG RESISTANT BACTERIA (MDRB) AND BED TURNOVER: IS IT TRUE THAT THE FRAGILE PATIENT SHOULD BE MOVED THE LEAST POSSIBLE?

C. Fanelli[1], L. Pistidda[1], R. Are[2], D. Pasero[1]

[1]Department of Pharmacy, Medicine, and Surgery, University of Sassari, Sassari, Italy, [2]Infectious Diseases Unit, University Hospital of Sassari (AOUSS), Sassari, Italy

Background: Multidrug resistant bacteria (MDRB) are a major threat to Intensive Care Unit (ICU) patients. Beds cleaning is a key factor in infection prevention and control (IPC). Our aim was to investigate whether bed turnover could affect the quality and prevalence of MDRB.

Materials and Methods: We conducted a retrospective study on patients hospitalized between the 1rst November 2023 and the 30th January 2024 in our 23-beds-ICU, Sassari, Italy. They are divided in those dedicated to medical (n.1-7), surgical (n.11-15), and COVID-19 (n.20-24) patients. All other beds (9, 10, 16, 17, 18, 19) are for isolation. Bed turnover, MDROs findings, patient's outcome and length of ICU stay (LOSICU) were analyzed.

Results: Overall ,137 bed occupants were identified in the study period (Table 1).

Of them, 24 (17.5%) were Klebsiella pneumoniae carbapenemase-producing (KPC) bacteria carriers, 23 (17.5%) were Acinetobacter baumanii (AB) carriers, and 18 (13.1%) Vancomycin Resistant Enterococci (VRE) carriers in at least one between rectal, blood, urine or respiratory samples.

All of them were more commonly co-present with each other (KPC 14/26, 53.8%; AB 14/24, 58.3%; VRE 12/20; 60%) rather than alone. The most common association was AB+KPC (7/19, 36.8%), followed by AB+VRE (5/19, 26.3%), KPC+VRE (4/19, 21.1%), and AB+KPC+VRE (3/19, 15.8%).

Surgical beds had the greatest turnover (10-13 patients in 3 months), accounting for the majority of patients (60/137, 43.8%), followed by medical ones (8-5 patients in 3 months, 45/137, 32.9%), and isolation ones (5-2 patients in 3 months, 20/137, 14.6%).

Most beds carrying MRDB patients were medical (18/43, 41.7%), and not isolation beds (16/43, 37.2%). KPC- and AB- alone carriers were mainly identified in medical beds (60% and 50% of the total), while VRE-alone carriers were equally distributed with the exception of isolation beds (0/6). Considering associations, AB+VRE was prevalent in medical (3/5, 60%), and isolation beds (2/5, 40%), while AB+KPC in isolated patients (5/7, 71.4%).

The LOSICU in AB carriers (mean 51 ±23 days) was superior compared to non-AB carriers (15 ± 13 days) in all beds with ≥2 AB carriers. Death rate was 31.4% in average, reaching 58.3% of COVID-19 beds, 45% in isolation beds (9/20), and 40% in medical beds (18/45). Most deaths took place in medical beds (9/43, 20.9%). Mortality was higher in AB+KPC+VRE carriers (66.6%), and AB-alone carriers (50%). KPC-alone, KPC+VRE and AB+VRE showed the same mortality rate (40%), followed by VRE-alone (33.3%). AB+KPC had the lowest mortality rate (14.3%).

Conclusions: Our data suggest that medical beds are subject to higher AB carrying and mortality compared to patients in isolation beds, surgical and COVID-19 beds.

This study provides a hint for intensivist for not to underestimate IPC measures in non-isolated medical patients.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_372.jpg

Other infections in the immunocompromised host

P 110 EVALUATION OF HHV6 REACTIVATION IN GASTRIC BIOPSY AND BLOOD SAMPLES IN PATIENTS UNDERWENT ALLOGENEIC STEM CELL TRANSPLANT (HSCT) FOR HEMATOLOGICAL MALIGNANCIES: RESULTS FROM A RETROSPECTIVE SINGLE CENTER ANALYSIS

G.M.E. Colomba[1], G. Sapienza[2], M. Tuccio[1], S. Tringali[2], R. Bono[2], C. Rotolo[2], L. Castagna[2], O. Diquattro[1]

[1]U.O.C. Microbiologia e Virologia. AOOR "Villa Sofia - Cervello" - Palermo, Italy, [2]Unità Trapianti di Midollo Osseo. AOOR "Villa Sofia - Cervello" - Palermo, Italy

Background: Human herpesvirus 6 (HHV6) is a lymphotropic virus with seroprevalence in the adult population >95%. The virus persists in the host in a latent form after primary infection and reactivation occur in about 30-80% of patients underwent HSCT and was associated with several complications.
In allogeneic stem cell transplant (allo-SCT) recipients with gastrointestinal symptoms, HHV-6 DNA has been detected by PCR in gastroduodenal and colorectal mucosa.
The aim of this study was to investigate the significance of presence of HHV-6 DNA in patients who underwent endoscopic examination because of upper gastrointestinal symptoms after allo-SCT.
Material and methods: We retrospectively analyzed data from 16 patients grafted with allogeneic peripheral blood stem cell transplant from 2022 to 2023 who underwent gastroscopy because of persistent nausea/vomiting. The biopsy of fundus, body and duodenum were analysed by conventional histology for presence of GVHD and by quantitative polymerase chain reaction (PCR) for viral DNA of HHV 6 A and B (HHV6 ELITe MGB Kit, Elitech). The molecular test was performed both on gastric biopsy and peripheral blood. All statistical analysis was performed with NCSS 2019 software.
Results: From 2022 to 2023 a total of 96 patients underwent HSTC. We found 46 cases of grade 1-4 aGVHD and 18 cases of grade 2-4 aGVHD. Moreover 9 patients developed Gastrointestinal (gi-GVHD) proved by histology. Median day of endoscopy was 50 (13-115). Patients characteristics are shown in Table 1. The analysis of HHV6 DNA detection showed 12 patients having positivity in fundus, 11 in body, 8 in duodenum and 1 peripheral whole blood. After logarithmic transformation, HHV6 copies was 3,6 (2,59-5,49); 3,8 (2,69-5,45), 4,1 (2,89-5,3) in samples from fundus, body and duodenum respectively (Fig1). No correlation was found between acute GVHD (aGVHD) grade and log HHV6 fundus positivity. Only 2 patients with fundus HHV6 positivity had a proven histologic diagnosis of gastric aGVHD (g-aGVHD). One patient with g-aGVHD was negative. In table 2 gastric HHV6 fundus, body or duodenum positivity plotted with g-aGVHD histology.
Eleven patients were HHV6 positive but did not satisfy diagnostic criteria for g-aGVHD and, finally one patients was negative for HHV6 and did not had diagnostic criteria for g-aGVHD.
In the whole cohort 100-day and 1-year Non-Relapse Mortality (NRM) were 7 and 29% respectively. 100 days and 1 year overall survival was 93% and 64 % respectively in the whole cohort. 9 months NRM was 8% vs 33% p=0,06463 in patients with fundus HHV6 copy number under and above median value respectively. There was no difference in survival comparing groups with HHV6 log value above and under median.
Conclusion: We did not find correlations between aGVHD grade and LOG HHV6 fundus positivity not between gastric acute GVHD histology and HHV6 positivity. We found a positive trend between HHV6 copy number in samples from fundus and NRM. Further prospective analysis could elucidate role of gastric HHV6 reactivation on HSCT outcome.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_400.png

Other infections in the immunocompromised host

P 111 CHALLENGES IN AN IMMUNOCOMPROMISED HOST: A CASE OF DISSEMINATED NOCARDIOSIS

A. Gizzi[1], A. Mancuso[2], M. Abbott[1], F. Guida Marascia[1], C. Imburgia[1], G. Pipitone[1], I. Russotto[2], F. Onorato[1], D. Spicola[1], I. Alongi[1], L. Saporito[3], A. Cascio[2], C. Iaria[1]

[1]Infectious Disease Unit, ARNAS Civico-Di Cristina, Palermo, Italy, [2]Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties "G. D'Alessandro", University of Palermo, Palermo, Italy, [3]Microbiology and Virology Unit, ARNAS Civico-Di Cristina, Palermo, Italy

Nocardia farcinica is an aerobic, gram-positive bacteria from the genus Nocardia. It is one of the most clinically relevant species in the genus, and it is known for its pathogenic potential in humans, particularly in immunocompromised individuals such as those with underlying conditions, including HIV/AIDS, organ transplant recipients, and those on immunosuppressive medication.

We present a case of disseminated nocardiosis caused by a difficult-to-treat N.farcinica in a 68-year-old woman with a known history of systemic lupus erythematosus with concurrent use of high-dose prednisone, antiphospholipid antibody syndrome, and right renal vein thrombosis.

The patient presented to our hospital in November 2023 with a 2-week history of fever and dry cough. At admission, her laboratory exam revealed a white blood cell count of 14×103/μL (CD4 count was 69 cells/μL) and elevated C-reactive protein. Computed tomography imaging revealed diffuse and inhomogeneous thickening of the pulmonary interstitium with areas of parenchymal consolidation and multiple nodular formations (Fig.A). Sputum cultures and other microbiological test, including legionella and streptococcal urine antigen, acid-fast bacilli stains, PCR for Mycobacterium tuberculosis, galactomannan antigen, and 1,3-ß-D-glucan of bronchoalveolar lavage, all returned negative results.

Blood cultures showed the presence of gram-positive bacilli, subsequently identified as N.farcinica. Treatment was initiated with sulfamethoxazole-trimethoprim (SMX-TMP) and amikacin (AMK), leading to clinical improvement. However, after 14 days of therapy, the patient developed leukopenia and anaemia, suspected to be myelotoxicity from the antibiotics; SMX-TMP was discontinued, and imipenem-cilastatin (IPM) was started, resulting in progressive resolution of leukopenia and anaemia. After 3 weeks of therapy, the patient's clinical and radiological conditions improved (Fig.B). Given her recent myelosuppression and pharmacological interactions with other drugs, she continued moxifloxacin as a consolidative therapy after discharge.

Following discharge, the patient remained asymptomatic for 8 weeks before being readmitted due to fever and elevated inflammatory markers. Blood cultures once again revealed N.farcinica but with a modified resistance pattern, resulting in it being sensitive only to AMK, IPM, and linezolid. Based on the microbiological results, IPM and AMK treatment was restarted. After 4 weeks and negative blood cultures, the patient was discharged with a prolonged course of IPM and ongoing monitoring for any recurrence or complications related to N.farcinica infection.

In conclusion, this case highlights the challenges faced in diagnosing and treating disseminated nocardiosis, particularly when complicated by antimicrobial resistance with limited therapeutic options. Prompt identification of atypical pathogens, such as N.farcinica, and vigilant monitoring is crucial for optimal management and improved outcomes.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_452.jpg

SARS-CoV-2 infection and long COVID

P 112 SARS-COV-2 NATURAL INFECTION, BUT NOT VACCINE-INDUCED IMMUNITY, ELICITS CROSS-REACTIVE IMMUNITY TO OC43

M. Garziano[1], C. Vanetti[2], S. Strizzi[2], I. Saulle[1], F. Limanaqi[2], V. Artusa[1], M. Cano Fiestas[2], P. Ogno[2], M. Clerici[1,3], D. Trabattoni[2], M. Biasin[2]

[1]Dipartimento di Fisiopatologia Medico-Chirurgica e dei Trapianti, Università degli Studi di Milano, Italia, [2]Dipartimento di Scienze Biomediche e Cliniche, Università degli Studi di Milano, Italia, [3]Fondazione Don Gnocchi,Istituto di Ricovero e Cura a Carattere Scientifico (IRCCS), Milano, Italia

Background: The recent SARS-CoV-2 pandemic renewed interest in other previously discovered non-severe acute respiratory syndrome human coronaviruses. Among these, OC43 is a seasonal human coronaviruses widely diffused in the global population (90% seroprevalence in adults), mostly responsible for mild respiratory symptoms. As OC43 protective immunity is short lasting, the aim of this study was to verify if systemic and mucosal SARS-CoV-2 humoral immunity elicited either by natural infection and/or vaccination confers protection against a new OC43 re-infection.
Methods: Neutralization assayes using plasma and saliva samples of 49 SARS-CoV-2-vaccinated subjects who were never naturally infected and received three doses of BNT162b2 RNA vaccine (SV) and 25 SARS-CoV-2-infected and vaccinated subjects (SIV) were performed against "wild type" SARS-CoV-2 lineage B.1 (EU) and OC43 in VeroE6 cell lines. Sampling was carried out immediately before (T0) and 15 days (T1) post third-dose administration (SV) or 15 days post-infection (SIV). SARS-CoV-2 anti-RDB NAbs were measured employing a commercial ELISA kit (Viazyme, Delft, Netherlands). Analyses were performed on the saliva of a subset of SV (n = 18) and SIV (n = 15) subjects at T1
Results: SARS-CoV-2-specific neutralizing activity (NA) significantly increased after third vaccine dose administration in plasma ($p<0.0001$) and saliva ($p<0.01$) from SV; however, this NA was not protective against OC43. Conversely, SARS-CoV-2 NA triggered by natural infection in plasma and saliva of SIV proved to be cross-reactive and protective against OC43 in both plasma ($p<0.05$) and saliva samples ($p<0.05$). A statistically significant difference was observed in the assay of anti-RBD NAbs in saliva samples at T1 ($p<0.001$). Indeed, the SIV group showed higher levels than the SV group.
Conclusions: Overall, this study on immunity to SARS-CoV-2 suggests that compared to vaccine-induced immunity natural infection elicits a broader and cross-reactive immunity, which results in protection from viruses sharing sequence homology, at both systemic and mucosal level. As the oral cavity represents the main entry route for coronaviruses, these results support the development of a pan-coronavirus vaccine to prevent new infections and re-infections.

SARS-CoV-2 infection and long COVID

P 113 USE OF COMBINATION THERAPY WITH REMDESIVIR, NIRMATRELVIR/RITONAVIR AND SOTROVIMAB IN AN IMMUNOCOMPROMISED PATIENT WITH PERSISTENT SEVERE SARS-COV-2 ACUTE RESPIRATORY SYNDROME

G. D'Aguanno[1], P. Miraglia[1], C. Geraci[1], F. Savalli[1], M.C. Morsellino[1], S. Cianchino[1], F. Zichichi[2], F. Di Gaudio[3], P. Colletti[1]

[1]Department of Infection Diseases (I.D.D), Paolo Borsellino Hospital (Marsala), Italy, [2]School of Specialization in Infection and Tropical Diseases - Department PROMISE, School of Medicine and Surgery, University of Palermo, Italy, [3]Department PROMISE, School of Medicine and Surgery, University of Palermo, Italy

Background: The different clinical manifestations by the SARS-COV2 infection are related to the specific immune response to virus. Immunocompromised hosts have higher risk of progression into severe forms and greater mortality than the general population and they have higher probability of infection prolonged, viral reactivation or clinical rebound. Delaying oncological treatments until viral clearance, they have a worse prognosis. Humoral immunity deficiency may be due to the depletion of B for hematological disease or for specific therapy (anti-CD 20). These patients may develop a persistent COVID-related chronic inflammatory state due to the lack of an antibody response induced by the infection. The persistence of the SARS-COV 2 infection over time in the immunocompromised subject could therefore justify the prolonged use of combination therapy. We report a case of combination therapy in an immunocompromised patient with prolonged severe COVID.

Case Presentation: 66-year-old woman, diabetic, hypertensive, lobectomy for pulmonary mucinous adenocarcinoma, not vaccinated for SARS-COV 2, affected by follicular mature B-cell lymphoma stage IV A treated with the G-CHOP regime, was admitted to our I.D.D for pneumonia and persistence of SARS-COV 2 infection for one month, treated with nirmatrelvir/ritonavir for 5 days at home. We diagnosed the OMICRON variant, XXBB1.5 and no anti-Capsid immune response and for S2, but for RBD and S1. For the clinical worsening, the therapy was administered with oxygen in HFNC, heparin, dexamethasone, Remdesivir for 46 days, nirmatrelvir/ritonavir for 15 days and Sotrovimab 500 mg, in off label regime. The patient was discharged after 50 days, asymptomatic, with reduction of the ground glass areas, but appearance of fibrotic areas and with only the N gene positive CT 36 by nasal swab.

Discussion: After 4 years from the onset of the SARS-COV2 pandemic, with numerous viral variants having a progressively lower impact on the global health, immunocompromised hosts have still high risk of disease progression in a severe form due to the possible poor humoral response to the vaccination and/or to infection. The mAbs and antivirals are the drugs currently approved for the prevention of progression of severe disease, but they're not authorized in patients hospitalized for COVID on oxygen. The use of two antiviral drugs in combination with Sotrovimab, the only one monoclonal antibody that still seems to be effective on the Omicron variant and subvariants, may have a potential advantage thanks to the combination of the three different antiviral mechanisms. Its combination and prolonged use seem effective and safe for immunocompromised hosts at risk of evolving into a severe form and with prolonged COVID or viral reactivation (despite there are few studies about that). So, more studies about antiviral combination therapy in immunocompromised hosts are necessary.

SARS-CoV-2 infection and long COVID

P 114 EXPLORING EARLY COVID-19 THERAPIES, VARIANTS, AND VIRAL CLEARANCE DYNAMICS: INSIGHTS FROM A HIGH-RISK OUTPATIENTS STUDY

M. Colaneri[1,5], M. Matone[2], F. Fassio[3], A. Lai[4], A. Bergna[4], C. della Ventura[4], L. Galli[1], G. Scaglione[1], A. Gori[1,4,5], M. Schiavini[1]

[1]Department of Infectious Diseases, Unit II, L. Sacco Hospital, ASST Fatebenefratelli Sacco, Milan, Italy, [2]Department of Infectious Diseases, Unit I, L. Sacco Hospital, ASST Fatebenefratelli Sacco, Milan, Italy, [3]Department of Public Health, Experimental and Forensic Medicine, Unit of Biostatistics and Clinical Epidemiology, University of Pavia, Pavia, Italy, [4]Department of Biomedical and Clinical Sciences, University of Milan, Milano, Italy, [5]Centre for Multidisciplinary Research in Health Science (MACH), University of Milano, Milano, Italy

Background: Numerous approved drugs, including antiviral therapies and monoclonal antibodies (mAb), have demonstrated efficacy in preventing COVID-19 progression by targeting early stages of the disease in high-risk outpatients. However, evidence supporting earlier swab negativization with early therapy remains limited, particularly concerning specific variants of concern (VoCs) and especially in the prevalent Omicron VoC context. Our study aims to explore whether a particular early therapy targeting a specific sublineage of Omicron VoC is associated with an expedited time to achieve negative swab results for SARS-CoV-2.

Methods: This retrospective, observational study was conducted at Luigi Sacco Hospital in Milan from December 2021 to March 2023. The study focused on outpatients with confirmed COVID-19 diagnosis by positive SARS-CoV-2 RT-PCR on nasal swab, with data extracted from medical records. Demographic, virological, and clinical data were collected, including information on early treatments following guidelines provided by the Italian Medicines Agency. Whole genome sequencing was performed to identify Omicron sublineages, and cycle thresholds (Ct) were utilized to assess viral load dynamics. Statistical analyses were conducted to assess associations between treatment, sublineage, and swab negativization.

Results: Of 104 patients, most received antivirals (n=99, 95.2%), predominantly Paxlovid (51.9%). No patients required hospitalization or experienced mortality during the one-month follow-up period. Omicron sublineages BA.1 (22.1%), BA.2 (51%), and BA.4/BA.5 (26.9%) were detected among the patient cohort. However, no significant difference in swab negativization was observed across sublineages or treatment modalities (Table 1). Trends suggested potential faster clearance in patients infected with non-BA.1 sublineages, but statistical significance was not reached (Figure 1).

Conclusions: In conclusion, while a subtle trend suggested potentially faster Ct growth in certain groups, the evidence is weak due to small sample size and lack of a definitive trend curve. Importantly, the study did not establish a significant association between specific therapies and swab conversion time, highlighting the intricate dynamics of viral clearance and the need for further research in larger cohorts to refine treatment protocols for high-risk COVID-19 patients.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_53.jpg

SARS-CoV-2 infection and long COVID

P 115 CHARACTERISTICS OF LONG COVID AFTER TWO YEARS OF FOLLOW-UP IN A PREVIOUSLY HOSPITALIZED POPULATION

V. Cogliandro[1], N. Squillace[1], E. Rossi[2], M.C. Ferrara[3], A. Monzani[4], M. Pozzi[5], V. Salvarani[6], L. Valagussa[7], I.C. Caramma[1], A. Cappelletti[1], L. Bonaffini[1], C. Ferrarese[8], G. Foti[5,9], M. Lettino[7], F. Luppi[4,9], M.G. Strepparava[6,9], G. Bellelli[3,9], P. Bonfanti[1,9]

[1]Infectious Disease Unit, Fondazione IRCCS San Gerardo dei Tintori, Monza, Italy, [2]Bicocca Center of Bioinformatics, Biostatistics and Bioimaging, University of Milano-Bicocca, Monza, Italy, [3]Acute Geriatric Unit, Fondazione IRCCS San Gerardo dei Tintori, Monza, Italy, [4]Respiratory Disease Unit, Fondazione IRCCS San Gerardo dei Tintori, Monza, Italy, [5]Anesthesia and Intensive Care Unit, Fondazione IRCCS San Gerardo dei Tintori, Monza, Italy, [6]Clinical Psychology Unit, Department of Mental Health, Fondazione IRCCS San Gerardo dei Tintori, Monza, Italy, [7]Cardiology Division, Fondazione IRCCS San Gerardo dei Tintori, Monza, Italy, [8]Neurology Unit, Fondazione IRCCS San Gerardo dei Tintori, Monza, Italy, [9]School of Medicine and Surgery, University of Milano-Bicocca, Monza, Italy

Background: Long COVID is a multisystemic syndrome which negatively impacts on quality of life. The risk of sequelae even persists after two years from acute SARS COV2 infection. The aim of this study was to describe the prevalence and the course of symptoms up to two years from discharge in a population that was hospitalized for COVID-19.

Material and Methods: A multidisciplinary Long COVID clinic was created in 2020 at the San Gerardo Hospital in Monza. Patients, who were discharged from the hospital with the diagnosis of SARS-CoV-2 infection, were evaluated at 6 (T1) and 24 (T2) months after hospitalization. In this analysis we described symptoms present at discharge and at follow up visits (T1 and T2). We grouped symptoms in four clinical phenotypes: respiratory syndrome (RS; dyspnea, cough), neurological syndrome (NS, peripheral neuropathies, headache, impaired mobility, behavioral disorders, cognitive disorders), psychological syndrome (PS; sleep disorders, mood disorders), musculoskeletal syndrome (FS; arthromyalgia, fatigue).

Results: Among patients previously visited (T1), 320 individuals were screened to participate to the second follow up visit. 134 individuals accepted and were evaluated, 116 refused the visit, 68 were excluded because they were asymptomatic at T1, and 2 died. The median time from discharge to T2 was 29.7 months (28.7-32.4). Median age was 57 years old (52-66) and 66.4% (89/134) were male. The median BMI was 28.5 (25.8-31.5) and remained stable from discharge to follow up. 79.2% (99/134) of individuals required non-invasive ventilation with CPAP during hospitalization; 6 (4.8%) patients were intubated. 123 (91.8%) individuals were symptomatic at T1, and 124 (92.5%) still had symptoms at T2. NS was the most prevalent at T2 and the most increased over time (56/134, 41.8% at discharge; 69/134, 51.5% at T1; 96/134, 71.6% at T2). The prevalence of other clinical phenotypes remained stable from T1 to T2 (table 1). The main persisting symptoms at T2 were: brain fog (55.2%), sleep disorders (39.6%), muscle pain (39.6%), fatigue (34.3%), dyspnea (34.3%). Moreover, symptoms, which had a greater increase from discharge to T2, were brain fog (at discharge 20%, T1 23.1%, T2 55,2%), cough (at discharge 6%, T1 3.7%, T2 19.4%) and sexual disfunctions (at discharge 0.7%, T1 3%, T2 28.4%)(table 2).

Conclusions: In our cohort of patients with previous severe COVID infection, we confirmed the high persistence of symptoms at two years of follow up. In particular, as described in other cohorts, we observed a significant increase of cognitive disfunctions which appeared later than other disorders. These data supported the persistence of Long Covid syndrome and the need to find specific treatments.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_186.png

SARS-CoV-2 infection and long COVID

P 116 THE EVOLVING LANDSCAPE OF COVID-19: CHARACTERISTICS AND FACTORS ASSOCIATED WITH DISEASE SEVERITY AND MORTALITY IN RECENT HOSPITALISATIONS

D. Zaçe[1], A. Çekrezi[1], E. Teti[1], V. Malagnino[1], L. Sarmati[1], M. Iannetta[1], A.M. Geretti[1,2,3]

[1]Department of Systems Medicine, Infectious Disease Clinic, Tor Vergata University, Rome, Italy, [2]Dept of Infection, North Middlesex University Hospital, London, UK, [3]School of Immunity and Microbial Sciences, King's College London, London, UK

Introduction: COVID-19 remains a complex and dynamic global health challenge, requiring continued efforts in prevention and treatment. As the characteristics of affected patients evolve with successive waves of the pandemic, this study aims to analyse the demographic and clinical profiles and summarise the outcomes of patients hospitalised for COVID-19 between 1st November 2023 and 31st January 2024.

Methods: The primary outcome was hospital discharge vs. in-hospital mortality. Variables analysed included demographic, clinical and laboratory parameters. Oxygen requirements were classed as none, Venturi mask, and high-flow nasal cannula or non-invasive ventilation (HFNC/NIV). Statistical analyses employed Mann-Whitney/Kruskal-Wallis tests for continuous variables and Fisher's exact test for categorical variables.

Results: A total of 86 patients were hospitalised for COVID-19 between 1st November 2023 and 31st January 2024 (Table 1). All had at least ≥1 nasopharyngeal swab (NPS) positive for SARS-CoV-2 by antigenic test. The median age was 77 years, with a slight predominance of males (n=51, 59%). The majority (82/86, 95%) had received ≥1 COVID-19 vaccine dose, with a median of 22 months elapsing between the last vaccine dose and the onset of symptoms. The median Charlson comorbidity index (CCI) was 5, with cardiovascular disease being the most prevalent comorbidity. Fever and dyspnoea were the most common presenting symptoms. SARS-CoV-2 pneumonia was documented by CT scan in 58 (67%) patients. Overall, 72/86 (84%) patients recovered and were discharged after a median of 7 days [IQR 4-11]; the in-hospital mortality rate was 14/86 (16%) and occurred after a median of 17 days [IQR 5-26]. Comparing the two groups, there was no apparent difference in age, sex, SARS-CoV-2 vaccination status, CCI, and clinical presentation at admission (Table 1). The in-hospital mortality group had higher neutrophil to lymphocyte ratio (NLR) and D-Dimer and procalcitonin levels on admission; higher oxygen requirements during admission (although none progressed to mechanical ventilation); and protracted SARS-CoV-2 NPS positivity. In this group, all received remdesivir, typically alongside corticosteroids (Table 1).

Conclusions: Despite high vaccine coverage, there remains an older population at increased risk of unfavourable COVID-19 related outcomes. Baseline laboratory data (NLR, D-dimer, procalcitonin), high oxygen requirement, and ongoing SARS-CoV-2 shedding despite antiviral therapy provide useful prognostic parameters. The extended period since the last vaccination in the hospitalised population supports concept that the elderly may benefit from more frequent booster doses.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_248.PNG

SARS-CoV-2 infection and long COVID

P 117 PROLONGED COMBINATION TREATMENT: AN EFFICIENT AND SAFE STRATEGY FOR MANAGING SARS-COV-2 INFECTION IN IMMUNOCOMPROMISED PATIENTS

C. Sepulcri[1], C. Bartalucci[1,2], C. Dentone[2], E. Balletto[2], S. Dettori[2], M. Nofri[2], M. Mirabella[2], B. Bruzzone[3], V. Ricucci[3], G. Brucci[1,2], L. Crupi[1,2], M. Bavastro[1,2], C. Russo Artimagnella[1,2], M. Bassetti[1,2], M. Mikulska[1,2]

[1]Division of Infectious Diseases, Department of Health Sciences, University of Genoa, Genoa, Italy, [2]Division of Infectious Diseases, IRCCS Ospedale Policlinico San Martino, Genoa, Italy, [3]Hygiene Unit, IRCCS Ospedale Policlinico San Martino, Genoa, Italy

Background: SARS-CoV-2 infection in immunocompromised patients can be associated with prolonged viral shedding, clinical relapses and high mortality. Treatment strategies combining antivirals with or without monoclonal antibodies (Mabs) have proved efficacious but evidence is still limited. Moreover, prolonging antiviral treatment might improve SARS-CoV-2 clearance and outcomes.
Method: Retrospective study including all patients receiving combination treatment between 15/10/2022-05/03/2024 according to a local off-label protocol. Inclusion criteria were being immunocompromised plus one among:
1) mild prolonged (>21 days) or relapsed COVID-19
2) severe COVID-19
3) early SARS-CoV-2 infection in presence of severe immunodeficiency. Combination regimens used over time are shown in Figure. Aim of this study is to present safety and efficacy outcomes of combination treatment by reporting rates of virological success (negative swab within 14 days from treatment in patients with initially positive swab) and clinical success (being alive, swab negative and clinically well) at Day30 and Day100.
Results: In total 64 patients were treated. Cases were uniformly distributed throughout the study period.
Fifty-three patients (83%) were treated either due to prolonged/relapsed mild symptoms (Group 1 – Late mild, n=30) or severe COVID-19 (Group 2 – Severe, n=23). Eleven (17%) were treated within 5 days of symptoms onset due to severe immunodeficiency, i.e. during high intensity chemotherapy (Group 3 – Early), (Table 1). Treatment consisted mostly of remdesivir+nirmatrelvir/r for 10 days.
Severe cases presented either after prior early treatment (ET) failure (n=5, median 29 days [IQR 25-45] after ET), relapse of severe COVID-19 after prior remdesivir treatment (n=5) or following misdiagnosed/unrecognized mild COVID-19 resulting in severe presentation, probably after > 5 days from initial infection (n=13).
Virological success rate was 86.2%, 60% and 63.6% in each group, respectively. Clinical success rate at Day30 was 86.7%, 65.2% and 90.9% and 81.8%, 73.9% and 100% at Day100, respectively. In Group 2, 3 patients reached success at Day100 after a second course of combination treatment and in Group 3, 1 patient was successfully treated after three courses of combination treatment.
Excluding patients with early infection (Group 3), in univariate analysis, mild disease and prior early treatment were significantly associated with virological success (p=0.036 and p=0.025, respectively). Prior early treatment and young age were significantly associated with clinical success at Day 30(p=0.041, p=0.050, respectively)(Table 2). In multivariate analysis no variable reached statistical significance. Considering 69 treatment courses, a total of 3 (4.3%) adverse events were recorded, all in Group 2 (n=2 Grade 2 bradycardia, n=1 acute kidney injury).
Conclusion: Prolonged combination treatment was safe and effective in treating COVID-19 in immunocompromised patients.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_266.png

SARS-CoV-2 infection and long COVID

P 118 CYTOMEGALOVIRUS REACTIVATION IN NON-SEVERE COVID-19: TWO EMBLEMATIC CASES OF OROPHARYNGEAL MUCOSITIS IN IMMUNOCOMPROMISED PATIENTS

R. Astorri[2], A. Russo[1,2], P. Medusa[2], N. Carro[2], A. Dell'Aquila[2], I. Palma[2], C. Ricozzi[2], K. Gjeloshi[2], S. Imbriani[2], C. Sagnelli[1,2], M. Pisaturo[1,2], N. Coppola[1,2]

[1]Infectious Disease Unit, Department of Mental Health and Public Medicine, University of Campania "L. Vanvitelli" - Naples, Italy, [2]Infectious Disease Unit - AOU Vanvitelli, Naples, Italy

Background: This new phase of COVID-19 pandemic is characterized by a more sustainable burden, as it is dominated by less virulent variants interacting with a limitedly susceptible population, due to the presence of a broad specific immunization (either natural or due to large-scale vaccination programmes), in immunecompetent individuals.
In this milder phase, increasing interest is dedicated to the understanding of COVID-19 post-acute sequelae and to obtain a clearer view its clinical heterogeneity. In particular, focusing on non-severe COVID-19 may reveal the mechanisms of a subacute clinical progression, and highlight the role of coinfections and reactivations of latent pathogens, particularly high-prevalence viruses, such as herpesviruses.
Undoubtedly, immunocompromised subjects represent the main challenge of the current phase, due to a limited response to vaccines, prolonged viral shedding, and reactivation of microorganisms.
Cytomegalovirus (CMV) is a well-known exacerbating factor of severe COVID-19, particularly of pneumonia, but wide knowledge gaps remain about CMV role in non-severe COVID-19, especially when dermatological clinical features are concerned. As a consequence, specific therapeutic management is not clearly defined.
Cases description and discussion: The two reported cases (detailed in the Table) presented some important common features. Both were immunosuppressed due to a rheumatological disease (F, 48 years; mixed connective tissue disease with Sjögren syndrome and seronegative arthritis) or, combinedly, rheumatological and oncohaematological disorders (M, 64 years; ankylosing spondylitis and chronic lymphatic leukemia), undergoing anti-CD20 therapy (rituximab).
The two subjects exhibited a long-term positivity (months) of SARS-CoV-2 nasopharyngeal swabs, with radiological findings of severe persisting lung alterations, but with a largely compensated clinical presentation, due to a slow adaptation. Both developed orolabial painful herpes-like lesions (Figure), in the presence of CMV-DNA on blood samples, documented by PCR. Bioptic sampling of the lesions was rejected by the patients.
In both cases, the administration of valganciclovir correlated with rapid relief and a regression of the lesions, with a comparable timing of about 5 days.
Our observations are clearly limited by their “ex adiuvantibus” nature and by the availability of only two cases. Nevertheless, literature evidence for CMV role in non-severe COVID-19 patients is drastically scarce. Thus, we suggest that a quantity of orolabial ulcers may be due to a low-level replication of CMV, rather than SARS-CoV-2 itself, and it would be ideal to understand the targets of CMV-specific therapies.
Conclusions: COVID-19 patients with aphtous oral-perioral mucocutaneous lesions and a documented systemic replication of CMV (even low-grade), are likely to benefit from CMV-specific therapies. Bioptic studies may support the definition of the pathogenetic role of CMV in these patients.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_406.jpg

SARS-CoV-2 infection and long COVID

P 119 COMBINATION THERAPY IN IMMUNOCOMPROMISED PATIENTS WITH COVID-19

R. Papale, F.R.P. Ieva, I.F. Bottalico, F. De Gregorio, G.A. Minafra, T.A. Santantonio, S. Lo Caputo

U.O.C of Infectious Diseases, Policlinico "Riuniti", University of Foggia, Italy

Prolonged or relapsed COVID-19 in severely immunocompromised patients (IP) still represents a difficult challenge to face in these days, these patients have higher morbidity and mortality than general population. A growing number of data supports the use of combination therapies with Antivirals and Monoclonal antibodies (mAbs) in IP with COVID -19. Dual o triple combination therapy with antivirals and mAbs often leads to improved clinical and virological response.

Objective: Here we report our experience with dual or triple combination therapy with antivirals Remdesivir, Nirmatrelvir/Ritonavir and mAbs Sotrovimab, as treatment of hospitalized adult patients with severe immunodeficiency related to onco-hematological diseases, ongoing chemotherapy or post-transplant immunosuppression.

Results: from March 2022 to March 2024, 22 hospitalized adult IP with SARS-CoV-2 infection were treated with Remdesivir in combination with mAb Sotrovimab, or antiviral Nirmatrelvir/Ritonavir or both. The length of treatment with antivirals goes from 3 to 14 days. All patients were followed until the discharge or death during hospitalization.

21/22 patients have hematologic malignancies and all were treated with Remdesivir, 6 of them received a treatment with Sotrovimab + Remdesivir (Group A), 6 patients were treated with Remdesivir + Nirmatrelvir/Ritonavir (Group B), 10 patients received triple therapy with Sotrovimab + Remdesivir + Nirmatrelvir/Ritonavir (Group C). All patients after the treatment achieved negativity to nasal-swab for SARS-CoV-2 during the hospitalization, none had adverse events to the therapy.

In group A the median age was 67 years, 66% had more than 3 comorbidities, 34% had 3 comorbidities or less, 83% was vaccinated for SARS-CoV-2 with at least 2 doses. The median time to reach negativity to nasal-swab from the admission was 19 days. All patients were discharged.

In group B the median age was 79 years, 66% had more than 3 comorbidities, 34% had 3 comorbidities or less, 50% was vaccinated for SARS-CoV-2 with at least 2 doses. The median time to reach negativity to nasal-swab from the admission was 26 days. One patient (17%) died during the hospitalization, 5 (83%) were discharged.

In group C the median age was 67 years, 60% had more than 3 comorbidities, 40% had 3 comorbidities or less, 70% was vaccinated for SARS-CoV-2 with at least 2 doses. The median time to reach negativity to nasal-swab from the admission was 20 days. All patients were discharged.

Conclusions: Our real-life experience supports the effectiveness of combination therapy with antivirals and/or mAbs even in severely IP affected by COVID-19 who required hospitalization, all patients treated achieved negativity to nasal-swab during the hospitalization. Both dual and triple combination therapy showed a good tolerability profile. In these patients, the rapid start of combination therapies can play a crucial role in reducing the risk of evolution towards more severe forms of COVID-19.

SARS-CoV-2 infection and long COVID

P 120 SEX DISPARITY IN COVID INFECTION: A RETROSPECTIVE STUDY USING SERUM ELECTROPHORETIC ANALYSIS (SPE) IN MEN AND WOMEN INFECTED BY COVID-19

F. Tomassetti[1,2], E. Cappa[1,2], R. Salierno[1,2], V. Rossi[1,2], F. Pacifici[1,2], M. Pieri[1,2], S. Bernardini[1,2], M. Morello[1,2]

[1]Department of Laboratory Medicine, "Tor Vergata" University Hospital, Rome, Italy, [2]Department of Experimental Medicine, University of "Tor Vergata", Rome, Italy

Background: Several epidemiological studies demonstrated differences in the severity of symptoms and in the clinical course of the infection between females and males affected by COVID-19 [1–3]. Although men and women show the same incidence of being infected by COVID-19, men are more likely to experience severe symptomatology and exhibit higher mortality [2–4]. Nevertheless, nowadays the biological mechanisms driving these differences are still poorly understood and sex disparity may be explained because females compared to men have a stronger immune response and focus more on health prevention. As reported, several inflammatory biomarkers, mainly used to measure the size of the severity of infection resulted in higher in men than in women [5,6]. Our work focused on the alteration of inflammatory serum proteins and it was performed a retrospective analysis of serum protein electrophoresis (SPE) respectively in women and men infected by COVID-19.

Methods: Samples from COVID-19 hospitalized patients were collected and inflammatory proteins, such as Protein C (CRP), Neutrophil-to-lymphocyte ratio (NLR), interleukin (IL) 6, fibrinogen and D-dimer, performed by Alinity c-series (Abbott, Chicago, Illinois, US), and the analysis of SPE, performed by Capillarys 3 TERA (Sebia, Lisses, France), were indagated. The samples were divided into group of survived (S, n=140) and not survived (NS, n=33) patients respectively subdivided into men and women. Also, 82 healthy patients with negative COVID-19 molecular swabs, were enrolled as a control group. Statistical analyses were performed by MedCalc (MedCalc Software Ltd, Ostend, Belgium).

Results: It was observed that CRP and NLR showed significantly higher values in men than in women for both Sand NS groups ($p<0.05$). In the SPE analysis, we noticed different values of beta 2 and gamma that were significantly different just in S patients ($p<0.001$)linked to the sex of patients. All the SPE fractions of the S and NS groups lead to significant results compared to the control group.

Conclusion: This observational study for the first time lighted the sex disparity in COVID by serum SPE analysis. Considering that: i) the proteins that migrate in these areas are involved in the immune response ii) the size of areas are statistically different in S and NS respectively women and men patients, this retrospective work could offer clinicians a new consideration about the prognosis and for a better pharmacological choice in depending of the sex of patients.

Sexually transmitted infections

P 121 ANORECTAL LESIONS: THINK TWICE

V. Gennaro[1], C. Tettoni[2], A. Lucchini[2], S. Bonora[1,2]

[1]Università degli studi di Torino, Italia, [2]ASL Città di Torino - Clinica Universitaria, Italia

Lymphogranuloma venereum (LGV) is a sexually transmitted ulcerative disease in the genital area caused by a Gram negative bacterium, Chlamydia trachomatis serovar L1, L2 and L3.
The clinical presentation of genital LGV is characterized by painful ulcerated papules and inguinal lymphadenopathy. In case of anorectal localization, it can cause proctitis, tenesmus and anal discharge, and sometimes it leads to complications such as anorectal fistulas and stenosis. The main differential diagnoses are Chron's disease and neoplastic lesions. (1) (2)
Our case is about a 58 yo male patient with HIV since 2011, in treatment with DTG+3TC+ABC, last checkup (1/3/23) CD4 662 cells/uL, virosuppressed.
In December 2023 he was admitted to the ER for diarrhea, weight loss and mucorrhea. The colonoscopy (15/12) revealed a rectal ulcerated lesion on approximately 2/3 of the circumference. Biopsy was performed, but histological typing was inconclusive.
Contrast abdominal CT (3/1) was also performed, and it showed a “voluminous solid circumferential lesion affecting the wall of the rectum, extended for approximately 9 cm, (…) with suspicion of rectal heteroplasia”.
A new colonoscopy (17/1) with surgical biopsies was therefore performed. Histological examination (02/02) described a “chronic inflammatory process, partly active and ulcerative, of the mucosa and submucosa of the large intestine with preserved glandular architecture. (…) Morphological picture of non-univocal interpretation, non specific histological characteristics. Rectal localization of Chron's disease cannot be excluded”.
For further characterization of the lesion, abdominal MRI was requested (30/1): presence of “widespread wall thickening throughout the entire thickness of the rectum (…); extensive edematous imbibition of the perirectal adipose tissue with numerous enlarged lymph nodes (…)”
At the check-up visit at the HIV clinic, during the anamnesis, it emerged the risk for sexually transmitted diseases, and a differential diagnosis with Venereal Lymphogranuloma was therefore established.
The anal swab was then performed for rapid molecular research of Chlamydia Trachomatis DNA with serotype LGV (12/2), with positive result. Treatment was therefore started (20/2) with Doxycycline 100 mg BID for 21 days (3), with clinical improvement.
The patient is now waiting for a new colonoscopy to re-evaluate the lesion.
This case demonstrates the importance of considering LGV among the differential diagnoses of ulcerated rectal diseases. More generally, it demonstrates the need to train the entire medical community to recognise the clinical aspects related to sexually transmitted diseases, in order to avoid the execution of invasive tests and expensive investigations without benefit.

Sexually transmitted infections

P 122 THE USE OF PRE-EXPOSURE PROPHYLAXIS (PREP) IN THE CONTROL OF HIV INFECTION AND OTHER SEXUALLY TRANSMITTED DISEASES (STDS). DESCRIPTIVE-OBSERVATIONAL ANALYSIS IN AN ITALIAN POLYCLINIC

D. Cicetti[1,2], S. Vitale[1,2], L. Appolloni[1,2], G. Pensalfine[1,2], M. Traficante[1,2], R. Caprara[1,2], A. Poma[3], F. Baldasso[3], M. Cantini[3], L. Calza[3], V. Colangeli[3], A. Stancari[1]

[1]IRCCS University Hospital Company - S.Orsola-Malpighi Polyclinic - Clinical Pharmacy, Research and Development, Bologna, Italy, [2]IRCCS University Hospital Company - S.Orsola-Malpighi Polyclinic - Department of Infectious and Tropical Disease, Bologna, Italy, [3]IRCCS University Hospital Company - S.Orsola-Malpighi Polyclinic - Intercompany Deparment Integrated Infectious Risk Managment, Bologna, Italy

The use of the pre-established combination, emtricitabine/tenofovir disoproxil fumarate, for prophylaxis represents a new and effective tool for the prevention and containment of HIV infection.
The list of analyzed patients was generated by using the GACC company management system, selecting as mode of operation the dispensing of medicines in the field of HIV pre-exposure prophylaxis. Through the E4Cure platform, it was possible to obtain information related to: Date of initiation of prophylaxis, schedule of intake, possible acquisition of HIV-1 infection and other major STDs such as HCV, HBV, syphilis, Chlamydia and gonococcus, as well as their serologic and possible vaccination status. Finally, information on HPV vaccination status was also recorded.
Between Aug 2023 and Feb 2024, 517 patients had access to the medication dispensary of the Infectious Diseases Department to collect PrEP. The average age of the population was 38 years and 98% were men. We do not have data for 93 patients who were treated at the BLQ clinic. The analysis of 424 patients showed that the average duration of PrEP use was 17 months and that the preferred mode was “daily” in 56.8% of cases .Of the 424 patients analyzed, 67 of whom had started treatment several months ago, so we have no data on the possible acquisition of the various STDs, as no further visits were conducted. Only 1 patient contracted HIV-1 during PrEP on demand, showing a 99.8% success rate of prophylaxis. However, in 357 patients, there are significant data on the acquisition of other sexually transmitted diseases. In particular, gonorrhoea is the most frequently recorded infection with at least one episode in 30.5% of patients; followed by Chlamydia trachomatis infections 26.8%, and Luetica 12.6%. 11 patients had at least one episode of each of the three STDs. No new HBV infections were diagnosed, while 1 case of HCV acquisition was diagnosed. Of the population analyzed, only 50.7% of cases were not infected with sexually transmitted pathogens. 77.6% of the total 424 patients analyzed were vaccinated against HBV, with 78.4% of cases having a protective antibody titer; in the remaining 8.2% serology was consistent with previous infection. Regarding protection against HPV, 42.9% of patients had been vaccinated with 3 doses, 27.1% had not been vaccinated and 7.3% was completing the vaccination cycle having received at least one administration, no data were available for 96 patients.
It appears that pre-exposure antiretroviral chemoprophylaxis is indeed an effective means of preventing the acquisition of HIV-1 infection, as of all 357, patients only 1 patient acquired the infection during the study period, with a treatment success rate of 99.8%. However, 49.3% of patients were diagnosed with at least one STD. Therefore, although PrEP is an effective means of reducing the spread of HIV-1 infections, this treatment does not eliminate the possibility of contraction all other sexually transmitted diseases.

Sexually transmitted infections

P 123 SCREENING OF SEXUALLY TRANSMITTED DISEASES: EXPERIENCE FROM GALLIERA HOSPITAL IN GENOA

R. Prinapori, D. Fiorellino, S. Puppo, E. Blasi Vacca, N. Bobbio, S. Boni, F. Del Puente, M. Feasi, A. Parisini, S. Tigano, E. Pontali

Infectious Disease Department, Galliera Hospital, Genoa, Italy

Background: Sexually transmitted diseases (STDs) are still a significant public health concern. To decrease circulation of STDs among attendees of our outpatient unit we have focused on increasing awareness, testing population based on individual risk and early treatment of incident infections.

Material and methods: Since most STDs are symptomless and underdiagnosed, we proactively proposed STDs testing with medical visit for sexual health education and pre-test counseling every morning, from Monday to Friday at our outpatient center. No reservation is required, free direct access for HIV and/or STDs testing is the rule. All outpatient visits were counted from 1st January 2019 to 31st December 2023. Visits were matched for exemption code (B01) and year. All positive tests for HIV, syphilis (TPHA) or urinary nucleic acid amplification test (uNAAT) for Chlamydia trachomatis (CT), Neisseria gonorrhoeae (GC), Mycoplasma genitalium or hominis (MG/MH) or Ureaplasma urealyticum were evaluated.

Results: Out of 50,998 visits performed, 2106 (4.1%) were provided with B01 exemption code. In Figure 1 the proportion of B01 accesses by year is reported: the rate increased from 2% in 2019 to 7.9% in 2023. The number of tested patients with the incidence of STDs by year is reported in Table 1. During the observation period 272 STDs were diagnosed. Among tested patients, HIV infection was present in 1.2%, TPHA positive subjects were 6.6%, the positivity rate of uNAAT for CT, GC, MG/MH or UU was 0.7%, 0.9%, 1.5% and 1.9% respectively.

Conclusions: In our cohort the proportion of accesses for HIV/STDs screening showed a progressive increase over the years. Activities related to STDs surveillance and prevention impact more and more on the daily workload of our outpatient unit. This fact can be explained by the offer of a very easy access with immediate testing and results in few days. Furthermore, the increased availability of information in different settings as medical checkpoints and sexual educational programs on the territory or via web leads to a greater awareness of patients to STDs testing and linkage to care. A role in increased STDs screening is also played by the increasing diffusion and implementation of Pre-exposure Prophylaxis (PrEP) as HIV prevention strategy, especially since it became a reimbursable service.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_86.png

Sexually transmitted infections

P 124 A CASE OF SECONDARY SYPHILIS WITH PULMONARY INVOLVEMENT IN A PERSON LIVING WITH HIV

F. Guida Marascia[1], A. Gizzi[1], M. Abbott[1], G. Pipitone[1], C. Buscemi[1], C. Imburgia[1], A. Sanfilippo[1], G. Ciusa[1], S. Agrenzano[1], F. Di Lorenzo[1], A. Cascio[2], C. Iaria[1]

[1]Infectious Diseases Unit, ARNAS Civico-Di Cristina Hospital, Palermo, Italy, [2]Infectious and Tropical Diseases Unit, Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties, "G D'Alessandro, University of Palermo, AOUP P. Giaccone, Palermo, Italy

Background: Syphilitic pneumonia, known as a manifestation of early congenital syphilis, is a rare manifestation of secondary syphilis in adults. It's a condition described on literature and reported in 8 cases in person living with HIV, include our case.

Case presentation: A 35-year-old man living with HIV with ten days history of fever and asthenia came to our emergency department after symptoms worsening. He was receiving ART with DRVc/TAF/FTC and his viral load was stably suppressed with CD4 > 500 cells/μL. Upon arrival, the physical examination showed papulo-erythematous lesions on the trunk and back, the patient had dyspnea, tachypnea (respiratory rate 24 breaths/min) and respiratory failure for which oxygen therapy with Venturi Mask FiO2 35% was necessary.

At the hospital admission his blood tests showed normal blood cells count, increased C-reactive protein (6x normal value), negative procalcitonin and increased ALT (3x normal value). Widal-Wright, Weil-Felix, blood cultures and QuantiFERON were negative, while rapid plasma reagin (RPR) and Treponema pallidum Haemoagglutination Assay (TPHA) were positive; these were performed five months earlier during follow up and resulted negative. He underwent a lung CT scan with contrast which showed multiple rounded nodular lesions (approximately 5-6 mm) in the middle lobe and in both lower lobes (figure 1). Then, a bronchoalveolar lavage was performed on which the following microbiological tests were requested: cultures for bacteria and fungi, Aspergillus Galactomannan, respiratory panel with film array, Pneumocistis jirovecii DNA, Mycobacterium tuberculosis DNA. All these exams were negative. Treponema pallidum DNA testing was positive. Therefore, a diagnosis of pulmonary syphilis was made and the patient was treated with intramuscular benzathine penicillin 2.4 MU. The patient was discharged the following week with good oxygen saturation in room air, afebrile, in the absence of skin lesions, with improvement in inflammation indices.

Conclusion: Atypical or rare presentation of infections sexually transmitted, in this case of syphilis, must be considered in all person living with HIV, even if they have optimal virological response to ART. Diagnosis may be challenging and more efforts should be made by clinicians and researches for awareness improvement.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_92.jpg

Sexually transmitted infections

P 125 LONG DISTANCES FOR STI CARE. THE CASE OF THE AN AMBULATORY SERVICE IN BARI

L. Ronga[1], E. Milano[2], E. Ranieri[1], M. Mastria[1], F. Indraccolo[1], F. Campione[2], M. Chironna[3], F. Di Gennaro[2], A. Saracino[2]

[1]Section of Microbiology and Virology, University Hospital Policlinico, Bari, Italy, [2]Clinic of Infection Diseases, University of Bari, University Hospital Policlinico, Bari, Italy, [3]Department of Interdisciplinary Medicine, University of Bari Aldo Moro, Bari, Italy

Background: Sexually transmitted infection (STI) clinics play a crucial role in providing a safety net, ensuring patients have access to comprehensive STI care. However, availability, cost, quality of services and distance are important barriers to accessing this care.
Our objective is to assess the geographic proximity of patients accessing the STI ambulatory care service at the Policlinico of Bari by evaluating the straight-line distances from their residences.
Material and methods: We collected addresses of individuals accessing the STI service in Apulia anonymously, converting them to latitude and longitude data. Euclidean distance to the Policlinico of Bari was then calculated. Only the first visit was considered in the analysis.
The spatial point pattern was analyzed by a non-parametric evaluation of the intensity and by the Ripley's K functions for homogeneous and inhomogeneous processes. Univariate analysis was performed by Kruskal-Wallis's test.
Statistical analysis was performed by the open source statistical environment R (version 4.3.1) with the package statspat.
Results: We included 134 cisgender patients (2 female, 132 males) with a median age of 37 years (IQR: 31.25 -43.75). The majority of patients lived in Bari (37, 27.61%), followed by Barletta (7, 5.22%) and Bisceglie (6, 4.47%). The primary sources of information about the STI ambulatory were the HIV ambulatory (30.47%), Internet (26.56%), and friends (22.66%).
The characteristics of the patients are provided in Table 1.
The distribution of the distances from the ambulatory displayed a bimodal pattern with a long right tail. Median distance was 24.32 Km (IQR:5.66-37.52, minimum: 0.34, maximum: 101.43) (Fig. 1).
None of the variables were associated with an increase in distance from the ambulatory.
Spatial analysis revealed an inhomogeneous point process, as assessed by the kernel estimate of the intensity function and by the K Ripley's function (Fig. 2, Fig. 3, Fig. 4). Specifically, the spatial process exhibited clustering at short distances (<18 km) and dispersion at distances >30 km, with intensity decreasing as distance from the ambulatory increased (Fig. 4).
Conclusions: The majority of patients has a long way from home (>10 Km, 63.43%) for a STI evaluation, meaning that the ambulatory likely fill an important need of well-being of a specific population with increased risk of low condom use, previous STI and/or HIV infection and suspected STI symptoms. This means that the meshes of the safety net in Apulia are likely loose and they need to be reinforced.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_204.png

Sexually transmitted infections

P 126 MEETING ON HIV AND SEXUALLY TRANSMITTED INFECTIONS IN A HIGH SCHOOL IN PALERMO, ITALY

L. Pipitò, M. Trizzino, R. Gaudiano, A. Gizzi, A. Cascio

Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties "G D'Alessandro," University of Palermo, Palermo, Italy

Background: Sexually transmitted infections (STIs) and HIV remain significant public health concerns worldwide and every day it is estimated over 1 million STIs are acquired. In Italian schools, sex education is not routinely included in the curricula leading to widespread ignorance among students regarding HIV and STIs. This study aims to assess the level of knowledge concerning STIs and HIV among high school students from a school in Palermo.

Material and Methods: During World AIDS Day on December 1st, a meeting was organized with students from a high school in Palermo to discuss topics related to HIV and STIs. Before the meeting, a questionnaire comprising 36 closed-ended questions was distributed via Google Forms to assess the students' sexual habits and knowledge of STIs and HIV. The results were summarized by absolute and relative frequencies.

Results: A total of 192 Google Forms were collected. The age distribution of the students is depicted in Fig 1. Among respondents 58.6% were male. Most students reported knowing at least 1 IST (Fig 2). 53.4% of the students reported having sexual intercourse, with 27.7% reporting at least one casual intercourse. Of the sexually active students, 53% reported always using a condom before intercourse. Overall, 79.6% responded that the male or female condom is the best method of STI prevention. Thirty students agreed that condoms ruin a couple's intimacy. A few students (5.8%) reported having already experienced an STI. However, almost none of the students (93.7%) had ever had HIV or other STI tests.

Regarding HIV infection transmission, 58.6% of students correctly knew how the infection was transmitted (vaginal, anal, rarely oral intercourse, and blood), while 29.3% believed it could also be transmitted with saliva alone. Instead, 14.7% of students did not know that STIs such as gonorrhoea or syphilis could also be transmitted through oral sex. Most students (96.9%) did not know the meaning of “Undetectable Equal Untransmissible” (U=U), and 54.5% did not know that people living with HIV (PLHIV) can have children without transmitting HIV. A few students (9.4%) harboured stigma towards PLHIV, believing that PLHIV had contracted the infection through their fault as men who have sex with men, drug addicts, or with bad sexual habits. However, 30.7% of students would feel discriminated against if they had HIV. Pre-exposure and post-exposure prophylaxes for HIV are unknown in almost (96.9%). More than half of students would like the HIV test to be mandatory for everyone. Almost all students (95.3%) would like sex education to be studied at school.

Conclusions: Sex education is crucial in schools because ignorance about HIV, STIs, and prevention contributes to the spread of STIs and fosters stigma towards PLHIV. Initiatives like ours should be encouraged in all Italian high schools, and sexual education should be included as part of the curriculum.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_241.png

Sexually transmitted infections

P 127 SEXUAL BEHAVIOUR AND AGE RELATED INCIDENCE OF SEXUALLY TRANSMITTED INFECTIONS IN PREP'S USERS

F. Romano, M. Ridolfi, F. Alessi, E. Bogliolo, M. Maiorano, I. De Angelis, L. Santinelli, C.M. Mastroianni, G. d'Ettorre

Department of Public Health and Infectious Diseases, Sapienza University of Rome, Policlinico Umberto I of Rome, Rome, Italy

Background: Prevention of HIV transmission is fundamental to ending the HIV epidemic. Pre-exposure prophylaxis (PrEP) with oral tenofovir-emtricitabine (TDF-FTC) is an established HIV-prevention method. The reduced condom use and the diffusion of PrEP could lead to an increased risk of sexually transmitted infections (STI) acquisition. We report the characteristics and incidence of IST infection in PrEP's users followed at Department of Public Health and Infectious Diseases , Policlinic Umberto I, Sapienza University in Rome.

Material and Methods: this is a retrospective single center analysis conducted on PrEP's users attending the Infectious Disease Department from January 2019 to March 2024. All subjects were tested for C. trachomatis (CT), N. gonorrhoeae (NG) and T.pallidum (Syphilis) infection, HIV, hepatitis A (HAV) and C (HCV), Herpes 2 (HSV2), HPV by blood tests and multiplex PCR on urine specimen or rectal swabs.

Results: 410 PrEP's users including MSM (96,1%) and transgender (3,9%) were enrolled. The overall incidence of CT was 3,6% (15/410) , NG 6,6%(27/410), syphilis 13,4%(55/410) , HIV positive 0,5%(2/410), HAV 0%, HCV 0%, HSV2 0,7%(3/410) and HPV 1,5%(6/410). To better clarify the impact of the PrEP on the incidence of IST, we stratified the studied population in 4 range of age : <30, 30-45,45-60 and >60 ag)(Table1). We found an increased incidence of Syphilis in PrEP's users with >60 years (19%) and of NG in the 30 -45 years group (15,6%).

Conclusions: Our analysis emphasize the importance of the screening of STI in PrEP's users independently from age and sexual behavior. In a context of declining condom use related surveillance, counselling and intervention programs need to be further reinforced.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_285.jpg

Sexually transmitted infections

P 128 PREVALENCE OF SEXUALLY TRANSMITTED INFECTIONS IN CISGENDER WOMEN COMING TO WALK-IN CENTER

G. Catalano[1], S. Diotallevi[1], R. Lolatto[1], B. Trentacapilli[1], M. Ranzenigo[1], E. Bruzzesi[1], A. Castagna[1,2], S. Nozza[1,2]

[1]Infectious Diseases Unit, Vita-Salute San Raffaele University, Milan, Italy, [2]Infectious Diseases Unit, IRCCS San Raffaele Scientific Institute, Milan, Italy

Background: In the last decades, gender medicine has become a mainstay of the everyday clinical practice. So far, there are few studies on sexually transmitted infections (STIs) in the female population, mainly focusing on specific groups such as sex workers and pregnant women. This retrospective study aims to provide chlamydia infections, gonorrhea and syphilis prevalence between asymptomatic and symptomatic cisgender women coming for the first time to the walk-in STI center.

Material and methods: For this study we included women coming to Infectious Diseases Unit of San Raffaele Scientific Institute, Milan, Italy and performing ≥1 screening within the Center inauguration (1 May 2022) to date of freezing (31 December 2023). We described baseline as every first visit with screening performed in our center.

Each screening included blood antibody detection for HIV and treponemal and non-treponemal tests; real-time PCR on pharyngeal swab for detection of N.gonorrhoeae and on urine samples for C. trachomatis, N. gonorrhoeae, and Mycoplasma species; lastly cultural exam on pharyngeal swab for detection of C. trachomatis. Diagnosis was defined by positivity to at least one test mentioned above, and treatments were provided according to CDC STI guidelines.

We differentiated women into asymptomatic whenever they arrived for a routine check-up since they had no symptoms to report and symptomatic the ones who complained of at least one genital or systemic symptom.

Characteristics of people reported as median (interquartile, IQR) or frequency (%) and compared using Mann-Whitney or Chi-Square/Fisher's tests.

Results: Individuals' baseline characteristics are described in Table 1. After screening, 20 (10.6%) were diagnosed with chlamydia infections [15 (11.6%) asymptomatic, 5 (8.33%) symptomatic; p=0.67], 10 (5.29%) with gonorrhea [4 (3.10%) asymptomatic, 6 (10%) symptomatic; p=0.08] and 5 (2.65%) with syphilis [5 (3.88%) asymptomatic; p=0.18]. Except for 1 woman with chlamydia, the remaining 34 women received treatment for the STIs reported (Table 2). Two (1.55%) asymptomatic individuals received pre-emptive treatment (p=1.00), without performing screening, since they were contacts of positive partners for STIs. Among 128 (67.7%) women returning for follow-up [88 (68.2%) asymptomatic, 40 (66.7%) symptomatic; p=0.96], 39 (20.5%) performed another screening [24 (18.6%) asymptomatic, 15 (25%) symptomatic; p=0.41] and 9 (4.76%) were diagnosed with new STIs (including Mycoplasma and Ureaplasma species related infections) [5 (3.88%) asymptomatic, 4 (6.67%) symptomatic; p=0.47] (Table 3).

Conclusions: In our Center, most women coming to consultation for the first time were young, asymptomatic and without a history of previous STIs. However, diagnosis of at least 1 STI (chlamydia, gonorrhea and syphilis) was equally prevalent between asymptomatic and symptomatic individuals at first evaluation.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_288.jpg

Sexually transmitted infections

P 129 MOLECULAR ASSAY-BASED EXTRAGENITAL SCREENING FOR CHLAMYDIA TRACHOMATIS AND NEISSERIA GONORRHOEAE IN MEN WHO HAVE SEX WITH MEN

R.J. Steiner[1], A. Vella[2], B. Posteraro[3,4], G. De Angelis[2,3], M. Sanguinetti[2,3], D. Farinacci[2], C. Torti[1,2], S. Di Giambenedetto[1,2]

[1]Università Cattolica del Sacro Cuore, Rome, Italy, [2]UOC Malattie Infettive e Tropicali, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy, [3]Dipartimento di Scienze Biotecnologiche di Base, Cliniche Intensivologiche e Perioperatorie, Università Cattolica del Sacro Cuore , Roma, Italy, [4]Dipartimento di Scienze Mediche e Chirurgiche Addominali ed Endocrino Metaboliche, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy

Background: Chlamydia trachomatis (CT) and Neisseria gonorrhoeae (NG) are prominent sexually transmitted infections (STIs) continuing to affect young populations, particularly men who have sex with men (MSM), with an alarming disproportion. Extragenital screening, targeting rectal and pharyngeal sites, has been underscored due to the high incidence of asymptomatic infections in these locations, potentially facilitating undetected STI transmission.
In January 2021, the Food and Drug Administration cleared the Roche Cobas 4800 CT/NG assay as the latest molecular assay for detecting CT/NG in rectal and pharyngeal swab samples.
Material and Methods: This study analyzed the outcomes of extragenital screenings for CT and NG among MSM attending the Infectious Disease Clinic of the Fondazione Policlinico Universitario A. Gemelli, for HIV pre-exposure prophylaxis (PrEP) or antiretroviral treatment, from February to July 2023.
Using the Roche cobas 4800 CT/NG molecular assay, pharyngeal (n=117) and rectal (n=107) swab samples were examined. The sample cohort comprised individuals on PrEP (n=35) and those living with HIV (LwHIV) on antiretroviral treatment (n=77).
Results: Out of 112 MSM tested, pharyngeal swabs revealed 2 (2.7%) positive for CT only, 14 (13.4%) for NG only and 1 (0.9%) for both. Rectal swabs indicated 3 (2.8%) positive for CT only, 9 (8.4%) for NG only and 2 (1.9%) for both. Notably, 4 (3.7%) MSM had NG infections at both sites. Symptomatic cases were relatively low, with only 7 (33%) of 21 MSM with at least one positive result showing symptoms. Prevalence of positive results was higher in PrEP users (25.7%) than in people LwHIV (15.6%), although not statistically significant difference between the two groups was detected (p = 0.156). Treatment was administered accordingly, with doxycycline for CT and ceftriaxone for NG infections.
Conclusions: Molecular detection of CT and NG in extragenital sites facilitates early identification and treatment of these STIs, that were found at a significant prevalence in an asymptomatic stage among MSM. This study supports the enhancement of routine multisite screening to curb STI transmission within high-risk populations.

Sexually transmitted infections

P 130 M. GENITALIUM MACROLIDE AND FLUOROQUINOLONE RESISTANCE IN CE.MU.S.S. COHORT: A DESCRIPTIVE MONOCENTRIC REPORT

M. Tutone[1], P. Sales[1], L. Bello[1], S. Del Monte[1], D. Agosta[1], G. Gregori[2], V. Ghisetti[2], A. Lucchini[1]

[1]Multidisciplinary Sexual Heath Clinic (Ce.Mu.S.S.), ASL Città di Torino, Italy, [2]Laboratory of Microbiology and Virology, ASL Città di Torino, Italy

Background: Mycoplasma genitalium is a common cause of non-chlamydial non-gonococcal urethritis (20-25%) in males and cervicitis in females. It determines 40% of persistent or recurrent urethritis in men and increases PID and/or perinatal complications risk in women. It may play a role in proctitis, specially in MSM. NAAT for M. genitalium is the gold standard for diagnosis. M. genitalium antibiotic susceptibility is limited, with macrolide and fluoroquinolones recognised as main active agents. M. genitalium antimicrobial resistance worldwide increase represents a concern due to the scarcity of therapeutical options left. Limited data are avaliable in Italy on M. genitalium antibiotic resistance rate.

Methods: At the Sexual Health Clinic in Torino (Ce.Mu.S.S.), M. genitalium NAAT is performed in case of non-chlamydial non-gonococcal urethritis/cervicitis/proctitis and among patients who report sexual contact with confirmed M. genitalium cases. From 26/04/2023, in case of M. genitalium NAAT positivity, macrolide and fluoroquinolones susceptibility testing with real-time PCR techniques detecting specific single gene resistance-associated mutations is performend on the same specimen. We retrospectively collected and analysed the results of the resistance testing performed from the 26/04/2023 to 27/03/2024.

Results: During the study period 140 NAATs for M. genitalium tested positive. Specimen tested were 67% first void urine (94/140), 17% vaginal swab (24/140), 13% anal swab (18/140), 3% urethral swab (4/140) (Fig. 1). Macrolide resistance was positive in 39.3% (55/140) of specimens, undetermined in 25.7% (36/140). Fluoroquinolone resistance was positive in 19.3% (27/140), undetermined in 20.7% (29/140), not tested in 1.4% (2/140) specimens (Fig. 2). Undetermined results excluded, 37.6% (38/101) of the specimens were sensitive both to macrolides and fluoroquinolones, 62.4% (63/101) showed resistance at least to one of the two antibiotics and 18.8% (19/101) were resistant to both agents (Fig. 3). Fluoroquinolone susceptibility was preserved in 65.5% (36/55) of the macrolide-resistant specimens, while macrolide resistance was detected in 70.4% (19/27) of the fluoroquinolone resistant specimens (Fig. 4).

Conclusions: Our cohort shows non negligible macrolide and fluoroquinolones resistance rates (39.9% and 19.3% respectively). In 18.8% of cases resistance to both agents was detected, arising remarkable concerns about antimicrobial regimen choice due to the scarcity of evidencies avaliable for minocycline therapy and the unavailability of pristinamycine, which is not registered in Italy. Furthermore, the unavaliability of antibiotic susceptibility testing in most clinical settings entails the empirical choice of the antimicrobial regimen prescribed; M. genitalium antimicrobial resistance data in Italy are lacking, and more evidencies on antibiotic resistance rate are needed to drive clinicians decisionmaking.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_329.png

Sexually transmitted infections

P 131 EMERGING SEXUALLY TRANSMITTED INFECTIONS OUTBREAK: DERMATOPHYTOSIS AMONG MEN WHO HAVE SEX WITH MEN IN MILAN, ITALY

C. Maci[1], A.R. Raccagni[1], R. Lolatto[1], E. Messina[2], D. Canetti[2], C. Tassan Din[2], M. del Carmen Garcia Martearena[1], G. Torkjazi[1], M. Bottanelli[1], A. Castagna[1,2], S. Nozza[1,2]

[1]Vita-Salute San Raffaele University, Milan, Italy, [2]IRCCS San Raffaele Scientific Institute, Milan, Italy

Background: Dermatophytoses are infections of the skin or adnexa, which are extremely widespread in the environment. Transmission can occur through both direct (i.e. human-to-human and animal-to-human contact or soil-to-human spread) and indirect contact with contaminated fomites. For instance, gyms and saunas represent environments which favour the persistence and contamination of moulds. Sexually transmitted infections (STIs) are a global public health threat. They are on the rise, especially among men who have sex with men (MSM).
Methods: This is a retrospective monocentric study including outpatients who were diagnosed with at least one episode of dermatophytosis between March 2010 and October 2023 at the Infectious Diseases Unit of San Raffaele Scientific Institute, Milan, Italy. Mycosis diagnosis was mainly clinical following the medical visit and physical examination (figure 1).
Results: Overall, 107 people were diagnosed with dermatophytosis between March 2010 and October 2023. All 56 cases observed since April 2022 included 55 MSM and 1 female; compared to before 2022 when there was a total diagnosis of 51 cases. The rising rate of observed mycosis is presented in Table 1: an outbreak of cases among MSM was noted.
Conclusions: These results highlight the evident increase in the incidence of mycotic infections among sexually active individuals, among MSM. We are dealing with a new entity of sexually transmissible infections, in addition to the existing diseases that are being studied.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_357.png

Sexually transmitted infections

P 132 IMPLEMENTING ANAL CANCER SCREENING IN GAY AND BISEXUAL MEN WHO HAVE SEX WITH MEN STARTING FROM A COMMUNITY-BASED SETTING

E.N. Cavallari[1], V.L. del Negro[2], F. Leserri[2], V. Mazzotta[3], M. Ridolfi[1], R. Bellagamba[3], F. Romano[1], F. De Zottis[3], Y. El Abboubi[1], A. Antinori[3], C.M. Mastroianni[4], G. d'Ettorre[4]

[1]Department of Infectious Diseases Azienda Ospedaliero-Universitaria Policlinico Umberto I, Rome, Italy, [2]Plus Roma, Rome, Italy, [3]HIV Unit National Institute for Infectious Diseases Lazzaro Spallanzani IRCCS, Rome, Italy, [4]Department of Public Health and Infectious Diseases "Sapienza" University, Rome, Italy

Community-based Centers play a pivotal role in the screening for sexually transmitted infections (STIs), particularly, but not only, in the context of HIV pre-exposure prophylaxis (PrEP). "Sex Check" is a protocol following gay and bisexual men who have sex with men at high risk of STIs, taking place at Checkpoint Plus Roma. This program includes screening for anal high-risk HPV (HR-HPV) infection. Although frequently self-limiting, this infection can in some cases lead to cancer. Screening to prevent HPV related anal cancer trough the diagnosis of anal precancers is suggested in men who have sex with men not living with HIV (MSM-NLH) >45 years. Not many data are available regarding prevalence of anal precancers in younger MSM-NLH.

100 MSM referring to Checkpoint Plus Roma during the year 2023 underwent rapid blood test screening for HIV and syphilis, oral and anal swab for Chlamydia trachomatis (CT) and Neisseria gonorrhoeae (NG), anal swab for HR-HPV, with HPV 16 identification. Information regarding previous STIs, vaccinations and sexual habits were also collected.

Individuals with diagnosis of anal HR-HPV infection were referred to a dedicated ambulatory for screening of anal precancerous lesions. High resolution anoscopy (HRA) was performed if anal cytology showed low grade anal dysplasia (LSIL) or worse or in HPV16+ individuals with cytology of atypical squamous cells of undetermined significance (ASCUS) or worse. Individuals with negative or ASCUS cytology and non-HPV16 HR-HPV were referred to yearly follow-up with anal cytology.

The current analysis refers to 90 individuals since 10 participants were excluded due to known or newly diagnosed HIV infection.

Median age of the population was 37. During screening, 28% of participants received a diagnosis of Syphilis, CT or NG. A previous diagnosis of STI was reported by 38% of the population.

Anal HR-HPV infection was diagnosed in 66.6% of the population. HPV 16 was found in 30% of anal HR-HPV infection cases.

32 (53%) HR-HPV positive participants complied with the recommendation of completing anal precancer screening in a hospital setting. Cytology reports are not yet available for 2 individuals.

A negative cytology was observed in 12 (40%) participants, while a positive result was observed in 60% (12 ASCUS and 6 LSIL).

To date 9 HRA were performed leading to the diagnosis of high-grade dysplasia in 7 individuals (1 AIN3, 2 AIN2-3, 4 AIN2).

Risk factors for anal dysplasia of any grade were: HR-HPV infection (OR 3.2), HPV16 (OR 6.0), previous or current STI (OR 5.6).

HR-HPV infection (OR 1.3) was also a risk factor for high grade dysplasia.

Increasing age was not associated with the risk of anal dysplasia.

Prevalence of anal HR-HPV infection is high among MSM-NLH. Screening for anal precancer could be important in MSM-NLH <45 years, particularly if anal HR-HPV or HPV16 infection is known or suspected and in individuals with other STIs.

Improved uptake of hospital referral is needed.

Sexually transmitted infections

P 133 SYPHILIS AMONG PLWH: PREVALENCE OF THE INFECTION IN RELATION TO COVID-19 OUTBREAK

G. Sfara[1], R. Campagna[1], M.G. Leone[1], C. Nonne[1], D. Compagnino[1], M. Rossi[1], M.A. Zingaropoli[2], G. Antonelli[1], O. Turriziani[1]

[1]Department of Molecular Medicine, Sapienza University of Rome, Rome, Italy, [2]Department of Public Health and Infectious Diseases, Sapienza University of Rome, Rome, Italy

Background: The occurrence of syphilis and human immunodeficiency virus (HIV) co-infection can be frequent, with incidence rates depending on the prevalence of each infection within the community as well as individual risk factors. In this study we aimed to evaluate the possible influence of COVID-19 on syphilis screening in a cohort of people living with HIV (PLWH) in treatment at our hospital considering both reduced outpatient and laboratory activities and possible lower exposure to sexual risk situations.

Material and methods: A retrospective analysis of all cases of syphilis from January 2019 to December 2022 was carried out. We included in our investigation both patients with active syphilis as well as those with previous history of infection in a follow-up state, basing on the main syphilis diagnosis tests. Nontreponemal test was rapid plasma reagin (RPR) test while treponemal assays included Treponema pallidum haemo-agglutination (TPHA) assay and enzyme linked immunosorbent assay (ELISA) for the detection of IgM and IgG antibodies. Subjects showing TPHA in the positive ranges along with positive IgM and RPR titer were considered in active syphilis whereas patients with positive TPHA and negative RPR/IgM were considered in follow-up.

Results: Overall, from January 2019 to December 2022, a total of 12253 tests were performed.

The number of positive results for syphilis over the global number of tests during the study period was 380/3797 in 2019 (10%), 216/2448 in 2020 (9%), 174/2777 in 2021 (6%) and 242/3231 in 2022 (7%). Most of the patients tested were PLWH, specifically, 235 (62%) in 2019, 132 (61%) in 2020, 130 (75%) in 2021 and 130 (54%) in 2022.

Analyzing only the PLWH, in 2019 the number of active infections was 41/235 (17%). Until 9 March 2020, 70 tests were performed, with 12 (17%) active infections detected, while from June to December 2020, 62 tests were executed and 13 (21%) active infections were found. From 9th March to June 2020 no test was carried out. Finally, 91 (70%) and 92 (71%) patients showed active infection during 2021 and 2022, respectively.

Conclusions: Although statistical significance was not reached, the number of performed tests was lower in 2020 in comparison with 2019, and remained similar in 2021 and 2022. While in 2020 a similar rate of active infections was detected, a trend of higher incidence was observed both in 2021 and 2022. The lack of tests performed from March to June 2020 due to the pandemic restrictions could have delayed the diagnosis and possibly the treatment of syphilis in this cohort of individuals. Our data highlight the influence of COVID-19 outbreak on syphilis diagnosis and underlines the importance of thorough and frequent screening in PLWH.

Sexually transmitted infections

P 134 THIS GOES OUT TO THE UNDERDOG: HOW NOT TO NEGLECT SEXUALLY TRANSMITTED INFECTIONS

A. Tili[1], A. Soffritti[1], B. Fontana[1], F. Calandra Bonaura[1], M. Menozzi[1], C. Puzzolante[1], C. Mussini[1,2]

[1]Azienda Ospedaliero-Universitaria, Policlinico of Modena, Modena, Italy, [2]University of Modena and Reggio Emilia, Modena, Italy

Background: Lymphogranuloma venereum (LGV) is caused by Chlamydia trachomatis invasive serovars (L1, L2, or L3). Over the past decade, LGV has emerged in Europe and North America as a leading cause of proctitis and proctocolitis in men who have sex with men (MSM). Rectal ulcerations, bleeding, mucoid discharge, tenesmus and pain are the primary clinical features; prolonged infection can lead to the development of perirectal abscesses, strictures, fistulas, and systemic symptoms such as fever, malaise, weight loss and fatigue. Thus, the differential diagnosis regards mainly neoplasms and inflammatory bowel diseases.
Case presentation: A 62-year-old man came to medical observation for anal pain poorly responsive to symptomatic therapy and hemorrhagic rectal discharge. Weight loss was reported in the past few months. A Magnetic Resonance Imaging (MRI) showed a 7 centimeters-major diameter solid parietal lesion, with circumferential development in the mid-lower rectum, associated with regional lymphadenopathy – allegedly a secondary localization.
Nonetheless, several endoscopic biopsies did not confirm the diagnosis of neoplasm, as they merely showed granulomatous tissue and abundant plasma cell infiltrate. However, the patient underwent derivative surgical treatment with colostomy creation. Intraoperative biopsies showed no evidence of neoplasm as well.
An in-depth medical history revealed: previous syphilis and HCV infection; HBV-HDV coinfection; former drug addiction. Upon Infectious Disease consultation, a complete screening for sexually transmitted infections was performed: Chlamydia trachomatis NAAT was positive on rectal swab, while N. gonorrhoeae was negative. The analysis performed on the intraoperative specimens obtained the same results; on this basis, a 4 week-therapy with doxycycline was prescribed for LGV.
Over one month, symptoms improved, with a reduction in tenesmus and anal discharge; test of cure on rectal swab was negative; a new MRI scan revealed a reduction in size of the rectal lesion. Finally, the analysis on a bioptic sample obtained through another rectoscopy was negative for C. trachomatis, confirming disease resolution.
Discussion: LGV still embodies an important cause of morbidity, especially among MSM. Physicians ought to maintain a high index of suspicion for LGV when assessing patients with proctitis or symptoms suggestive of inflammatory bowel disease. Such a challenging diagnosis also requires epidemiological information and the exclusion of other etiologies: definitive LGV diagnosis can only be made with LGV-specific molecular testing (e.g. PCR-based genotyping).

Sexually transmitted infections

P 135 A CASE OF SYPHILITIC VITRITIS WITH COMPLICATED COURSE

F. Ceriegi, G. Marchetti, M. Cesaretti, G. Rolli, S. Bancallaro, L.R. Suardi, N. Cesta, A. Borghetti, M. Falcone

Infectious Diseases Unit, Azienda Ospedaliera Universitaria Pisana, Pisa, Italy

Ocular syphilis represents a group of inflammatory eye conditions resulting from infection of ocular tissues with Treponema pallidum. It can occur at any stage of syphilis infection, but eye involvement is most common in secondary and late syphilis. It can present with different manifestations, such as uveitis, the most common, vitritis, retinitis, papillitis or acute retinal necrosis.

A 49-year-old Caucasian woman, with a history of type I diabetes mellitus, presented with bilateral hypovisus which had been worsening for approximately 20 days. An ophthalmic examination revealed bilateral vitritis with retinal necrosis and bilateral papillitis. Laboratory tests were performed, including serology for syphilis, HIV1-2, Herpes simplex virus (HSV) 1-2.Syphilis serology was consistent with early infection (TPHA >1:2560,VDRL 1:256), as well as serology for HSV-2 infection (positive HSV2-IgM, with negative IgG); HIV serology was negative. With the exception of her long-term partner, the patient denied unprotected sex. Also, she was not able to recall any history of genital lesions, inguinal lymphadenopathy or skin rash. Intravenous benzylpenicillin at a dose of 24 MUI every 24 hours was immediately started and continued for 14 days. Also, lumbar puncture (LP) was performed to confirm neurosyphilis. The cerebrospinal fluid (CSF) showed normal glycorrhachia, mild hyperprotidorrhachia, and a cell count of 31 cells/μL with a predominance of lymphocytes. On CSF, the VDRL was equal to 1:160, and the RPR was 1:32, confirming the suspicion of neurosyphilis; PCR for HSV1/2-DNA tested negative. Brain MRI did not show any evidence of cerebral involvement. Throughout the treatment period, the patient reported only a slight improvement in visual acuity and consequently underwent periodical ophthalmological examinations. Steroid therapy combined with acyclovir was initiated due to ocular poor improvement and suspicion of concomitant viral infection. At the end of antibiotic and antiviral therapy, improvement in vitritis and a slight reduction in papilledema occurred. This was associated with a partial improvement in ocular visual acuity, with the left eye at 6/10 and the right eye at 7/10.

Ocular syphilis may be misdiagnosed as other ocular diseases, particularly in the absence of recognized sexual exposure. In any case of ocular inflammatory condition, both treponemal and non-treponemal test for syphilis should be requested in order not to delay penicillin start. In fact, although most patients fully recover, delayed treatment can result in serious sequelae, such as visual acuity deficits. The execution of LP in all cases of ocular involvement by syphilis is controversial, but it should be pursued if signs of cranial nerve dysfunction (or other neurologic signs/symptoms) are present, as well as to rule-out other causes of neurologic infections. In the diagnostic process, it is crucial to exclude other eye infections, such as herpetic ones, to improve the outcome.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 136 LONG ACTING THERAPY: WHAT PLWHIV THINK ABOUT IT

S. Mattioli[1], V.L. del Negro[2], S. Cecere[1], F. Leserri[2]

[1]Plus – Persone LGBT+ Sieropositive - aps, Italy, [2]Plus Roma aps, Italy

Background: In May 2022, the two long-acting injectable antiretroviral drugs against HIV were approved in Italy. For PLWH the expectation on this new therapy was very high. This survey is a first analysis of patients' point of view.
Materials and methods: From December 15, 2023 to January 31, 2024, we conducted an online survey sponsored on Facebook nationally and targeted at central and southern regions of Italy, too. Later also published on Twitter, Instagram, etc.. Our aim was to investigate the patients' point of view, whether expectations have been met and if problems had arisen in the PLWH' real lives.
Results: The survey had the attention of anti-vaccinationists which disturbed the data collection. There're 134 valid questionnaires. 94.7% (127) of the sample are men, 3% are women Median age is 46 years (21/77). 85% (114) of the sample are gay, 7.5% (10) bi, 6.7% (9) hetero. 63.4% (85) live in North of Italy, 23.13% (31) in the Centre, 13,4% (18) in the South/Isl.
Diagnosis year**:** pre 1996 7.4% (10); 1997-2006 14% (19); 2007-2016 44.8% (60); 2017-2023 33.6% (45).
In 63.4% (85) of cases the doctor asked the patient to switch to the new regimen, in 36.6% (49) of cases the patient asked.
49.4% (84) of the sample switched because of the duration (2 months), 36.5% (62) swallowing pills every day reminds them of the infection, 8, 2% (14) due to toxicity of previous therapy and 5.9% (19) due to adherence problems.
73.7% (98) il 73,7% feel good with LA therapy, 19% (25) are still evaluating, 7.5% (10) feel bad.
Side effects**:** 49% (92) of the sample reported pain in the injection area, 17% (32) no side effects, 13% (25) asthenia, 8% (15) weight gain, 7% (13) pyrexia, 5.8% (11) headache.
81.7% of respondents report having no problems with the clinical management of LA therapy, 10.22% report the unavailability of the clinical center to reschedule appointments, 1.46% (2) report difficulties in keeping appointments.
Conclusions: Our survey aimed to evaluate the opinion of patients on ARV LA therapy. The majority of the sample confirms the positive evaluation of a switch that seems to have more psychological than clinical motivations. Even today, the constant presence of HIV in patients' daily life, appears to be the reason that pushed the majority of the sample to switch to the new LA therapy. It's also interesting to note that only 5% of the sample takes LAs due to adherence problems with the previous therapy while at an international level the main researchers present LAs as a possible way to combat adherence difficulties, especially in some key populations. Lastly, we note that 10.22% of patients complain about the clinical center's lack of willingness to reschedule appointments despite just 1% of the sample admitting they're unable to be punctual. Follow-up management could have room for improvement.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 137 STIGMA AND DISINFORMATION ARE STILL COMMON IN POPULATION APPROACHING THE ANLAIDS FORUM

A. Venturelli, C. Balotta, R. Galipò, V. Calvino, B. Marchini

Anlaids Onlus ETS, Rome, Italy

Background: The Anlaids forum is a virtual space where people can ask questions, without any prior moderation, about HIV, the risks they may have taken during their sexual experiences and possible remedies. In this study, we wanted to understand whether the Forum population still identifies 'risk categories' in partners or stigmatizes people living with HIV/AIDS (PLWHIV).

Material and methods: We selected all discussions that reported sexual intercourses in the period 2020-2023 containing stigma items that labeled people or their behaviors or toward PLWHIV. Quantity and quality of words related to stigma or shame were considered.

We then investigated whether stigma or characteristics of partners had changed over the years, whether it was related to sexual orientation, and whether the presence of these elements may have contributed to a misunderstanding in risk assessment.

Results: Out of 2,685 posts in the analyzed period, 451 (16.8%) contained at least one element among characteristics such as partner profession, lifestyle, ethnicity, sexual orientation or stigma for PLWHIV; these elements were present with an average of 15.2% in 2020, 15.9% in 2021, 17.7% in 2022 and 18.2% in 2023.

Firstly, we found that 126 (4.7%) of the pertinent contexts regarded men having sex with men (MSM), while 325 (12.1%) involved heterosexuals. Only 3.5% of the described situations presented a specific HIV risk, while 13.3% of the reports were not at risk.

Considering partner profession, including sex work, this was specified by 285 (10.9%) Forum users (9.6% in 2020; 7.6% in 2021; 11.3% in 2022; 14.9% in 2023).

In 120 cases (4.3%), a partner lifestyle or physical appearance was misleading taken as a factor to be considered (6.2% in 2020; 4.9% in 2021; 3.4% in 2022; 2.8% in 2023).

Partner belonging of a particular ethnic group was cited 51 (1.9%) times (2.5% in 2020; 1.0% in 2021; 2.0% in 2022; 2.0% in 2023).

Looking at the stigma toward PLWHIV, we found 47 (1.7%) related topics (1.9% in 2020; 1.7% in 2021; 1.5% in 2022; 1.7% in 2023).

Overall, analyzing all topics we found that an average of 9.8% of people made a mistake in their reported risk assessment.

Regarding the number of discussions containing the items under consideration, we did not find a significant trend. In addition, it was also not possible to establish relationships between sexual preferences and analyzed items, although it was noted that MSM tend to exhibit less partner bias.

Conclusions: This data reveals that stigma and false believes about HIV transmission are still embedded, despite having no real basis. Furthermore, it could be noted that discriminating bias are often associated with misinformation. For these reasons it is extremely important that the scientific community and associations continue to work together and promote correct information and the use of non-stigmatizing language, as in the case of the 'U=U IMPOSSIBILE SBAGLIARE' campaign launched in Italy in 2023.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 138 COSA SAI DI HIV E ALTRE IST

B. Marchini[2], A. Venturelli[1], C. Balotta[1], M. Stagnitta[3], C. Sfara[4], G.M. Maglio[2]

[1]Anlaids, Rome, italy, [2]Famiglia Nuova, Lodi, Italy, [3]CNCA, Rome, Italy, [4]Anlaids Umbria, Perugia, Italy

Little is known about the awareness of viruses transmitted through drug addiction and sexual route among persons belonging to rehabilitation center for drug users. A questionnaire was administered on knowledge of HIV (including post-exposure prophylaxis, PEP; pre-exposure prophylaxis, PrEP; undetectable equals untransmittable, U=U), HCV and HBV in the "Famiglia Nuova" community in Lodi, where in-house counseling is not always provided. The issue of sexual activity under the influence of drugs was also addressed.

Materials and methods: One hundred males responded to the survey. Items were related to type of drug use, perception of discrimination, knowledge of HIV, HCV, HBV, available diagnostic tests and therapies or vaccines, including PEP, PrEP, and condom use.

Results: Interviewees were 100 of whom 83.2% were Italians (median age: 41).

Substances taken were cocaine, heroin, alcohol, marijuana/hashish in 43%, 24%, 19%, and 13% of cases, respectively; 1% of subjects used psychotropic drugs, amphetamines, or MDMA.

Regarding stable or occasional or mercenary relations, condom use reported was in 22%, 46% and 59%, respectively. In particular, 94% of individuals declared who had sex under the influence of drug: in such circumstance condom use was reported in 46%, while for 54% of intercourses condom was not used or not remembered.

On average, 72% of individuals reported receiving counseling on sexually or blood transmitted viruses. However, only 35% of respondents admitted that had some knowledge on HIV, HCV and HBV, with a prevalence of 54.8% in the 41-50 age group and of 45.8% among heroin users.

Persons who had been tested for HIV, HCV and HBV were 54% and the most represented age group was that between 51 and 60 years (79.2%), while those between 31 and 40 years were screened at 37% of cases; with reference to the substance consumed, the largest group screened was heroin users (62.5%).

Concerning cure possibility for HIV, HCV and HBV, 38% of survey takers knew that such viruses are treatable or can be prevented: the most informed age group was that with 41-50 years (50%), while cocaine users showed the most consciousness (55.3%).

PEP and PrEP are known by 26% of persons; the U=U meaning is unknown in 97% of cases; 38% of the sample surveyed did not know the difference between HIV and AIDS.

Finally, 71% of respondents admitted that experienced discrimination, and among them, occurring at 6% in a health care setting.

Conclusions: An analysis of knowledge level in people living in "Famiglia Nuova" reveals that there is widespread misinformation; discriminatory factors are also present. These elements can be a strong barrier accessing testing, may reduce quality of life and lead to high social costs. For this reason, it is essential that social and medical care services work together to provide the most appropriate tools tailored to the needs of individuals residing in care communities.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 139 HOME DELIVERY OF ARV AND HIV SELF-TESTS

M. Cascio[1], M. Formisano[1], C. Nicoara[1], M. Casamento[2], A. Moznich[1], D. Russo[1], M. Errico[1]

[1]NPS Italia Aps, Milano, Italy, [2]NPS Sicilia ODV, Palermo, Italy

Background: The project was launched in June 2020 to contain exposure of people living with HIV (PWH) to COVID, provide support to PWH with COVID in isolation and fill in the gaps due to limitation of HIV prevention/care services. HIV physicians were often shifted to COVID units, information on availability of services, on interaction of HIV and COVID and on vaccinations was often difficult to find, as well as fixing appointments for blood tests and control visits. HIV testing services were limited.
In 2022-23 an increasing number of requests indicated emerging needs beyond COVID emergency, such as difficulties going for ARV refills due to difficulties getting work permits, traveling due to health conditions or because living or working in another city or region. Many older people were living alone and often unable to travel/send someone for refills. Moreover, many were to some extent disconnected to usual HIV care following COVID lockdowns with difficulties reconnecting.
Material and methods: Three Italian Regions were involved (Sicily, Puglia, Campania). Contacts and collaborations were established with HIV outpatient clinics. All requests were jointly discussed, and communication to clients were agreed, when not on track with their bi-yearly blood tests and control visits.
Home delivery of self-tests were provided upon request with pre/post counselling in-person, by phone, or whattsapp. Testing services were further expanded at specific events.
Services were promoted through posters/flyers, through social media and word-of-mouth. Home delivery of ARV or self-tests was done in-person/through postal services.
A data consent form was signed by users and satisfaction questionnaires administered to clients and ID physicians.
Results: In the period 2020-23:
No.1014 ARVs were delivered. ID physicians involved expressed satisfaction for the service. Close collaboration with ID physicians allowed to reconnect many people to HIV care.
All users rated the service excellent in terms of timing/quality, support on information, fixing control visits. And highly beneficial for people aged >60 or with disability/frailty.
69,5% were aged >50 (Tab.1), 40% were women (Tab.2), 30,4% benefited from not using work permits and 37,8% reported having difficulties in physically going to hospital (Tab.3).
No.717 HIV self-test/rapid tests were delivered/administered. Reactive results (2 cases) were adequately and timely managed. 66,3% aged <35 and almost 70% their first HIV test.
Conclusions: The project was launched to respond to COVID emergency, but the increasing number of requests highlighted a series of unmet needs regarding access to ARV refills and HIV testing.
Synergy between community organizations and HIV outpatient clinics has the potential of responding to emerging needs, improving linkage to care, treatment adherence and retention in care.
The project can be easily replicated in other contexts, provided the availability of adequate human and financial resources.

(Tab.4) (Tab.5)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_18.png

Social and behavioural science, marginalized groups, community aspects and community surveys

P 140 PROMOTING SEXUAL HEALTH EQUITY: A COMMUNITY ENGAGEMENT MODEL FOR MINOR ETHNIC GROUPS IN ITALY

I.N. Emelurumonye[1], D. Calzavara[2], E. Caruso[2]

[1]The Feminist Health CIC, Reading, United Kingdom, [2]Milano Check Point ETS, Milan, Italy

Background: Minor ethnic groups in Italy face unique challenges in accessing sexual health education and services due to cultural, linguistic, and social barriers contributing to disparities in STI and HIV outcomes. Despite the growing recognition of these disparities, there remains a gap in research exploring effective strategies to engage minor ethnic communities in STI and HIV prevention efforts, especially in Italy.
There is evidence that culturally sensitive and community-driven approaches are essential to effectively engage these populations. This abstract presents a community engagement model tailored to address the sexual health needs of minor ethnic groups in Italy, drawing upon principles of cultural competence, partnership building, and empowerment.
Case Presentation: The proposed community engagement model involves a multi-faceted approach to reach and empower minor ethnic communities across Italy. Key components include:
1.Community Collaboration: collaborating with community through religious leaders and cultural mediators to facilitate trust-building and culturally appropriate outreach activity. This involves understanding cultural norms, beliefs, and practices related to sexuality and health.
2.Community-Based Participatory Research (CBPR): collaboration between researchers and community members throughout all stages of the research process. This model promotes community ownership, empowerment, and the development of interventions that are responsive to unique needs and priorities
3.Peer Education and Support: training peer educators from within the target communities to serve as trusted sources of information, provide support, and facilitate discussions on STI and HIV prevention. Peer-led initiatives promote dialogue, reduce stigma, and increase access to sexual health resources.
4.Multilingual and Culturally Tailored Resources: development of multilingual and culturally tailored educational materials and resources. .
5.Creative Outreach Strategies: Utilization of creative outreach strategies, such as multimedia campaigns, community events, and social media, to raise awareness and promote participation among minor ethnic groups.
6.Holistic Approach: Adoption of a holistic approach to sexual health education, addressing not only physical health but also emotional, social, and cultural aspects of sexuality.
Conclusion: The proposed community engagement model offers a promising approach to promote sexual health equity among minor ethnic groups in Italy. By prioritizing cultural competence, community participation, and empowerment, this model aims to reduce barriers to sexual health education and services, improve STI and HIV outcomes, and foster greater inclusivity within Italy's diverse society. Future research and implementation efforts should further explore the effectiveness and scalability of this model, with a focus on sustainability and long-term impact.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 141 HIV PREVENTION ROAD MAP

B. Mocci, A. Pontis, A. Loddo, S. Campus
LILA Cagliari, Cagliari, Italy

Background: In 2023, LILA Cagliari ODV (voluntary association member of LILA Italian League for the fight against AIDS) run a campaign which consisted in an interactive map of some public places and hospitals in the city, equipped with QR code which enabled to find information and prophylactic materials, as well as medical centres for HIV, STIs and PrEP in Cagliari. Thanks to an agreement with local bars and nightclubs happy to disseminate our materials, we launched the campaign at the beginning of the summer, thinking of the many tourists on holiday in Cagliari who are not familiar with the city. We took the opportunity to provide specific training to staff who work in these public spaces and a training session was held with them so that they could provide correct information on the hospitals to turn to for PEP, PrEP, or how to take the test in our LILA Cagliari office. LILA Cagliari had a positive response in particular from foreigners on holiday who could not find correct references locally.
Material and methods: To convey the message, a graphic was chosen which resembled a subway network with stops for each of the public places involved in the campaign (Figure 1). To each stop corresponded a public place with its own specific QR code that linked up to the web and social page, likewise for the STIs and HIV centres in the city.
As part of the campaign, large 6x3 meters posters were displayed in the streets of Cagliari and on the seafront, alongside advertisements Online, in local newspapers, local tv and web tv. In addition to this, a strong social context allowed the campaign to amplify its communicative power and to bring users to interact and share the message even further.
A video version was also created and transmitted on monitors across the urban transport network for public information and a printed version with color posters of 15x20 cm format hanging on the buses. These posters literally sold out amongst collectors
Results: The campaign was a great success and LILA Cagliari received praise from tourists who contacted our office. It was picked up by all local media and the main Sardinian newspaper.
It was released in digital format on all social networks and on several online newspapers.
We believe we achieved the goals we set ourselves by bringing focus on sex, STIs and risks especially on holiday, and providing clear information on HIV, STIs and Prep centers in particular to travellers who are not familiar with our city.
Conclusions: The power of the claim created an effective communication campaign with a concrete message available to those who needed info and/or prevention and prophylaxis tools.
For future reference, the involvement of testimonials in places of fun and sexual encounters has been the key to provide correct answers and info.
(Figure 1)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_30.jpg

Social and behavioural science, marginalized groups, community aspects and community surveys

P 142 ONGOING PSYCHO-SOCIAL INTERVENTIONS: PRELIMINARY DATA OF THE "FRAGIL/MENTE" PROJECT

A. Calluso, N. Catucci, M. Di Tullio, R. Giusto, M. Giannelli, S. Loiudice

C.A.M.A. – Centro Assistenza Malati Aids – OdV ETS - Bari - Italy

Introduction: (Fig.1)On 20.10.2023, the "FRAGIL/mente" (Fig. 4) project was launched, approved by the Puglia Region - WELFARE DEPARTMENT - through the public notice "PugliaCapitaleSociale 3.0" for local programs of actions of general interest based on ministerial funds pursuant to articles. 72 and 73 of the Legislative Decree. 117/17 (Fig. 2,3), aimed at supporting, at a regional level, activities promoted by ETS. The data we will report refers to the period 20.10.2023 – 20.03.2024.

Methods: The recipients of the project are: people living with HIV, or AIDS or other STIs; Family units in a state of poverty even with minor children; People subjected to alternative punishments to prison; Migrants without a residence permit and foreign people residing in the Region.

The idea of the project was born from having detected the absence of a structured counseling and psychological support service aimed at the recipients described above, people who are almost always left alone in dealing with psychological distress.

The team is made up of: 1 Coordinator; 3 Psychologists; 1 Social Worker.

Through support and information activities, the project aims to: provide social and psychological assistance, in order to reduce and process fears and feelings of guilt; encourage the creation of a good therapeutic alliance starting from new diagnoses; support the recipients, to strengthen the ability to manage the psychological reaction towards daily events; improve emotional well-being to better deal with stress; prevent discrimination phenomena; offer personalized information on the resources present in the area; increase the possibilities of "welcome" through the creation of a privileged territorial point.

Results: Over the period, through 236 individual meetings, we listened to 24 people, of which 7 women and 17 men (Tab 1). Of these 24 people, 9 suffer from depression, 8 from anxiety disorder, 3 from mood disorder and 4 from personality disorder (Tab. 2). As regards their origin, one is foreign, 19 reside between Bari and the province, the remainder come from Brindisi, Taranto, Matera and Potenza (Tab. 3). The average age is 44 years.

Conclusions: The benefits brought to the patients during these 6 months of carrying out the project were the following: establishment of a good psychological therapeutic relationship which consequently developed greater confidence in taking antiretroviral therapy; improvement of communication with their family environment by giving them the opportunity to use our professional figures as a "bridge" between the patient and the context; improvement of one's perception as people worthy of value and respect; increased awareness of their rights as citizens; improvement of their quality of life. This was possible above all thanks to the free nature of the service offered to them, having intercepted the current social difficulty in accessing direct, rapid and concrete public health and social services.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_46.jpg

Social and behavioural science, marginalized groups, community aspects and community surveys

P 143 STIGMA AND HIV. PERCEPTIONS IN YOUNG PEOPLE FROM ANLAIDS SCHOOL

R. Galipò[1,3], M. Bolletta[10], M. Campanella[4], L. Butini[7], V. Calvino[1], L. Cipriani[9], F. Caramaschi[6], S. De Balzo[2], A. De Faveri[8], S. Negri[5], A. Palummieri[1], B. Marchini[1]

[1]Anlaids ETS, Roma, Italy, [2]Anlaids Campania, Napoli, Italy, [3]Anlaids Lazio, Roma, Italy, [4]Anlaids Liguria, Genova, Italy, [5]Anlaids Lombardia, Milano, Italy, [6]Anlaids Mantova, Mantova, Italy, [7]Anlaids Marche, Ancona, Italy, [8]Anlaids Torino, Torino, Italy, [9]Anlaids Treviso, Treviso, Italy, [10]Anlaids Umbria, Perugia, Italy

Background: Targeted prevention and sexuality education programs are one of the most important tools for promoting the sexual well-being of young people and a key component of the strategy to prevent not only HIV infection but all STIs and to counter prejudice and stigma. With this in mind, the School Project has developed and evolved over its 31 years of experience in the field, with and for young people. We are especially convinced that correct information, the use of respectful language, and the commitment of associations can have a fundamental impact in counteracting prejudice and stigma.

Material and Methods: The program is structured and developed according to various methodologies. Each has a common feature: the active participation of students and their involvement as protagonists of the educational process together with the experts belonging to the regional offices, operating in their territory. Before the interventions, a questionnaire is administered (regarding the knowledge of young people on the issues) and then a post-test (to assess the effectiveness and usefulness of the interventions). Some questions are useful to detect possible stereotypes and prejudices.

Results: Between 2019 and 2023, the following question was asked to 5845 students (59.1% females; 73.8% High Schools and 21.1% Technical Institutes) after classroom interventions, "Do you think it is dangerous to have social relationships with a person living with HIV?" 21.6% answered a lot; 23.3% a little, 44.4% not at all, and 10.7% don't know. There are no significant differences between males and females but only between school types: boys attending high schools (M=1.53) seem to have less prejudice than their colleagues in technical colleges (M=1.63) (F2/5842=6.994; p<.001). Since AS 2022/23, after the revision of the questionnaire, the question was also included in the pre-intervention questionnaire to assess the impact of interventions on countering stigma. Between pre (56.6%) and post (78.5%) intervention, students (N=9343) reduced stigma, thinking that it is not dangerous to have social contact with PLWH. Who are those who are still afraid of having social contact with PLWH? Out of 3268 post-intervention students (52.8% females; 63.2% high schools and 28.1% technical colleges), it is boys (M=1.13), compared to girls (M=1.06) (t=4,211 p>.001), and technical college students (M=1.15), compared to their high school counterparts (M=1.07) (F2/3265=10,310; p<.001), who report being more afraid in social contact with a PLWH

Conclusions: Some socially prevalent stereotypes are present, including the idea that it is dangerous to become infected even in social relationships. Stigma undermines the success of HIV prevention and treatment programs. Hence the need to convey quality information through effective communication campaigns that can break the stigma and intercept young people through the use of innovative tools, with regard to boys and those attending technical institutes.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 144 ADHERENCE TO HIV INFECTION CARE AT IRCCS SAN RAFFAELE HOSPITAL: CURRENT STATUS AND RE-START PROJECT

D. Canetti[1], S. Diotallevi[1], R. Lolatto[1], A.R. Raccagni[2], V. Spagnuolo[1], C. Muccini[1], E. Bruzzesi[2], S. Nozza[1,2], A. Castagna[1,2], N. Gianotti[1]

[1]Unit of Infectious and Tropical Diseases, IRCCS San Raffaele Scientific Institute, Milan, Italy, [2]Vita-Salute San Raffaele University, Milan, Italy

Background: The development of highly effective, safe, and well-tolerated antiretrovirals has led to improved adherence to therapy among people living with HIV (PLWH), which is considered a key part of staying healthy with HIV. Nevertheless, adherence remains suboptimal in a still significant proportion of PLWH due to multiple factors, representing a critical aspect both for individual health and for achieving global control of the infection.
Methods: Retrospective analysis conducted on all PLWH in care at the Infectious Disease Unit of IRCCS San Raffaele Hospital in November 2023 included in the Centro San Luigi (CSL) HIV Cohort. People exhibiting reduced adherence to care are categorized as fully adherent or demonstrating one, two, or three (fully nonadherent) criteria of nonadherence. This determination is based on three elements assessed within the past 12 months: not attending any visits, not undergoing any monitoring tests, or not picking up any antiretrovirals. These criteria, along with the identification of nonadherent individuals, serve as the basis for launching the Re-start Antiretroviral Therapy (Re-stART) project, to enhance adherence by establishing a dedicated outpatient clinic.
Data are reported as medians (first-third quartile) or frequency (%) and compared using Kruskall-Wallis and Chi-Square tests.
Results: 5263 people were included in the analysis, and characteristics are reported in Figure Panel A, with 4440 fully adherent people (84.4%), 422 (8%), 221 (4.2%), and 180 (3.4%) individuals with 1, 2 and 3 nonadherence criteria, respectively (Figure Panel B). Among the 422 PLWH with one criterion, visits are the most frequently missed element (210; 49.8%), while among 221 people with 2 criteria, monitoring tests are mostly missed (179; 81%). Drug pickup was the more preserved element in both groups (missed in 71; 16.8% and 106; 48% PLWH, respectively) (Figure Panel C). HIV-RNA resulted >50 cp/mL in 5.4% of all included PLWH, 4.5% of fully adherent PLWH, 9.3, 11.8, and 14.4% of individuals with 1, 2, and 3 criteria, respectively (Figure Panel D). ART regimens for each group are reported in Panel E, showing that dual regimens are more commonly used in fully adherent PLWH vs each group of nonadherent people (40.5% vs 25.5, 21.8, and 24.6%, respectively).
Conclusions: In our centre, 84% of PLWH were found to be fully adherent to HIV care in the last year, while 3.4% were fully nonadherent. Visits and monitoring tests showed the lowest adherence compared to drug pick-up. Less adherent individuals were less likely to have HIV-RNA <50 cp/mL and were also less likely to be on dual therapies compared to more adherent ones. Based on these data, the Re-stART project aims to enhance treatment adherence by actively reaching out to PLWH with lower adherence levels. This involves identifying and managing factors contributing to nonadherence while also promoting empowerment and participation in care.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_56.png

Social and behavioural science, marginalized groups, community aspects and community surveys

P 145 KNOWLEDGE ABOUT SEXUALLY TRANSMITTED INFECTIONS AND HIV AWARENESS IN AN ITALIAN ADOLESCENT AND YOUNG ADULTS GROUP

S. Tordi[1,2], V. Suriani[2], M. Ramadori[2], P. Diana[3], E. Albertini[3], F. Orlandi[4], L. Novelli[4], A. Gidari[1], D. Francisci[1]

[1]Infectious Diseases Unit, Santa Maria della Misericordia Hospital, University of Perugia, Perugia, Italy, [2]ANLAIDS Umbria, Perugia, Italy, [3]OMPHALOS LGBTI Center, Perugia, Italy, [4]YAU - Young Angles Umbria, Perugia, Italy

Background: The study aimed to evaluate the level of Sexually Transmitted Infections (STI) knowledge and HIV awareness in a sample of adolescents and young adults living in the Umbria region (Italy), where sexual education school programs are not guaranteed.
Material and methods: An observational and descriptive study was performed in a group of adolescents and young adults during December 2022 and 2023, on the occasion of the World AIDS Day. The analysis was carried out using an electronic self-administered questionnaire on sexual health and awareness of STIs, distributed through the social network of the involved associations. A univariate statistical analysis was conducted using the Mann Whitney test or Fisher exact test, as appropriate, and a multivariable logistic regression with a correct model according to the Hosmer-Lemeshow Test.
Results: A total of 293 adolescents and young adults were included. Of these, 205 (70%) were women and 201 (68.6%) had a previous sexual experience. Most of them usually discussed sexual problems with friends (73.5%) instead of family members (29.7%) or medical staff (25.6%). Overall, they learned about HIV on the internet and social media (88.2%). Furthermore, the main concern was not about STIs (47.6%) or unwanted pregnancy (48.1%) but about the negative judgment of others (71.9%) (Table 1). That translates into poor consciousness of STIs; indeed, only 132 (47.5%) participants correctly individuated the proposed STIs. Most of the participants did not recognize hepatitis B or C (51.4%) or HPV infection (45.9%) as STIs. In contrast, our cohort demonstrated good knowledge about HIV diagnosis strategies (89.4%) and the use of condom as a prevention tool (90.1%), although only 71.1% of those who had sexual intercourse used it. Overall, knowledge about preexposure prophylaxis (PrEP) was very poor (41.3%) (Table 2). For the univariate analysis, the variables that could have influenced the correct recognition of STIs were analysed. In particular, age <19 years (adolescent), sex at birth, sexual orientation, working status, concerns about sex, previous sexual experiences, current contraceptive methods, and having obtained information about HIV at school. Among these, age <19 years correlated significantly with STIs knowledge (p=0.02). Subsequently, these variables, together with others clinically relevant, such as sex at birth, concerns about sex and HIV information at school, were analyzed by multivariate logistic regression, which confirmed a significant correlation only with age <19 years (OR 0.52, IC 0.32-0.85) (Image 1).
Conclusions: Gaps in knowledge related to STIs were detected, especially in the adolescents group, highlighting the key role that school could play in the STIs prevention. Based on the results of this study, we promote community-based educational interventions, including peer education strategies. However, there is still insufficient: structural prevention programmes in Umbrian schools are needed.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_60.JPG

Social and behavioural science, marginalized groups, community aspects and community surveys

P 146 “WHAT WE WANTED WAS WHAT WE NEEDED” - REBUILDING A COMMUNITY OF MEMORIES AND INCLUSIVE ADVOCACY FOR EMERGING HEPATITIS C RESEARCH VIA A COMMUNITY-LED MULTILINGUAL DOCUMENTARY PRODUCTION

R. Pignata, G. Barbareschi, A. Kalogiannis, A. Cerioli

European AIDS Treatment Group, Brussels, Belgium

Background: The EATG produced “What We Wanted was What We Needed - Rebuilding a Community of Memories and Inclusive Advocacy”, a documentary on the Sitges Meetings. The Sitges Meetings were a series of EATG community-owned multi-stakeholder meetings (2007-2017 in Sitges, Spain) that promoted the inclusion of people with HIV/HCV coinfection in clinical trials for emerging hepatitis treatments, and advocate for rapid access to them. The film documents stories, experiences, results and lessons learned from the perspective of key stakeholders involved.

Material and methods: Filmed between September 30th and October 2nd, 2023 in Sitges, Spain, the documentary featured nine key actors from the original Sitges Meetings, including six community activists and three representatives from a pharmaceutical company, a regulatory agency and academia. Interviews were conducted without scripts, opting instead for an interactive approach for participants to share their experiences of the Sitges Meetings in their preferred language, resulting in a multilingual production that enhanced the authenticity and relatability of a creative storytelling. The filming production was concluded with a roundtable discussion with all participants, reflecting on learnings and future applications of the Sitges Meetings model.

Results: With the filming of this documentary, EATG captured and preserved an important moment in the organisation's advocacy history, while reflecting on community needs and drawing lessons from effective community advocacy that can influence policies and clinical trials at a broader level. The Sitges meetings employed a collaborative approach to find concrete solutions, raise awareness about HIV/HCV comorbidity and set the ground for building meaningful connections between all the relevant stakeholders, involving community activists from the HIV and hepatitis field, regulators, physicians, researchers and the pharmaceutical industry. This led to changes in exclusion criteria for clinical trials and revisions to the EMA guidelines. The documentary demonstrates the significant impact of community-led advocacy, showcasing the importance of a collaborative multistakeholder approach as a powerful model for addressing inclusion barriers that create positive change when community is at the centre of the planning, organisation, and implementation of such initiatives.

Conclusions: Community-led productions can be a useful approach in sharing experiences of effective patient advocacy by giving community space and time to talk about their success stories via creative means and increase visibility for community-led initiatives. The reflections on the Sitges Meetings model can be repurposed to raise awareness and plan advocacy for the inclusion of people living with HIV in other non-HIV clinical trials. Community-led documentaries and similar productions should be further considered to promote networking and dialogue around community-centric approaches in clinical research.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 147 HIV TUTOR CARE SERVICE AT "D. COTUGNO" HOSPITAL IN NAPLES: A COOPERATIVE MODEL BETWEEN PUBLIC INSTITUTIONS AND COMMUNITY ASSOCIATIONS FOR THE IMPROVING OF WELL-BEING AMONG PERSONS WITH HIV

C. Oneto, D. Salierno, F.M. Fusco, M.A. Carleo, P. Rosario, V. Rizzo, A. Guida, V. Esposito

"D. Cotugno" hospital, Italy

Introduction: People capable of addressing the social and relational needs of persons with HIV (PWH) are often lacking especially in the hospital setting. This gap may be filled by the inclusion of HIV Tutor Peers next to medical/nursing staff.

Tutor peers in HIV care are specially-trained individuals able to provide patients with information and support. Mostly, HIV peers are PWH themselves. The role of HIV peers is fundamental in the social-health integration aimed at the well-being of patients with HIV.

We present a quali-quantitative evaluation of an HIV Tutor Care service implemented since March 2023 within one the HIV-dedicated division at "D. Cotugno" hospital in Naples.

Methods: Two experienced tutors from the community conducted an intervention model based on the ideas of peer learning and peer-empowerment. Clear and large posters illustrating the logo and aims of the Tutor Care service were exposed in the HIV clinic waiting room. Tutors were clearly recognizable with badges with the same logo. Approaches to PWH waiting for medical visits were informal, and occurred in different hospital settings, mainly in the waiting room. Initial and successive speeches with PWH occurred face-by-face or by dedicated email inbox and text messaging.

Service was evaluated by anonymous questionnaires sent to all PWH who established a link with the service. The activities were summarized in 4 domains: emotional support, practical support, help in connection with doctors, actions to reduce the stigma.

The HIV Tutor care service has been funded by Community Award Program - Gilead Sciences, and implemented by Antinoo Arcigay Napoli ATS in collaboration with Cotugno Hospital.

Results: Totally, about 80 PWH were contacted within the service. Among these, 54 (68%) established a durable connection with the service and 28 answered to anonymous questionnaire.

How the PWH learned about the service, and main reasons for using it are summarized in figures 1 and 2. Evaluation of services in the four main domains are summarized in figure 3 a-d.

Of note, among PWH approached, 3 had previously stopped treatment, and 2 of them resumed care, now constantly in contact with the tutors.

Conclusions: This preliminary evaluation offers a picture of how this service offers opportunities for motivational confrontation, guidance and support to PWH by other PWH recognized by the institution. In addition, the service carries out an important mediation activity between medical staff and patients. The empowerment of patients, the improvement of their conditions and the cultural changes promoted by this service can produce an important impact in their various family, friendship, and work contexts, and extend the positive effects to a correct awareness and prevention about HIV.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_70.jpg

Social and behavioural science, marginalized groups, community aspects and community surveys

P 148 SCHOOL INTERVENTION FOR STIS PREVENTION

C. Soligo[1], D. Zagato[1], A. Bianchi[1], P.M. Testoni[1], F. Rossi[1], M. Cernuschi[1,2]

[1]ASA Associazione Solidarietà AIDS ODV, Milano, Italy, [2]San Raffaele Hospital, Milano, Italy

Background: ASA ODV focuses on HIV infection prevention and support for PLHIV and has been actively involved in raising awareness and providing assistance since its foundation. Within this context, the school project emerged as a strategic initiative to address the critical issue of HIV infection and STIs among adolescents. The primary goal is to engage students in constructive dialogue about sexuality in a manner that is both mature and informed. The aim of the study is to analyze the experience of the project to develop future targeted actions.

Methods: Between Jan and Apr 2024, the school project was held across four secondary schools in Milan. The project engaged young individual aged between 14 and 18, providing them with a comprehensive understanding of HIV and STIs. Each session, lasting two-hours, was facilitated by two ASA staff members – a psychologist and a PLHIV. These sessions covered various topics related to STIs, including modes of transmission, etiology, diagnosis, prevention strategies, and available treatments. Additionally, the sessions incorporated multimedia materials and personal testimonies from volunteers, offering firsthand insights into living with HIV and addressing the prevalent issue of stigma. An innovative addition to this year's program was the introduction of a psychoeducational game designed to raise awareness about silent modes of STI transmission and fight stigma. The impact of the project was assessed through self-report questionnaires before and after the intervention.

Results: Out of the 160 students involved, 154 completed the pre-meeting questionnaire, while 140 completed the post-meeting questionnaire. Feedback was gathered through a satisfaction questionnaire, with 127 responses received. The analysis revealed an overall improvement of 12% among participants. Upon further examination, it was observed that high school students exhibited a more significant improvement (16%) compared to their counterparts in professional institutes (11%). The satisfaction questionnaire yielded positive results, with 91% of respondents expressing satisfaction with the intervention. However, there was a notable demand for more information (82%) and additional time for questions (87%), highlighting areas for potential improvement.

Conclusions: The findings underscore the success of the interventions implemented within the school project. Testimonies from PLHIV, supplemented by audiovisual aids and interactive sessions, effectively engaged students and contributed to a reduction in stigma surrounding HIV and STIs. Looking ahead to the 2024-2025 school year, plans include expanding opportunities for student engagement by providing more time for questions and introducing the option for anonymous inquiries. Furthermore, there is a growing interest among students in exploring topics such as pregnancy prevention and sexual pleasure, which will be incorporated into future sessions to ensure comprehensive education on sexual health.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 149 IMPACT OF SOCIAL DETERMINANTS OF HEALTH ON ADHERENCE RATE TO ANTIRETROVIRAL THERAPY IN THE CLINICAL SETTING

G. Maffeis[1], E. Clemente[2], S. Bertini[1], F. Donato[1], F. Mollo[3], S. Bonora[2], P. Crosasso[1], D. Piccioni[1], M. Ferrara[2]

[1]S.D.S. Infectious Diseases Hospital Pharmacy, Amedeo di Savoia Hospital, Turin, Italy, [2]Unit of Infectious Diseases, Department of Medical Sciences, University of Turin, Turin, Italy, [3]Department of Drug Science and Technology, University of Turin, Turin, Italy

Background: Medication adherence has a fundamental role for people living with HIV(PLWH) to maintain the treatment goal of viral suppression. In this study we evaluated the rate of adherence with PDC(Proportional of Days Covered) to antiretroviral (ARV) single tablet regimens(STR) to determine if demographic factors as ethnicity, gender, habits, hospital pharmacy proximity and drug refills impact the odds of achieving viral suppression.
Methods: Experienced participants administered with triple regimens as Bictegravir (BIC/F/TAF), Darunavir (DRV/c/F/TAF) and Rilpivirine (RPV/F/TAF) and dual as Dolutegravir/Lamivudine (DTG/3TC) and Dolutegravir/Rilpivirine (DTG/RPV) dispensed by hospital pharmacy, were included in this retrospective observational study. Drug refills were used to calculate PDC as cumulative adherence during all the period of follow-up and periodic adherence defined as a mean of the adherence calculated between two ARVs refills from 2018 to 2023. All demographic factors were collected at baseline. Participants characteristics were compared by Mann-Whitney and Chi-square test as appropriate. Descriptive analyses were expressed as geometric mean(CI95%).
Results: 540 participants were included in the study with a mean FU time of 1166(1136,5-1195,4) days. In particular, 18,3% on BIC/F/TAF, 19,4% DRV/c/F/TAF, 20,9% RPV/F/TAF, 20,9% DTG/3TC, 20,4% DTG/RPV. A significant lower cumulative and periodic adherence was observed among participants living outside the Turin metropolitan area (p=0.044 and p=0.034), foreigners(p=0.035) and intravenous drug users(IVDU)(p=0.001 and p=0.005). Dyslipidemic people resulted to have higher periodic adherence(p=0.006). No difference between gender and homeless people in terms of overall adherence. The impact of adherence on virosuppression(Viral Load (VL) <200 cp/mL) resulted in a trend towards significance in foreigners vs Italian people(83% vs 91.2%; p=0.071), was significant in people living outside vs inside the metropolitan area(89% vs 97%; p=0.039)and between previous and current IVDU(81,3% vs 20%; p<0.001). Moreover, we found a significant different ART distribution among foreigners(p=0.030), previous and current intravenous drug addiction(p<0.001), with a higher prescription of triple ARV regimen TAF-including as BIC/F/TAF and DRV/c/F/TAF.
Conclusions: In our study we observed a lower rate of adherence in a subset of fragile people with sociodemographic factors impactful on access to drug refill. People living outside metropolitan area, foreigners and current IVDU resulted have a negative impact on adherence and consequently on virosuppression. The higher prescription of triple ARV regimens BIC and DRV/c-including showed a clinicians' choice of a more forgiving regimen. Our hospital pharmacy is evaluating the implementation of new patient care models, such as home delivery projects or facilitated access to therapy including decentralization of drug refill in distribution points near PLWH residence.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 150 NOI, DONNE

D. Russo[1], M. Cascio[1], M. Formisano[1], C. Nicoara[1], A. Moznich[1], M. Errico[1], L. Taramasso[2]

[1]NPS Italia Aps, Milano, Italy, [2]Infectious Diseases Clinic, IRCCS Ospedale Policlinico San Martino, Genoa, Italy

Background: In many countries, HIV prevalence continues to rise among women, especially adolescent girls, young women, and women from key populations. While gender affects susceptibility to HIV and the impact of HIV, HIV influences particularly gender inequality, sexual and reproductive health, and rights.
It's estimated that 39 000 [33 000 - 47 000] are the women aged 15 and over living with HIV in Italy. Soon to be launched by spring 2024, Noi, Donne is a community-led project in which women's bodies, stigmatized for decades, become a political expression able to build a new Italian web-based community of women living with HIV which claims rights to their health, such as psychological, physical, social, sexual, and reproductive well-being. Starting from the science, the project wants to relaunch U=U within the women community, as an expression of their freedom and desire for motherhood.
Noi, donne is sponsored by SIMIT and ICAR.
Material and methods: Structured in 5 sections, the project includes:
1. the positive story of a natural birth in the era of U=U; 2. "U=U, Impossible Sbagliare", community based campaign sponsored by SIMIT and promoted by ICAR; 3. a section dedicated to the Italian guidelines on the diagnostic-clinical management of people with HIV-1 infection, related to women and pregnancy; 4. a manifesto for women living with HIV; 5. the "charter of caring for motherhood the universal rights of women and infants".
Three communication channels have been designed:
1. Mass Media channel
A printed brochure will be addressed to 20 Italian centres, to the respective infectious disease and gynaecology departments. The centres were selected from the association's internal database, based on size of the catchment area.
2. Social Channel
The brochure will be also disseminated via NPS (People Living with HIV Network) social media channels.
A landing page will host and be entirely dedicated to the manifesto for women living with HIV (section 4 from the brochure), for being signed and to receive future updates about HV/ AIDS and the NPS activities, if the prior consent has been given.
3. Personal Media channel
Any woman who wants to tell her story, can write directly to a dedicated email address: noidonne@npsitalia.net
Results: Building a web-based community will only be possible if there is the will of women living with HIV to be part of a web-based community, even in conditions of unidentifiable picture-profile.
A monthly survey will be carried out of the number of subscriptions to the project via social channels, the number of emails received, the number of participants in the telegram group.
A total number of 500 subscriptions to the project is expected.
Conclusions: The project was designed and written for women living with HIV who have a desire for motherhood and to make up for the lack of a network of mothers living with HIV.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 151 ASSESSMENT OF COMPREHENSIVE SEXUALITY EDUCATION: A FRAMEWORK OF INDICATORS TO EVALUATE INTERVENTIONS IN ITALIAN SECONDARY SCHOOLS

D. Martinelli[1], G. Paparatto[2,3], B. Suligoi[4], M. Salfa[4], P. Nardone[5], S. Donati[5], D. Pierannunzio[5], S. Ciardullo[5], C. Silvestri[6], M. Di Tullio[7], A. Camposeragna[8], P. Meli[9], C. Celata[10], L. Bonaldo[2], M. di Nino[2], M. Ubbiali[11], A. Chinelli[2], L. Tavoschi[2]

[1]Department of Medical and Surgical Sciences, University of Foggia, Foggia, Italy, [2]Department of Translational Research and New Technologies in Medicine and Surgery, University of Pisa, Pisa, Italy, [3]Health Science Interdisciplinary Research Centre, Sant'Anna School of Advanced Studies, Pisa, Italy, [4]Department of Infectious Diseases, National Institute of Health, Rome, Italy, [5]National Centre for Disease Prevention and Health Promotion, Italian National Institute of Health, Rome, Italy, [6]Healthcare Regional Agency (ARS), Epidemiological Observatory, Tuscany, Italy, [7]Italian League for The Fight Against AIDS (Cama-LILA), Bari, Italy, [8]CNCA – Italian Coordination of Care Communities, Italy, [9]Italian Coordination of Residential Homes For People With HIV/AIDS (CICA), Bergamo, Italy, [10]UO Prevenzione DG Welfare Regione Lombardia - UO a valenza regionale "Promozione della Salute, ATS Città Metropolitana di Milano, Milano, Italy, [11]Department of Human Sciences, University of Verona, Verona, Italy

Background: Comprehensive sexuality education (CSE) is widely recognised worldwide as the best approach to promoting sexual health and preventing STIs. In Italy, CSE is not routinely included in the school curriculum: several initiatives have been piloted, although not always adequately evaluated. The EduForIST project, funded by the Ministry of Health, first proposed a unique model for CSE interventions and tested it in a group of secondary schools in 6 Italian regions. As one of the main objectives, the EduForIST project aimed to develop an evaluation model for CSE interventions to assess their real-world effectiveness if the CSE approach were to be introduced into Italian school curricula nationwide.

Material and Methods: A group of experts (GoE) belonging to the EduForIST partnership (Universities of Pisa, Foggia and Verona; Italian National Institute of Health; Regional Departments of Prevention of Tuscany and Campania; Civil Society Organisations) developed a framework for the short-, medium- and long-term monitoring and evaluation of clinical and behavioural outcome indicators and process indicators to assess interventions implementation. To this end, the GoE met repeatedly, using monthly focus group discussions from April 2023 to February 2024, to reach agreement on the proposed set of indicators. The GoE defined the calculation methods for the proposed indicators, identified available data sources, and assessed the feasibility of the calculations and likelihood bias.

Results: A total of 35 indicators were developed: 17 clinical and 8 behavioural indicators for medium and long-term outcome evaluation, 1 for short-term behavioural outcome evaluation and 9 process indicators. Clinical and behavioural indicators can be computed using administrative data sources from the Ministry of Health and the Regional Health Authorities. The National Institute of Health provides data from the AIDS Operations Centre and the national Health Behaviour in School-aged Children surveillance (HBSC). Most process indicators require ad hoc data collection and calculations. Although their computation appears feasible, challenges of under-reporting and underestimation persist for several clinical and behavioural indicators, particularly in regions where CSE interventions have not been widely implemented.

Conclusions: Developing an effective system for monitoring the outcomes and processes of CSE interventions requires the integration of a variety of data sources, including health and administrative information, and behavioural and learning assessments, collected over time. While the effectiveness of the proposed model will be fully realized after the widespread implementation of CSE interventions in Italian secondary schools, the selected indicators are proposed as an example for assessing their real-world effectiveness. This assessment involves comparing the baseline (pre-intervention) status with the post intervention impact of the CSE programmes implemented in secondary schools.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 152 UNDERSTANDING AND MANAGING NEW HIV DIAGNOSES IN MEMBERS OF "GENERATION Z" (1996-2010) IN MILAN, ITALY: PROJECT GENZ HIV-SUPPORT

G. Bozzi[1], A. Giacomelli[2], P. Saltini[1,3], A. Liparoti[1,3], V. Castelli[1], B. Mariani[1], A. Muscatello[1], C. Bobbio[1], A. Gori[3,4], S. Negri[4], A. Bandera[1,3]

[1]Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milano, Infectious Diseases, Milano, Italy, [2]ASST Fatebenefratelli Sacco, III Infectious Diseases Unit, Milano, Italy, [3]Unimi - Università degli Studi di Milano, Milano, Italy, [4]ANLAIDS Sezione Lombarda, Milano, Italy

Background: "Generation Z" (born 1996-2010), was not alive during the first phase of the HIV pandemic, characterized by gloomy mass communication.
Age 16-24 has been associated to poor treatment adherence and complications of chronic medical treatment, and Gen-Zers are more likely to have anxiety/depression disorders.
PLWH aged 16-24 name stigmatizing social norms and troublesome coping as barriers to treatment. These items are typically tackled in psychological interviews, known to prevent loss-to-follow-up but not routinely offered by the Italian national healthcare.
We describe the gen-Z population of our HIV clinic in Milan, Italy, with qualitative results from Project GenZ HIV-support, providing psychologic support into the outpatient clinic context to people aged 18-24 receiving HIV diagnosis.
Methods: Single-center aggregated data of patients born 1996-2010 receiving HIV diagnosis between 01/2019 and 12/2023. SF-36 questionnaire to test health-related QoL was "above average" if mean score was > 64.40. Psychologic support within 30 days from HIV diagnosis started in January 2023 within a prospective observational study investigating adherence to appointments as outcome.
Results: A total 18/216 (8.3%) individuals newly diagnosed with HIV in 2019-2023 at IRCCS Policlinico were gen-Zers. Median age at diagnosis was 21, all had sexual route of transmission (70% MSM), 60% were foreign-born (5 African, 6 South American).
Of 18, 33% had primary infection, none had AIDS, median CD4 count at diagnosis was 383/mcL, median viral load was 5 log10. Half were routinely tested for HIV, but had not considered PrEP.
Non-adherence to visits in the first year of follow up was 25%, while all were self reportedly drug-adherent. Mean SF -36 score was 77.09. Psychologic support was offered to 6, accepted by 5 individuals.
Counselling revealed common themes of emotional paralysis. HIV diagnosis was never the focus of conversation, and not mentioned as a cause of distress. Reasons of such banalization seemed to be a strong trust in the internet and social media, which are chosen routes of communication and information. Psychological counselling was appreciated mostly as a way to retrieve information unavailable online, the lack of which was commonly perceived as an emergency. Therefore feelings, when expressed, gravitated towards anxiety and depression.
Conclusions: As of 2023, more than 8% HIV diagnoses were in gen-Zers, a population still to be fully characterized as outpatient service users. Population was mostly composed of foreign MSM, with at least half the population seemingly aware of HIV risk, while not choosing protected sex or PrEP. Adherence to visits was poor while drug adherence was adequate. Qualitatively, gen-Zers receiving counselling seemed in need of authentic relationships – irrespective of professional roles – to maintain a functional therapeutic alliance. These results may guide primary and secondary public health interventions.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 153 PEP/PREP FOR BACTERIAL STIS AND HIV-PREP: KNOWLEDGE AND USE AMONG MSM IN ROME

L. Gianserra, S. Stingone, S. Capodieci, M. Zaccarelli, V. Cafaro, M.G. Donà, E. Giuliani, M. Giuliani, A. Latini

San Gallicano Dermatological Institute IRCCS, Rome, Italy

Background: Bacterial STIs have seen a rise among MSM. Recent studies have demonstrated the efficacy of Doxycycline in the prophylaxis of syphilis, chlamydia and gonorrhea, exhibiting varying degrees of effectiveness. Furthermore, the effective use of cART, which virtually eliminates transmission risk (U=U), has influenced attitudes toward HIV acquisition, leading to riskier sexual behaviors. Emtricitabine/Tenofovir Disoproxil for HIV-PrEP has been recently approved in Italy. We have explored the level of knowledge and use of STI PEP/PrEP and HIV-PrEP among MSM attending the largest STI center in Rome, Italy.

Materials and methods: Male individuals who reported same-sex sexual intercourses in the previous year were asked to self-compile an anonymous questionnaire that included questions on demographics, STI history, sexual behavior as well as the use and awareness of STI PEP/PrEP (Doxycycline or other antibiotics) and HIV-PrEP.

Results: Between October and November 2023, 122 MSM (median age: 45 years, IQR: 37-52), of whom 57 (46.7%) living with HIV, participated in the survey. Overall, 15 MSM (12.3%) were aware of the possibility of STI PEP/PrEP, primarily informed by a physician (53.3%). Three respondents (2.5%), all living with HIV, reported using STI-PrEP, whereas eight (6.6%) reported using STI-PEP (9.2% HIV-negative MSM vs. 3.5% MSM living with HIV). The use of STI PEP/PrEP was significantly associated with unprotected sex (p=0.023, Fisher test) and chemsex (p=0.039, Fisher test).

Among the HIV-negative individuals, 57 out of 65 (87.7%) knew about HIV-PrEP as compared to 51 out of 57 MSM living with HIV (89.5%). The most common source of information about HIV-PrEP was a friend (29.5%), followed by web (26.2%), a physician (24.6%) and partners(s) (5.7%). When the source of information was represented by a physician, this was an infectious disease specialist in 80.0% of the cases. Four HIV-negative individuals (6.1%) reported the use of HIV-PrEP. All of them reported to practice chemsex.

Conclusions: Among MSM attending our STI/HIV center, knowledge and utilization of STI PEP/PrEP as a preventive measure against bacterial STIs remain limited. Despite the majority of HIV-negative MSM being aware of the availability of HIV-PrEP, only a small fraction reported actual usage. Enhancing the access to HIV-PrEP in our country, avoiding useless barriers and stigma, is a necessity.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 154 PROACTIVE TESTING FOR SEXUALLY TRANSMITTED AND ENDEMIC DISEASES AT AN OPEN ACCESS CLINIC FOR MIGRANTS

R. Ligresti, S. Pettenuzzo, A. Cordori, F. Bai, C. Tincati, T. Bini, G. Marchetti

Università degli studi di Milano, Ospedale San Paolo, Milano, Italy

Background: Migrants are susceptible to Infectious Diseases (ID) and have worse health outcomes than the host population. For this reason, according to the ECDC, screening for active and latent tuberculosis (Tb), HIV, HBV, HCV, schistosomiasis and strongyloidiasis should be offered to people coming from countries with high ID prevalence.

Materials and methods: The study was conducted September 2023 and March 2024. Adult migrants seeking medical attention for any reason at a weekly free access outpatient setting were screened for HIV (HIV Ab), HBV (HBsAg, HBcAb, HBsAb), HCV (HCV Ab),T. pallidum (TPHA, VDRL) and latent Tb (IGRA). Testing for N. gonorrhoeae, C. trachomatis (NAT) and S. haematobium (serology and urine cytology) was also offered to symptomatic patients. Screening was accompanied by medical counselling.

Results: We enrolled 77 migrants, comprising of 53 (69%) males and 24 (31%) females. Median age was 38 (IQR 18-62). 37 (48%) originated from Africa, 26 (33.7%) from South America, 7 (9%) from Eastern Europe and 7 (9%) from Asia. The average time from arrival in Italy was 56 months.

A total of 66 people (85.7%) followed through, while 11 didn't show up for testing (Table 1)

2 people tested positive for HIV (3%), 2 for syphilis (3%) and 7 for LTBI (10.6%). One patient with urinary symptoms resulted positive for S. haematobium Ab. 11 patients (16.6%) had a previous HBV infection (HBc Ab+ and HBsAb+), 13 (19.7%) were vaccinated (HBsAb+ and HBcAb-) and 42 (63.6%) had negative HBV serology.

All patients with positive tests were treated accordingly. In particular, newly diagnosed HIV individuals had CD4+ T cells 410/uL (20%) and 81/uL (4%), with HIV RNA 4110/uL and 306.000/uL. Both were treated with bictegravir/emricitabine/tenofovir alafenamide fumarate and are currently retained in care.

Conclusion: Screening for sexually transmitted diseases and latent Tb in migrants referred to our clinic from a weekly access outpatient setting was feasible and effective. However, the average time for the population analyzed before getting tested was over four years; additionally, over half were not vaccinated for HBV an, given current legislation couldn't undergo vaccination. Both these elements highlight the necessity of increasing accessibility to the Healthcare system in order to close the gap between arrival and medical care.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_129.jpg

Social and behavioural science, marginalized groups, community aspects and community surveys

P 155 AN ALLIANCE IN COMMUNICATION: LILA TRAINING FOR JOURNALISTS

G. Dessì, G. Giupponi, L. Supino
LILA Nazionale, Como, Italy

Background: In 2022 and 2023 LILA (Italian League Fighting AIDS) developed a training course for journalists. The activities were carried out within the project “Comunicare correttamente l’HIV per raggiungere gli obiettivi ONU 2030” (Correctly communicate HIV to achieve the UN 2030 goals), granted by Viiv Healthcare. The project led to the creation of a training module for journalists - implemented in three Italian regions - and the publication of a guide for information operators.
Material and methods: At the beginning of the project, two professional journalists supported the working group in research on Italian journalistic deontology and investigating the archives of national and local newspapers.
Based on these activities, a training module was developed which included: scientific and historical information on HIV/AIDS, a review of the most common communication errors in the Italian media and an introduction to working tools and useful resources for journalists. The training program was illustrated with a set of slides and a guide for information workers. LILA identified three Italian regions without local affiliated offices and organized the courses with the regional orders of journalists of Campania, Lazio and Veneto. Each meeting took place with LILA operators and the support of doctors. The participating journalists were awarded with credits for professional training.
Results: Over one hundred journalists attended the courses held in: Rome (December 2022), Dolo-Venice (May 2023) and Naples (September 2023). Furthermore, a 21-page guide for information workers has been created with essential information on HIV/AIDS from a health and social point of view and with suggestions on correct and non-discriminatory
communication towards PWH.
Conclusions: Correct and accurate information can be decisive in winning the fight against HIV, a goal that the UN considers possible by 2030 (SDGs), if the appropriate social and health policies are implemented. The media can be fundamental in this challenge, supporting the scientific community and the communities with the dissemination of reliable,
easily understandable and without prejudice news.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 156 CHEMSEX, SEXUALIZED DRUG USE AND EMOTIONAL VULNERABILITY AMONG MSM OF A PILOT SURVEY OF AN STI/HIV CENTER

S. Capodieci, M. Zaccarelli, C. Stingone, E. Giuliani, V. Cafaro, L. Gianserra, M.G. Donà, A. Latini, M. Giuliani

San Gallicano Dermatological Institute IRCCS, Rome, Italy

Background: Chemsex represents a variant of sexualized-drug-use (SDU), mainly observed among European and North American communities of men who have sex with men (MSM). Behavioral studies showed that chemsex differs from other forms of SDU, mainly by type of psychotropic substances, length of sessions, risks for health, and characteristics of participants. Additionally, people living with HIV (PLWH) are more prone to engage in chemsex than HIV-negative counterparts.
We aimed to assess the prevalence, characteristics, and correlates of chemsex in MSM attending an STI/HIV center.
Materials and Methods: A pilot survey was conducted using a validated anonymous self-administered questionnaire proposed to consecutive MSM attending the STI/HIV center of the San Gallicano Dermatological Institute in Rome, Italy, in November 2023. The questionnaire investigated demographic characteristics, lifestyle habits, substance use, and sexual preventive behaviors. Vulnerability to anxiety and depression was also assessed using PHQ-2 and GAD -2.
Results: One hundred twenty-two MSM accepted to fill out the questionnaire. Fifty-seven out of 119 (47.3%) MSM tested for HIV declared to be PLWH on ART. Overall, 26 MSM (21.3%) referred SDU non-chemsex and 24 (19.7%) referred chemsex. Of those practicing chemsex, 14 (58.3%) were LWH. The characteristics of the respondents by drug use are shown in Table 1. With respect to non-consumers, consumers of any drug for sex were more prone to refer to a non-steady partnership (p=0.007) and to engage in group sex (p=0.001). Chemsex practitioners were more prone to use condom inconsistently (p=0.002), to refer to a history of STIs (p=0.03), and to have more than 10 recent sexual partners in the previous year (p=0.04) than sexualized drug users. Moreover, those engaging in chemsex used additional drugs compared to non-chemsexers, such as GBL/GHB, Crystal Meth, Mephedrone, Ketamine, PHP, and MDPV (Table 2). Among surveyed MSM, depression, but not anxiety, seemed to play a significant role in distinguishing sexualized drug users and chemsex practitioners from non-users (p<0.01 for both comparisons) (Table 3). An association between depression and HIV status also emerged (p=0.06). Among PLWH, depression seemed to be associated with chemsex participation (AOR= 1.65; 95%CI: 0.98-2.78) (data not shown).
Conclusions: These preliminary findings suggest that a substantial proportion of MSM engaged in SDU and chemsex, with measurable differences in behaviors and psychological vulnerability between users and non-users, particularly in terms of STI risk and depression. These results will be re-evaluated overtime along the progress of the survey.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_174.jpg

Social and behavioural science, marginalized groups, community aspects and community surveys

P 157 GO-COME BACK-CURE FOR HCV MANAGEMENT: THE ROLE OF THE CONTINUOUS PRESENCE OF THE INFECTIOUS DISEASE (ID) SPECIALIST AT PUBLIC HEALTH SERVICES DEDICATED TO THE ASSISTANCE OF ADDICTED SUBJECTS (SERD) IN ITALY

E. Rastrelli[1], A.M. Ialungo[1], S. Dell'Isola[1], F. Ferri[1], M. De Rosi[2], F. Bellitto[2], A. Marino[2], F. Mazza[2], A. Lagrutta[2], G. Starnini[1]

[1]UOC Medicina Protetta-Malattie Infettive Ospedale Belcolle, Viterbo, Italy, [2]SerD ASL Viterbo, Viterbo, Italy

Background: since 2018, Italy has been one of 12 countries on the path towards achieving the WHO's 2030 HCV elimination target. Screening should be targeted primarily at populations with a higher risk of infection and disease progression, such as people who inject drugs (PWID). Highest prevalence estimates of undiagnosed HCV-infected individuals with F0–F3 or F4 disease are generally observed in central regions of Italy, especially for intravenous (IV) drug use.

Material and methods: Adhering to a regional program, hospital ID specialists regularly went to the four SerD offices for the screening and treatment of HCV infection. Close collaboration was organized between the healthcare providers for drug addiction services (SerD HCPs) and the infectious disease specialists. Patients belonging to the SerD who were newly admitted or who had undergone HCV screening for over 1 year were offered screening and treatment for HCV infection. Blood tests and drug collection took place at the SerD offices. Based on clinical judgment, the ID specialist scheduled a liver ultrasound at the hospital gastroenterology service.

Results: During one year of activity, 449 people were screened for HCV and 65 tested positive for antibodies (14.4%); 23 patients were found to have HCV infection (5.1%). Among the viremic patients, 18 accepted therapy with direct antiviral drugs (DAA) with infection eradication, 1 patient refused therapy and 4 dropouts were observed. Of 22 viremic patients a 30% of patients were with F4 disease confirmed by ultrasound, 10% of viremic patients were HCV reinfection (with previous treatment for HCV infection) and 2 patients had hepatocellular carcinoma (HCC) and were directed to integrated infective-gastroenterological treatment. Some patients did not show up at the first visit but were seen at the next one for the start of treatment.

Conclusions: PWID is a hard to reach population with highest risk of HCV infection, reinfection and disease progression. This go-come back- cure approach of the ID specialist at SerD offices may increase case finding, compliance to diagnostic tests and treatment and may also be crucial for management of cases of pregression and comorbidity of the disease and for the strengthening of retention in care over time.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 158 HIV PREVENTION IN THE HIGH SCHOOLS OF SARDINIA: THE EXPERIENCE OF LILA CAGLIARI

G. Dessì[1], S.M. Pani[2], A. Mereu[2], C. Sardu[2], P. Contu[2]

[1]LILA Cagliari OdV, Cagliari, Italy, [2]Department of Medical Sciences and Public Health, University of Cagliari, Cagliari, Italy

LILA (Italian League Fighting AIDS) Cagliari has been working on HIV prevention in Sardinia since 1993. From 2013 to 2022, the EducAids project involved 9551 high school students in 69 days of activities, distributed 2062 condoms, and 5444 information leaflets. The project involved about 9 schools and seven volunteers per year. This work presents the results of the project's initial questionnaires collected between 2017 and 2022 in 36 Sardinian schools.
The anonymous questionnaires were administered in BYOD (bring-your-own-device) and compiled in class with an operator from the association. Questionnaire sections: 1) age, gender, orientation, sexual debut; 2) prophylactic use, other contraceptives, alcohol and drug use during sexual encounters; 3) students' attitude on HIV (approach, stigma towards people with HIV/considered at risk of HIV, points of view on sexuality) (Tab.1), opinions on the organization of emotional and sexual education activities, availability of condoms during LILA intervention, and condoms sale in vending machines at school; 4) self-assessment of knowledge about statements about HIV; 5) feedback on difficulties and embarrassment about covered topics.
4194 questionnaires were analyzed (age 13-20, mean 17 years; gender: 2378 women; 1804 men; 12 non-binary; orientation: 85.1% heterosexual; relationship status: 70.3% single)(Tab.2). 38% of participants already had sexual intercourse (57% before the age of 16)(Tab.1). 37.3% always used condoms in penetrative intercourse, 46.3% sporadically, 16.5% never. Reasons for the assiduous use of condoms were pregnancy prevention and STIs, greater safety, and agreement between partners. Among sporadic users, 37.2% didn't always have condoms, 26.5% found condoms uncomfortable, and 17.4% felt less satisfied. Among those who don't use condoms, 19.2% feel uncomfortable, 14.1% report decreased sexual pleasure, and 8.6% were exclusive.
The knowledge reported on general statements on HIV was mostly higher than 60% (Tab. 3). On statements about HIV testing and PrEP, the level of knowledge was lower (e.g., "If someone becomes infected with HIV it may take several weeks before it can be detected in a test" (30.3% correct answers)) (Tab.4). 100% of the students were in favour of the proposed interventions, and the majority were not embarrassed nor experienced difficulties dealing with the topics.
Our results highlighted the need for more adequate education on HIV. The inadequate formation proposed by the Italian school system on emotional and sexual education was highlighted by the majority of participants that were in favour of structured and high-quality interventions. Furthermore, the scientific community, civil society, and international organizations recommend comprehensive sex education. Therefore, projects like EducAids by LILA Cagliari are essential to inform the students and amplify their voices about the need for the institutional actors to implement the international recommendations.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_214.jpg

Social and behavioural science, marginalized groups, community aspects and community surveys

P 159 ACCESS TO HEALTHCARE BY TRANSGENDER AND GENDER NON-CONFORMING INDIVIDUALS: PRELIMINARY EVIDENCE FROM A CROSS-SECTIONAL STUDY

F. Fama[1,2], E. Caruso[3], C. Fusetti[1], D. Calzavara[3], R. Fattore[1], N. Frattini[3], S. Negri[4], M. Cossu[1], A. Giacomelli[1], M. Cernuschi[3,5], A. Gori[1,2], D. Moschese[1,3]

[1]Department of Infectious Diseases, Luigi Sacco University Hospital – Milan, Italy, [2]Centre for Multidisciplinary Research in Health Science (MACH), University of Milan - Milan, Italy, [3]Milano Checkpoint ETS – Milan, Italy, [4]ANLAIDS Lombardia ETS, Milan, Italy, [5]Infectious Diseases Unit, San Raffaele Scientific Institute - Milan, Italy

Background: Transgender and gender nonconforming individuals (TGNC) face multiple barriers to healthcare, due to stigma, inadequate healthcare services and poorly trained healthcare professionals. Since available data on this population is scarce and mainly regards TGNC with HIV, the aim of this study was to understand how this group faces discrimination in the healthcare setting and to evaluate the specific needs of TGNC to help reduce the gap and increase retention-in-care.

Methods: A survey has been conducted since March 2024 among TGNC. The 1st section of the survey collects epidemiological and socio-economic data. The II section investigates the experienced discrimination in healthcare settings; the last section examines access to healthcare, with a particular focus on trans-care specific services.

Results: As of April 2024, 61 subjects took part to the study: 24% identify as trans women, 49% as trans men, 21% as non-binary and 3% as other; the majority identifies as bi/pansexual (62%), 16.4% as heterosexual and 13% as homosexual. The majority are white (97%), born in Italy (97%) and employed (51%); the average age is 27 years. Around 66% of the sample reported having started their gender affirmation journey.

31% never had an endocrinology consultation due to costs or difficulty in accessing the service, and among those who did, 33% had to wait at least 3 months to get the first appointment. Although only 8% of responders are not interested in starting a gender-affirming hormone therapy (GAHT), less than a half (44%) have had the chance to access it for the same barriers above mentioned. Similarly, 30% reported being interested in gender-affirming surgery but face financial constraints, while 11% would not know how to start the procedure.

More than half of the responders have felt discriminated at least once during a medical consultation (51%) or avoided seeking for healthcare assistance due to fear of discrimination (54%): 82% reported being addressed with the wrong pronouns, 36% were asked intrusive questions about their gender identity, and 51% of the responders stated their gender identity was questioned at least once by a healthcare provider. For 70% of the responders, their family doctor is poorly or not prepared at all on trans-specific healthcare issues.

As for access to sexual healthcare services, nearly 60% of the participants never underwent an STI or HIV screening, mainly due to low risk-perception (69% and 41% respectively); only 54% of the sample knows what PrEP is.

Conclusions: Our survey highlights the inadequate consideration of TGNC by healthcare assistance services: physicians are perceived as not sufficiently trained from both a scientific and social perspective, and the health system do not fully cover TGNC needs.

More data is needed to fully understand the health gap that TGNC face, in order to design targeted public health policies aiming to improve trans-care services.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 160 RETE AIDS: SHARED TELEPHONE COUNSELLING STRATEGIES TO MEET PEOPLE'S INFORMATION NEEDS ON STIS

P. Gallo, A. Colucci, E. Fanales Belasio, R. Valli, M. Schwarz, R. Dalla Torre, A. D'Agostini, ReTe AIDS

Unità Operativa Ricerca psico-socio-comportamentale, Comunicazione, Formazione - Dipartimento Malattie Infettive - Istituto Superiore di Sanità, Rome, Italy

Background: ReTe AIDS (Rete Telefoni AIDS), a network of Helpline services managed by public and non-governmental structures in different Italian regions, was established in 2008. The Network, coordinated by the Unità Operativa Ricerca psico-socio-comportamentale, Comunicazione, Formazione (Dipartimento Malattie Infettive, Istituto Superiore di Sanità), includes 13 Helplines which provide primary and secondary prevention interventions for HIV and other STIs to people in national territory.
This study provides an analysis of the characteristics of the users of the ReTe AIDS Helplines, particularly their attitude to testing, and of the thematic areas most addressed in the telephone counselling interventions.
Material and methods: The Helplines of the ReTe AIDS share the communicative-relational method in the telephone intervention which is structured according to the basic skills of counselling, with a rigorous methodological procedure (Operational Model). A common data-entry software allows to catalog and archive the data emerging from telephone interventions, in anonymous form. The study analyses telephone calls received by the AIDS Network in the year 2023. A descriptive analysis was performed with aggregate data by using the Access 365 software.
Results: In the year 2023, 11,816 telephone calls were collected by the 13 Helplines of the ReTe AIDS. Most calls (62.9%) were the first ones by users, which were prevalently males (84.4%). The age ranges reported by users were mainly 25 – 29 years (19.7%), 30 – 34 years (18.1%), 35 – 39 years (14.6%).
In 59.8% of the calls the users reported heterosexual relations, in the 15.2% relations between men who have sex with men. The execution of the HIV test was reported in 61.5% of phone calls in consequence of risk behaviors, pregnancy, surgery or blood donation while in 23.4% of phone calls the test was never performed and in 15.1% the data was missing.
In 2023, ReTe AIDS experts answered 39,064 questions from users, focusing mainly on of HIV and other STIs transmission ways (33.9%), access to HIV and STI diagnosis and treatment centers (31.7%); psycho-social issues (12.3%). Disinformation was reported in the 7.1% of the questions, often linked to stigma and discrimination.
Conclusions: The ReTe AIDS can be considered an observatory of information needs related to HIV, AIDS and all other STIs, but also of specific needs that can be effectively addressed in the personalized telephone counselling intervention. The ReTe AIDS is a powerful tool for disseminating the culture of preventing STIs, using a common telephone counselling strategy. The Network also allows the stigma linked to STIs (always present) to emerge and to fight any form of discrimination towards people living with HIV.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 161 SPECIALIZED CLINIC EXPERIENCE AT THE MULTIDISCIPLINARY CENTER FOR SEXUAL HEALTH (CE.MU.S. S) IN TURIN FOR MANAGING FEMALE GENITAL MUTILATION VICTIMS: AN INTEGRATED APPROACH

A. Fortunato[1], L. Bello[2], M. Romanisio[3]

[1]Asl città di Torino, Turin, Italy, [2]Asl città di Torino, Turin, Italy, [3]Università di Torino, Turin, Italy

Background: Female Genital Mutilation (FGM) is a global form of violence and human rights violation impacting girls and women. Countries such as Egypt, Somalia, Sudan, and Mali exhibit exceptionally high incidence rates, reaching up to 90%. According to the World Health Organization (WHO), approximately 200,000 women worldwide suffer from FGM, involving partial or total removal of external genitalia. Survivors endure significant physical and psychological consequences, including immediate risks like hemorrhage, shock, and long-term complications such as dyspareunia and obstetric difficulties. The limited awareness among healthcare professionals hinders the recognition and management of FGM, further exacerbated by vulnerability and stigma experienced by migrant women accessing healthcare.

Material and methods: The FGM clinic operates within the Multidisciplinary Center for Sexual Health (Ce.Mu.S.S), specializing in preventing, diagnosing, and treating sexually transmitted infections. Adopting a multidisciplinary approach, specialists from medical, psychological, and social fields collaborate. Gynecologists and midwives manage medical complications related to sexual and reproductive well-being caused by FGM, while psychologists address associated mental health issues. FGM, recognized as a human rights violation, may require international protection, prompting consultations with medical examiners and social workers. The clinic provides targeted mediations based on the patient's country of origin, emphasizing the importance of cultural mediators. It offers guidance and training to social and health workers, working closely with regional services to provide comprehensive care for migrant and pregnant women, minors, and individuals with HIV. This partnership enhances the clinic's ability to offer widespread and structured activities across Turin and the region (Figure 1).

Results: Since December 2021, the clinic has provided care for 80 FGM patients, mainly from Ivory Coast and Nigeria (Figure 2). All patients received FGM information and counseling. Half were referred to psychological services, 10% to local counseling centers or hospitals for pregnancy-related care, and 5% to legal counseling. Collaborations were conducted with local associations and services, such as the anti-violence center E.M.M.A Onlus and the social workers' service of the ASL Città di Torino, as well as lectures at universities, secondary and high schools.

Conclusions: The multidisciplinary model effectively addresses the needs of a vulnerable and disadvantaged female subpopulation in terms of access to care through the attention to physical, psychological, sexual, and social health. The interaction of specialists belonging to different backgrounds ensures the optimization of resources, time, and simplifies the healthcare's access for women living with FGM.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_261.png

Social and behavioural science, marginalized groups, community aspects and community surveys

P 162 BRIDGING GAPS IN HIV SCREENING FOR MARGINALIZED COMMUNITIES: INSIGHTS FROM A COMMUNITY-BASED CENTER IN GENOA, ITALY

A. Ferrari[1,2,3], G. Notore[1,2], T. Cerisola[1], G. Manzi[1], E. Pontali[1,4]

[1]ANLAIDS Sezione Liguria, Genoa, Italy, [2]Department of Health Sciences (DISSAL), University of Genoa, Genoa, Italy, [3]Social Epidemiology and Health Policy (SEHPO), University of Antwerp, Antwerp, Belgium, [4]Department of Infectious Disease, Ente Ospedaliero Ospedali Galliera, Genoa, Italy

Community-based centers for HIV screening play a pivotal role in addressing the needs of high-risk populations, particularly vulnerable and marginalized groups, who often face barriers to accessing traditional testing services within hospital settings.
IOC'ENTRO HIV checkpoint in Genoa is the biggest out-of-hospital facility in the Liguria Region that offers free and anonymous services for HIV tests and counseling.
The aim of this study was to evaluate the demographic characteristics and risk profile among users of the checkpoint.
IOC'ENTRO is part of the COBATEST network, a European platform of HIV community-based testing facilities with the purpose of standardizing the collection of data. For this study, data collected employing the standard COBATEST questionnaire from December 2021 to February 2024 were analyzed (Table 1). Chi-square and Fisher's exact tests were used to compare categorical variables.
In total, 607 rapid tests for HIV screening were performed. Considering gender, 322 (53.0%) and 272 (44.8%) of users were, respectively, cisgender men and women, 2 (0.3%), 8 (1.3%) were transgender men and women and 3 (0.5%) were non-binary.
The two most represented age groups were 25-39, with 313 users (51.6%) and 18-24 with 221 users (36.4%), while 67 users (11.0%) belonged to the 40-59 group and only 6 (0.9%) were over 60 years old.
Among our users, 159 (26.2%) were men who have sex with men (MSM), 23 (3.8%) were or had sex with sex workers, 11 (1.8%) were or had sex with people who inject drugs and 6 (0.9%) used pre-exposure prophylaxis (PrEP).
Overall, 3 users had a positive HIV test result and were referred to hospital services. Of them, all were males and foreigners, 2 were MSM and 1 engaged in sex work ($p < 0.001$).
Of 21 users who reported a STI in prior 12 months, 17 (80.9%) were aged 25-39 (p 0.033) and 2 (9.5%) engaged in chemsex (p 0.035).
Among 11 users engaging in chemsex, 1 (9.1%) reported injecting drugs, while 2 used methamphetamines and 2 used cocaine. Notably, while chemsex is a phenomenon typically associated with the MSM community, 4 users were cisgender women and two of them had sex with women (WSW). While one was involved with both male and female partners, the other, also in PrEP, was involved exclusively with female partners. Contrary to the prevailing trends that neglects the sexual health of WSW, a large proportion of our users identified as such (9.7%).
While, in our setting, HIV routine screening remains low in general population, the identification of positive cases underscores the importance of early detection and linkage to care. Our findings highlight the role of community-based centers in reaching diverse high-risk populations, including individuals engaging in chemsex, who frequently encounter a lack of dedicated services within local infectious diseases and substance use facilities, as well as other marginalized groups, such as foreigners and WSW, whose sexual health needs are often overlooked.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_295.jpg

Social and behavioural science, marginalized groups, community aspects and community surveys

P 163 PROBLEMATIC CHEMSEX: A MULTIDISCIPLINARY APPROACH

G. Fracca, M. Manfredini

ASA Associazione Solidarietà AIDS ODV, Milano, Italy

In this case report I intend to describe a case of heavily problematic chemsex: a subject that had been using all kinds of drugs for over three years, but had ended up injecting methamphetamine (slamming) alone, at home, on a daily basis.

The subject was a brilliant university student with an extremely problematic family of origin, who had not accepted his homosexuality and who had not supported him financially in his course of studies, which he had nevertheless managed to continue for a few years thanks to scholarships and part time jobs, creating a strong sense of community with the marginalized youth of his hometown.

The situation worsened following the 2020 lockdown which left him isolated from friends and relegated him at home where the psychiatric distress of his family of origin had pushed him to practice daily slamming.

The boy arrives at the monosymptomatic therapeutic group via word of mouth within the LGBTQ+ community and begins to participate initially intermittently and then more and more assiduously.

In the meantime he is followed by a young psychologist, who knows little about the reality of the MSM community but is very willing to collaborate with our association who suggests some supervision with more expert colleagues.

The severity of drug addiction makes psychopharmacological treatment necessary; the patient finds it very difficult to accept this (temporary) step necessary for his recovery because his parents had been treated with antipsychotic drugs and he feared "to be transformed into a zombie". The support and encouragement of his companions in the monosymptomatic therapeutic group for chemsex convinced him to take the drugs that had been prescribed to him by the psychiatrist.

From time to time, when thanks to the group sessions, some of the issues relating to his loneliness, sexuality, and his relationship with the possibility of being loved emerged, he could talk about it with his psychotherapist in individual sessions. I believe that the collaboration between the group psychotherapist and the individual psychotherapist was also important.

After two years of therapy, the young man obtained his degree - which for him also had an important symbolic meaning - and entered the world of work and volunteering.

This case report highlights the importance of a multidisciplinary approach and social network support to resolve cases of problematic chemsex. I would also like to underline how within the group the themes of friendship and the possibility of being loved are not just a topic of discussion in abstract terms but are lived experiences, sincere affections which, although confined to the hours of therapy, form a first secure basis which allows a readjustment of one's internalized image.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 164 ITALIAN PARENTS AND TEACHERS' ATTITUDES AND PERCEPTIONS OF A COMPREHENSIVE SEXUALITY EDUCATION ACTIVITY IN SECONDARY SCHOOLS: THE EDUFORIST NATIONAL PROJECT

A. Chinelli[1], D. Martinelli[2], G. Paparatto[1], L. Bonaldo[1], M. Di Nino[1], A. Musco[2], M. Ubbiali[3], M. Farinella[4], P. Meli[5], P. Fallace[6], P. Nardone[7], D. Pierannunzio[7], S. Donati[7], S. Ciardullo[7], L. Tavoschi[1]

[1]University of Pisa, Pisa, Italy, [2]University of Foggia, Foggia, Italy, [3]University of Verona, Verona, Italy, [4]Circolo di cultura omosessuale Mario Mieli, Roma, Italy, [5]Coordinamento Italiano Case Alloggio HIV/AIDS (CICA), Bergamo, Italy, [6]ASL Napoli2 Nord, Napoli, Italy, [7]Istituto Superiore di Sanità, Roma, Italy

Background: Open communication between adults and children about sexual health related topics improves children' safer behaviours in sexual relationships. This study aims to investigate the attitudes and perceptions of parents and teachers involved in a comprehensive sexuality education (CSE) activity targeting secondary schools' in Italy, named EduForIST project. EduForIST is funded by the Ministry of Health, coordinated by the University of Pisa in collaboration with the National Institute of Health, Universities of Verona and Foggia, several civil society organisations (CSOs), and local health departments. CSE activity consisted of 5 modules covering topics such as: changes in adolescence, relationships, consent, sexual identity, STIs, unwanted pregnancy prevention and sexual health services.

Material and Methods: A cross-sectional study was performed between December 2023 to May 2024 targeting teachers from secondary schools where EduForIST was implemented and parents of students attending the same schools. Based on a literature review, the research team developed two tailored questionnaires to be administered to teachers and parents attending dedicated meetings with CSOs educators at the end of CSE activities with students. Participants were invited to fill in the respective questionnaire after completing the informed consent form. Each questionnaire included 28 items, exploring knowledge gaps and needs of teachers and parents regarding CSE, attitudes towards discussing these topics with students/adolescents, opinions on who bears the responsibility of educating children on sexuality, and perceived impact of the EduForIST activity on adolescents' behaviours.

Results: The project involved 26 schools across 6 Italian regions, for a total of 60 classes. Up until March 2024, a total of 124 parents and 63 teachers completed the questionnaires; among respondents, women represented respectively the 81% of parents and 74% of teachers. Both parents and teachers reported lower confidence in discussing sexual identity and sexual health with adolescents. Many (36%) were particularly concerned about how (e. g. language) to do it and more than 80% agreed that CSE should be a shared responsibility between schools and families. After the intervention, parents reported that adolescents were more open to discuss their experience and sexuality-related topics. Teachers, however, noted resistance from students to share such topics with them, attributing it to potential feeling of judgment, suggesting that students might feel more comfortable discussing with external experts or peers.

Conclusions: The findings highlight the need for increased training and support for parents and teachers in sexuality education, especially in effective communication with young people. The results will contribute to the limited literature available on these topics, particularly in Italy, and to enhance the engagement of teachers and parents in CSE interventions in Italian schools.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 165 ASSOCIATION BETWEEN EMOTIONAL REACTIVITY AND INTERNALIZED STIGMA AMONG PEOPLE LIVING WITH HIV

V. Massaroni[1], V. Delle Donne[2], P.F. Salvo[1], V. Iannone[1], R.A. Passerotto[1], F. Lamanna[1], R.J. Stainer[1], A. Carbone[1], C. Torti[1,3], G. Baldin[3]

[1]Infectious Diseases Institute, Department of Safety and Bioethics, Catholic University of Sacred Heart, Rome, Italy, [2]Clinical Psychology Unit, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy, [3]UOC Infectious Diseases, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy

Background: Empathy is an important component of social cognition. It allows one to understand and adapt to the emotions of others and to enact prosocial behaviours. People living with HIV (PLWH) would tend to limit social relationships because of their illness, and that could be one of the causes of mood disorders and decline in quality of life. Social avoidance would arise from HIV-related internalized stigma. This type of stigma refers to how PLWH perceives the degree of acceptance by society and how they identify with negative perceptions due to them HIV. The objective of the following study was to assess an association between the ability to feel empathy and the degree of internalized stigma in our patients.

Material and Methods: This study assessed empathy in a sample of 70 PLWH with the use of the Interpersonal Reactivity Index (IRI). IRI consists of four subscales: Perspective Taking (PT); Fantasy (F); Empathic Concern (EC); Personal Distress (PD). Cognitive domains were screened through the Montreal Cognitive Assessment (MoCA). Stigma was assessed through the 12-item HIV Stigma Scale (HSS-12). Exclusion criteria were age <18 years and difficulties with the Italian language.

Results: Many of PLWH were male (91.4%, n=64), aged 46 to 55 (37.1%, n=26), with upper secondary school degree (58.6%, n=41). Most of the PLWH (68.6%, n=48) were >10 years ago diagnosed with HIV and 55.7% (n=39) of them received >10 years ago for the first time ART. The mean obtained in MoCA is 26.51 (SD 2.90). Women living with HIV (WLWH) had higher scores in PT and EC subscales (p=0.004; p=<0.001, respectively). PLWH in therapy for less time reported higher scores in PT subscale (p=<0.001). PLWH in therapy for the longest time reported higher scores in F subscale (p=0.030). PLWH with higher stigma scale scores had higher scores in PD and PT subscales (p=0.001; p=0.002, respectively). A high score in PD subscale was positively associated with high MOCA score (β 0.11; 95% CI 0.01/0.20; p=0.028). There was a positive correlation between MIST and PD subscale (r=.326; p=0.006).

Conclusions: Our results showed that WLWH more likely than Men living with HIV (MLWH) to report feeling empathy for those suffering. Patients on therapy for less time would tend to put themselves in the shoes of others, and those in therapy for the longest time have a richer imaginative world. High internalized stigma was associated with the ability to put oneself in others' psychological point of view and personal distress. Cognitive resources were associated with the use of coping strategies in personal distress. Combating stigma turns out to be crucial in enabling PLWH to create a social network that contributes to the management of their health status. Therefore, for the clinical assessment it would be important to assess the degree of emotional reactivity and internalized stigma to provide PLWH with appropriate coping strategies for optimal adherence to the treatment course.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 166 THE HEALTH AND CARE NEEDS OF WOMEN LIVING WITH HIV TODAY: A CROSS-SECTIONAL ANALYSIS

C. Picarelli[1], T. Mulas[1], A. Crea[1], M. Compagno[1], D. Checchi[1], L. Ferrari[1], M. Zordan[1], A. Di Lorenzo[1], G. De Simone[1], E. Teti[1], V. Barchi[1], D. Kontogiannis[1], V. D'Aquila[1], R.A. Cavasio[1], G. Alessio[1], N. Braccialarghe[1], A. Imeneo[1], I. Fato[1], F. Angelone[1], M. Moccione[1], C. Aguglia[1], V. Tatou[1], L.V. Rindi[1], L. Sarmati[2], A.M. Geretti[2]

[1]Clinical Infectious Diseases, Tor Vergata Hospital, Rome, Italy, [2]Clinical Infectious Diseases, Department of System Medicine, Tor Vergata University, Rome, Italy

Background: Specific considerations apply to the care of women living withHIV, starting from the time of diagnosis and adapting to evolving circumstances throughout the management journey. The aim of this study is to obtain a detailed characterisation of the care needs of a prospective cohort of adult cis women with HIV.
Material and methods: Data from 2000to2023 were initially collected retrospectively from the medical records to build an anonymous electronic database that is now updated prospectively. Eligibility criteria included newHIV diagnosis or patients transferred from other care centres who result in active follow-up at the Infectious Diseases outpatient service of our clinic(at least one outpatient visit or blood sample recorded from January to October 2023).
Results: Between January2000andOctober2023,220women living with HIV were taken in care, of which172result in active follow-up and48lost to follow-up or transferred to other care centres. Current median age of the study population is 51years(IQR43-59.25); the majority are Italian, the main risk factor for acquiring HIV infection is heterosexual route, co-infected HIV/HCV and HIV/HBV patients are respectively18.6%and15.7%. 49(28.5%)patients presented with a CDC stage C(1-2-3) at HIVdiagnosis. The therapeutic regimens currently used are combination regimens based onTDF/TAF associated with INI for more than half of the population(88, 51.16%). Newly (between2017and2023)diagnosed HIV patients on their first cART regimen areN=28,mainly(42.8%)on a Bictegravir-containing 3drug regimen.The reasons for changing previous cART therapy were mostly due to simplification(N=94, 54.65%). Patients currently receiving STR are the majority(73.8%).At the last viro-immunological determination available from the records, patients with plasmatic viral load below 50 cp/ml are157(91.3%). The median number of CD4 T lymphocytes is 723 (IQR 495.5-973)and medianCD4/CD8 ratio 0.95(IQR 0.6-1.42).Among the most frequent comorbidities, gynecological diseases that required surgery (mainly uterine fibroadenomatosis) and cervical papillomatosis account for44.2%; moreover, psychiatric conditions that require medications (from anxiety disorder to substance addiction and suicidal attempt) account for 59%(Table1).
Conclusions: In our cohort nearly 1in3 women who received a HIV diagnosis presented with an AIDS defining condition, with most cases occurring in native Italian individuals.From these data emerges the importance of increasing awareness of HIV existence, both in the population and among healthcare workers. The cART regimens currently mostly used areTDF/TAF-based in association with INSTI. The vast majority (>90%)of our cohort achievedHIV-virological suppression and a satisfying immunological recovery. The most frequent comorbidities are gynecological and psychiatric: hence, the need to pay further attention to the mental health of our patients(even through selection of tailored cART)and actively fight against stigma.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_361.png

Social and behavioural science, marginalized groups, community aspects and community surveys

P 167 THE USE OF LORENZ CURVES AND GINI INDEX FOR THE EVALUATION OF HIV VIRAL LOAD DISTRIBUTION IN THE COMMUNITY

S. Arsuffi[1], M. Salvi[1], S. Calza[2], M. Alberti[1], G. Tiecco[1], B. Fioretti[1], E. Focà[1], F. Castelli[1], E. Quiros-Roldan[1]

[1]Clinica di Malattie Infettive e Tropicali, Università degli Studi di Brescia e ASST Spedali Civili di Brescia, [2]Unità di Biostatistica e Biomatematica e Unità di Bioinformatica, Dipartimento di Medicina Molecolare e Traslazionale, Università degli Studi di Brescia

Background: Community viral load is defined as an aggregate measure of individual viral loads of people living with HIV (PLWH) in care in a specific community and represents an instrument to evaluate antiretroviral therapy (ART) program effectiveness and transmission potential in a specific population. Our study aimed to analyze the overtime trend and the distribution characteristics of viral load in PLWH at the Department of Infectious and Tropical Diseases of Brescia.

Methods: Our population included all the PLWH in care at the Department of Infectious and Tropical Diseases of Brescia from January 1997 (2494 patients in care) to December 2022 (4197 patients in care). We considered viral loads, expressed on a base 10 logarithmic scale, detected after the initiation of ART. Using Lorenz curves, we investigated the demographic characteristics of individuals who held the top 10% of viral loads over the years. Additionally, we applied the Gini index to measure the inequality of the distribution of viral load among the study population.

Results: Overall, our data showed a progressive decrease in the community viral load over the years: in particular we observed a linear reduction of community HIV viral load after 2002 and a subsequent sharp decline after 2012. On the contrary, in the last two years from 2020, a rebound of viral load was registered among our population, probably in concomitance with COVID-19 pandemic lock down (Fig.1). Moreover, the Gini index had a specular trend during the time span, with a stable homogeneity in the viral load distribution among the population from 1997 to 2012 and a later abrupt increase in the disparity, from 0.1 to 0.6, after this year. Similarly to the community viral load, also in 2020, we can observe a trend variation with a new decrease in the inequality of the distribution (Fig.2). In all the observed periods, the top 10% of viral loads showed a progressive increase of female individuals, rising from 29% to 35%, and in non-Italian nationals, rising from 6.5% to 19% (Fig.3).

Conclusion: Our study evidenced the effectiveness and the improvement of the HIV care cascade over the years, showing an overall decrease in community HIV viral load among PLWH in flow-up during the observed period. We hypothesize that the introduction of protease inhibitors in 2002 produced a gradual decline in the viral loads, uniformly distributed among the population. On the other side, the introduction of integrase inhibitors seemed to have produced a rapid drop in the community viral load in 2012, but with a notable discrepancy in the homogeneity in the population, likely due to some non-adherent individuals with high viral load contrasting the trend to viral suppression. The increase in 2020 could be possibly due to the COVID-19 pandemic. It is important to underline also the evolution in the population with the top 10% of viral loads over time, with a gradual but stable increase of female and non-Italian subjects.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_389.jpg

Social and behavioural science, marginalized groups, community aspects and community surveys

P 168 MONO SYMPTOMATIC THERAPEUTICAL GROUP FOR CHEMSEX ADDICTION TO MDPV

G. Fracca, M. Manfredini

ASA Associazione Solidarietà AIds ODV, Milano, Italy

Scope: To offer a place of cure and treatment inside the Milan MSM community, held by a professional psychotherapist and a peer

Objective: To focus on the best pratices needed to face the ever growing problem of problematic chemsex and addiction inside the MSM community.

Description: A weekly semi-open group, aimed mainly but not exclusively to people living with HIV; it has been advertised on the association magazine and website, fliers in gay venues in the Milan area and in HIV clinics.

Over the past years we have met over 130 persons and had the chance of identify (locate) some recurrent elements in the structure of personality of MSM that experience problematic chemsex (among others: internalized homophobia, self loathing, loneliness, non affective sexuality). We have identified different approaches aimed at freeing the participants from stigma and self-blame by focusing on the cultural and social origins go some of these problems, which can be shared by the whole group, and to possible individual, subjective declinations, which can be rooted in the individual history of each participant.

The problems reported by the participants have changed over the years: at present all of our participants suffer from addiction to one specific substance: MDPV (Metilenediossipirovaleron). Participants also report unemployment, isolation and psychiatric symptoms.

The structure of the group is the same as the well known “mono symptomatic therapeutical group”.

The sharing of experiences and attributions of meaning to the use of substances, and to one's own specific experience is one important step that helps participants to feel empowered and creates authentic interpersonal relationships. Thought the interpretations of the different experiences and affections participants are accompanied to create a new, more positive representation of themselves in their own narrative.

Lessons learned: Due to the specific side and cumulated effects of MDPV such as psychotic and paranoidal episodes, group confrontation appears to be a much more effective tool to control and normalize these feeling, rather than individual therapy.

The synergy between professional figure and a member of the MSM community (although not technically a peer, as not a chemsexuser) has turned out to be fundamental to bridge potential cultural gap between users and therapist. in some cases psychopharmacological support is necessary, it is therefore important that each organization structures itself with one or more psychiatrists informed on this specific addiction, and to built a net of relation with the public services that are finally approaching the problem.

The setting within an established and historical organization in the Milan MSM scene, helped create a friendly environment that helps participants talk freely, without fear of being judged or stigmatised.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 169 HOW RELEVANT IS WORKING WITH KEY POPULATIONS?

D. Meli[1], I. Mercurio[1], P. Meli[1], F. Maggiolo[2], C. Pellegris[3], F. Defendi[4], E. Risi[5], M. Del Vecchio[6]

[1]Cooperativa Don Giuseppe Monticelli, Bergamo, Italy, [2]Bergamo Fast-Track City, Bergamo, Italy, [3]Associazione Comunità Emmaus, Chiuduno, Italy, [4]Patronato San Vincenzo, Bergamo, Italy, [5]La Melarancia ODV, Bergamo, Italy, [6]Cooperativa di Bessimo, Bessimo, Italy

Background: On March 2019 Bergamo joined the global network of Fast-track Cities, a checkpoint was opened on June 2020. This offers HIV, HCV and syphilis screening. On June 2022 the project Bergamo Leaves No One Behind (BGLNOB) started with the purpose to screen people who live in vulnerable situations. The aim was also to offer support to PWH in linkage to care or in retention in care. Testing was done from October 2022 to February 2024.
Methods: In BGLNOB tests are offered in six spaces run by NGOs that deal with poor or marginalized people. Data are collected through COBATEST.
Results: From October 2022 to October 2023, BGLNOB performed 343 in different contexts [TABLE 1]. Reactive test were 9 for HIV (2,6%) with 7 PWH linked to care; 6 for HCV (1,7 %), 5 linked to care; 5 for syphilis (1,5%), all linked to care. Equally important are the persons already diagnosed but lost to follow-up that asked for help for a new engagement, to collect therapy, or interact with health facilities. In total, 48 people were supported in the linkage or retention in care: 26 became autonomous, 11 are actively helped, 11 were lost to follow-u.
In the same period 3113 tests were made at the checkpoint: 2 were positive for HIV (0,06%), 2 for HCV (0,06%), 10 for syphilis (0,32%) [TABLE 2].
Regarding people who had a new HIV diagnosis it is important to underline that 6 declared to be SW, 5 out of 6 are transgender women, migrated from South America. The remaining 5 reactivity were found in people migrated from Africa (4) and from East Europe (1) [TABLE 3].
We think that a further relevant aspect is the prevalence of reactive tests and the place where them were performed. For HIV test, 6 were performed in apartments or on the streets with “Melarancia”, an NGO that take care of SWs, 2 were administered at the local Drop-In and 1 was performed in the ambulatory of “Patronato San Vincenzo”, that deals with refugees and migrants. For HCV, 4 reactive tests were from Drop-In, 1 from “Fondazione Bonomelli” a shelter where homeless may spend the night and 1 from “Melarancia”. For syphilis, all 5 reactive tests were found with “Melarancia”. Prevalence of positive tests performed at the Drop-In and from “Melarancia” is noteworthy. For the former, on 139 tests the ipositive ones are 6 (4,3%, mainly for HCV), for the latter, on 93 test there were 12 reactive ones (12,9% incidence) [TABLE 4].
Conclusions: The incidence of positive tests in the BGLNOB population is high and would be significant in a cost-effectiveness analysis. This project has increased the ability to find positive tests in these specific key populations and to support their linkage and retention in care. A relevant are migrants, especially those who live in marginal situations. Another population at high risk are and sex workers and this population is at higher risk of infection or abandonment of therapy and, for this reason, it would be important to invest in specific projects to reach them.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_431.png

Social and behavioural science, marginalized groups, community aspects and community surveys

P 170 SLEEP DISORDERS IN PEOPLE LIVING WITH HIV IN INTEGRASE-INHIBITORS BASED REGIMEN

R.A. Passerotto[1], D. Farinacci[2], F. Lamanna[1], R.J. Steiner[1], A. D'Angelillo[1], E. Visconti[2], S. Di Giambenedetto[1,2]

[1]Università Cattolica del Sacro Cuore, Roma, Italy, [2]UOC Malattie Infettive e Tropicali, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy

Introduction: Sleep disorders are a significant issue in general population and particularly among people living with HIV (PLWH). Long-term sleep disturbances can lead to a reduction in quality of life and even the development of depressive disorders. In PLWH, antiretroviral therapy (ART) can also contribute to sleep disorders, especially in patients taking some non-nucleoside reverse transcriptase inhibitors (NNRTIs) and some integrase inhibitors (INSTIs).

Methods: In this study, we aimed to assess the incidence of sleep-related disorders in patients taking INSTIs, specifically dolutegravir (DTG) and bictegravir (BIC), using a questionnaire that included inquiries about socio-demographic characteristics and sleep quality.

Results: We analyzed data from 74 patients followed at a single center. The majority of patients were male (n=59, 79.7%) with a median age of 53 years [43-57]. Fifty-seven patients were employed (77%), 3 were students (4.1%), 4 were unemployed (5.4%), and 13 were retired (17.6%).

Of the total, 28.4% of patients reported difficulty falling asleep, and 14.9% required pharmacological therapy to aid sleep. Forty-four individuals (59.5%) reported waking up 1-2 times per night during sleep, 8 (10.8%) woke up 3-4 times per night, and 1 (1.4%) woke up more than four times per night.

Twenty-two patients (29.7%) reported restless and unrefreshing sleep, and 21 (28.4%) reported experiencing vivid dreams. Fifty-four patients (73%) indicated that poor sleep quality affected their daily activities, and 37 (50%) felt the need to rest during the day.

Twenty-three patients (31.1%) expressed dissatisfaction with their sleep quality. Patients with employment had a higher incidence of nighttime awakenings compared to non-working individuals (p=0.049).

Analyzing responses from patients on DTG-containing therapy versus BIC-containing therapy revealed no significant differences between the two groups. Also, no differences emerged in responses between patients on two-drug DTG therapy versus three-drug therapy.

Conclusions: In general, sleep disorders are prevalent in our cohort of PLWH, with limited correlation to social factors, particularly related to employment. Different ART regimens based on INSTIs do not seem to cause significant differences in sleep quality.

Social and behavioural science, marginalized groups, community aspects and community surveys

P 171 IMPACT OF THE ITALIAN CAMPAIGN "U=U: IMPOSSIBILE SBAGLIARE" ON PEOPLE WITH HIV HOUSED IN CICA'S NETWORK ACCOMMODATION

P. Meli[1,8], L. Rancilio[2,8], M. Deghi[3,8], S. Autieri[4,8], F. De Bellis[5,8], B. Bortolotti[3,8], L. Iorfida[6,8], L. Saracini[7,8]

[1]Don Giuseppe Monticelli Soc. coop. Soc., Bergamo, Italy, [2]Caritas Ambrosiana, Milano, Italy, [3]Il Gabbiano ODV, Tirano, Italy, [4]Soc. Coop. Soc. Servizi per l'Accoglienza, Cremona, Italy, [5]Fondazione Opera Santi Medici Cosma e Damiano, Bitonto, Italy, [6]Associazione Giobbe Onlus, Torino, Italy, [7]Opere Caritative Francescane ODV, Ancona, Italy, [8]Coodinamento Italiano Case Alloggio per persone con HIV/AIDS

Background: The 'undetectable equals untransmittable' (U=U) message should contribute to reducing stigma affecting people with HIV (PWH). However, many PWHs are still unaware of this concept. To spread the U=U message in Italy, a promotional campaign U=U-Impossibile sbagliare was designed by the community and launched in September 2023. It was also supported by actions in many of CICA's homes. This study aims to assess the impact of the campaign on PWHs hosted in CICA's homes by measuring the knowledge of U=U and its association with self-stigma.

Methods: CICA distributed a survey to its hosts to assess the impact of the campaign in two phases: pre-campaign (Jul-Sept 2023) and post-campaign (Jan-Mar 2024).

This survey was designed by the ICONA network for the same purposes. It was accessible via the web and consisted of a validated 12-item version of the HIV Stigma Scale and 3 questions on U=U (Do you know U=U?; Do you think it is reliable?; Did it change your life?). The domains of the stigma scale were 4: personalized stigma, disclosure concerns, concerns with public attitude, and negative self-image. Scores varied from 3 to 12, with higher scores indicating higher stigma. The survey was anonymous and not designed to compare pre/post results of the same subject. Data on the knowledge of U=U pre and post were analyzed and compared by using statistical techniques.

Results: A total of 281 PWHs responded to the survey: 159 (56,6%) pre- and 122 post-campaign (43,4%).

There are no significant differences between participants in the pre- and post- phases. 75% identified themselves as male at birth; 82% as Italian; 66% live in Northern Italy. The age range is 25-79 years old (mean F 55.6y, M 57.5y).

The knowledge of U=U increases from 35.8% of the pre- to 54.1% of the post-phase (p 0.002). However, it is not influenced by sex at birth and modes of HIV transmission but by nation of birth and education level (Tab.1). Those who know U=U consider that the concept is trustworthy (80% pre, 92% post), but they are not sure if it has significantly changed their lives (60% of pre and 50% of post).

The HIV stigma index, disclosure concerns and concerns with public attitude domains slightly decrease between the phases (Tab.2). There is no significant association between stigma domains and knowledge of U=U (Tab.3). The HIV stigma index also correlates to knowing last HIV-RNA, regardless of its detectable or undetectable value (Tab. 4).

Conclusions: HIV stigma is a multifactorial issue, and personal knowledge of U=U is one important driver. Our data show that the HIV stigma index decreases when awareness about the knowledge of last HIV-RNA increases. This can be a first step towards PWHs' competence. For this reason, alongside the need of additional general campaigns, the staff of HIV medical centres and CICA's homes must carry out further and more incisive actions to inform PWHs because many of CICA's hosts still do not know U=U (36.9%) and their VL (27.0%).

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_443.jpg

Social and behavioural science, marginalized groups, community aspects and community surveys

P 172 BETTER QUESTIONS, DEEPER CONVERSATION. BLOOD DONATION AMONG THE LGBTQIA+ COMMUNITY: A GENDER-NEUTRAL SURVEY

I. Banchini, E. Vazzana, F. Biscotti

APS Arcigay Cassero Salute, Bologna, Italy

Background: Categorization is an anthropological characteristic that stumbled upon early in the history of human life. Although it is a survival technique, it can lead to a stereotyping and discrimination among certain groups or minorities, such as the LGBTQIA+ community. The questionnaire that is administered to potential blood donors is the same throughout Italy and is derived from instructions from the Ministry of Health.Blood supply safety remains the main priority: there are, however, some critical points: some questions are ambiguous, and others explore the donor's sexual orientation and do not focus solely on risky sexual behaviors.

Material and methods: We conducted an online survey on the topic of LGBTQIA+ community and blood donation in March 2024,on people who identified themselves in the LGBTQIA+ spectrum.

Results: Blood donors were the 33,3% of participants (57/171). 50,9% of participants noticed questions that were ambiguous, not very inclusive or that left too much discretion to the evaluating healthcare professional. In a group of participants (38/57) we investigated how this may have influenced the approach to donation; 47,4% said that their approach to donation was not influenced at all, 42,1% said that their approach to donation was slightly modified.The Italian questionnaire currently doesn't have a specific question about PrEP usage, although donors are expected to declare this under “use of any medication”. Our data show how 84,2% of donors (48/57) declared that they were not asked about PrEP specific use.

Non-blood donors were the 67%. Among this population,92% had thought about donating blood, and between them, 55% contacted associations that deal with blood donation. Interestingly, 14,9% of participants that didn’t take contact with any blood donation associations said that that was due to their fear of being judged for their sexuality.

We aimed the examine the comfort /discomfort in answering the following question:

-"Since the last donation and in any case in the last 4 months you have had heterosexual, homosexual, bisexual intercourse (genital, oral, anal intercourse) [...]"?

Out of all the participants, 30,4% said that they would feel totally comfortable answering that question.

When the same question was reformulated as follows: "Have you had sexual intercourse (anal penetration/vaginal penetration/oral sex) in the last 4 months without using condom, femidom, dental dam?”, the percentage that would feel totally comfortable answering raised to 51,5% .

Conclusions: Finding balance between safety of blood supply and the use of a non-stigmatizing language in order to recruit blood donors is a challenging goal. Updating the questionnaire that is administered to blood donors, using an inclusive language, and removing questions about the sexual orientation of a potential donor could help to address these concerns and ensure that donation processes are inclusive and conducive to donor comfort and engagement. (Figure 1-11, Table 1)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_453.png

Testing, prevention and PrEP: clinical perspectives and community best practice

P 173 APPROPRIATENESS AND STRATEGIC VALUE OF POST-EXPOSURE PROPHYLAXIS (PEP) FOR HIV TODAY: EXPERIENCE FROM AN INFECTIOUS DISEASES REFERRAL CENTRE, MARCH-DECEMBER 2023, ITALY

F.M. Fusco, N. Sangiovanni, C. Camaioni, F. Borrelli, O. Tambaro, R. Viglietti, V. Bruner, R. Falanga, R. Pisapia, R. Di Sarno, A. Franco, V. Sangiovanni

"D. Cotugno" hospital, Azienda Ospedaliera dei Colli, Naples, Italy

Background: PEP (Post-Exposure Prophylaxis) is the assumption of drugs to prevent HIV after an occupational or sexual at-risk exposure. In recent years, strategies as PrEP and concepts such as U=U are changing the HIV landscape and epidemiology, leading to a lower number of at-risk events. Consequently, the indication to PEP is now limited to few cases compared to the clients asking for it to Emergency Services. On the other hand, PEP may still represent a strategy to identify people with at-risk behaviours, increase vaccine coverage, and propose PrEP to those at higher risk.

We describe prescription appropriateness and additional value of PEP among those referring for at-risk exposure at “D. Cotugno” hospital, a mono-specialistic Infectious Disease centre in Naples, Italy, in March-December 2023.

Methods: At “D. Cotugno” an Emergency Department (ED) is operating 24/24h, where people with at-risk exposure for HIV refer for initial evaluation. HIV drugs are dispensed for few days, then exposure is reassessed and PEP confirmed or suspended in a dedicated service operating 2 times/week. Appropriateness of PEP is evaluated on the basis of recommendations from “UK Guideline for the use of HIV Post-Exposure Prophylaxis”, published in 2021, that represents the most recent international document on PEP. Appropriateness rate of PEP prescription is calculated considering the PEP correctly prescribed on the total of PEP prescribed.

Results: In March-December 2023, 122 persons referred to ED referring at-risk exposures for HIV (see Table for characteristics). Among these, PEP was started in 115 persons. All referred to dedicated service for reassessment. After re-evaluation in dedicated service, PEP was confirmed in 68, including 15 cases in which PEP were not indicated, but the intense concern and anxiety of the exposed person led to the decision to continue. Appropriateness rate in ED was 43% (53 appropriate PEP among 122), it increased to 78% (53 appropriate among 68) in dedicated service (see Figure).

All PEPs were performed using BIC/FTC/TAF. No seroconversion occurred during follow-up for HIV, HCV, HBV, while 3 primary syphilis cases were diagnosed. Vaccinations for HBV, HAV, HPV, M-pox was recommended to 47 persons, on the basis of risk profile. PrEP was proposed to 44, and 27 among them started it.

Discussion: Appropriateness rate of PEP prescription is low in ED, due to high workload and shortage of time. It significantly increases when exposures are re-assessed in a dedicated service, leading to the interruption of most among PEP not appropriate according to guidelines. Even if some PEP were inappropriate, the PEP-related access to hospital helped in finding many people with at-risk behaviours and to take appropriate measures, such as vaccination and PrEP prescription, to reduce their risk.

In our experience, PEP remains a strategic asset, to identify at-risk people, suggesting vaccination, and as bridge to PrEP.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_15.jpg

Testing, prevention and PrEP: clinical perspectives and community best practice

P 174 TWO YEARS ANALYSIS OF COBATEST DATA IN ANCONA CHECKPOINT AND OUR EXPERIENCE OF "TELE VISITA PREP"

S. Caucci[1,3], L. Saracini[2,3], P. Pauri[3], L. Butini[4]

[1]Department of Biomedical Sciences and Public Health, Università Politecnica delle Marche, Ancona, Italy, [2]Ass. Opere Caritative Francescane, Ancona, Italy, [3]Ancona Checkpoint, Ancona, Italy, [4]Immunology Laboratory, Azienda Ospedaliero Universitaria delle Marche, Ancona, Italy

Background: The community-based voluntary counselling and testing (CBVCT) centers for sexually transmitted infections (STIs) increased in Italy from 2020. The Ancona Checkpoint offered rapid STIs tests, free peer counseling and access to care for all since March 2022. In addition, checkpoint offered "tele visita PrEP", an online appointment to access PrEP with medical doctors of Clinic Immunology in A.O.U. Marche from July 2023.
Material and methods: Rapid capillary blood tests for HIV (Ab and p24 antigen detection), HCV (Ab detection) and Syphilis (Ab detection) were free and anonymous. Data were collected from standard COBATEST questionnaires from March 2022 to February 2024. Gender, age, sexual orientation and behavior, risk factors, reasons for testing and screening test results were considered for the analysis.
Results: During two years of activity, 1375 subjects accessed the service. More than half of the population tested (57.4%) identified as males, 42.1% as females, and 0.5% as transgender. The age of the population is divided as follows: 18-30 65.7%; 31-50 27.6%; 50+ 6.7%. Most of them (86.7%) referred to be Italian. Control or screening (78.4%) and risk exposition with unprotected penetrative intercourse (19.7%) were the first and second reasons for testing respectively. Interesting 48.2% of all population declared not to use condom in the last penetrative sex. Regarding the sexual orientation of the population, 15.2% define themselves as homosexual, 6.3% bisexual, 63.2% heterosexual, 15.3% identify with other orientations. A small percentage of subjects (33.8%) had knowledge about PrEP, of which 58.2% never consider using it. Only 16 subjects accessed the service of "tele visita PrEP" between July 2023 to March 2024. During these two years 1375 HIV tests were performed of which 0.36% were reactive, 40% with a positive confirmatory test and immediately linked to healthcare system; 1.16% and 0.58% of tests performed were syphilis and HCV reactive respectively. Analyzing only the population with a reactive STIs test, 84% identified as males with a mean age of 37. Regarding the risk factors, 64% declared unprotected penetrative sex with MSM in the last 12 month but control or screening was the main reason for testing (70%). 72% of subjects had heard about PrEP of which 80% interested in using.
Conclusions: Our results indicated that checkpoint service can be a powerful instrument to provide access to testing, especially for people that have never tested before. Counselling increased awareness of the potential risks especially among young people. Efforts should be concentrated in educating people about the tools we now have to prevent HIV transmission such as PrEP and PEP. These two years of testing and counseling in our checkpoint highlighted the great role that this service has in the community in terms of prevention and sexual health education.

Testing, prevention and PrEP: clinical perspectives and community best practice

P 175 "TELEPREP" – A PILOT PROGRAM FOR THE DELIVERY OF REMOTE PREP SERVICES

S. Penon[1], L. Cosmaro[1], F. Falzetta[1], M. Oldrini[1], D. Savarino[1], A.R. Raccagni[2], C. Candela[2], S. Nozza[2,3]

[1]Fondazione LILA Milano ETS, Milan, Italy, [2]Vita-Salute San Raffaele University, Milan, Italy, [3]Infectious Diseases Unit, IRCSS San Raffaele Scientific Institute, Milan, Italy

Background: PrEP effectiveness in preventing HIV infections calls for the expansion of dedicated services. In Italy access to PrEP is still insufficient, especially in the South and places far from infectious disease clinics and checkpoints. A team of community health workers (CHWs) and infectious disease specialists was constituted to offer online PrEP services (TelePrEP). When the pilot program started in Feb 2023, PrEP was not yet reimbursable and access to dedicated sites was delayed by long waiting times. Main objectives were to allow access to PrEP for those unable to access existing services, minimize use of informal PrEP by promoting safe uptake and adherence through adequate follow-ups and verify the actual feasibility of such approach.

Methods: TelePrEP offers access to an online service managed by CHWs and infectious disease doctors. File exchange (test and PrEP prescriptions, test results) and consultations are carried out by means of an ePlatform, so that clients can be effectively monitored for psychological and medical aspects. A dedicated database allows for collection of clients' demographic and behavioral data, for M&E of TelePrEP activities and reminders for follow-up visits. Interested people residing near existing PrEP programs are referred to such services to benefit of drug refundability.

Results: In the 1st 13 months of activity (Feb'23-Feb'24), 200 people contacted TelePrEP for initial information; 108 were enrolled: 107 cis men and 1 cis woman. Data on age, education, professional condition, region of residency, sexual orientation, risk factors, reasons for accessing PrEP and contacting TelePrEP are detailed in Figures 1-9, respectively. Fifty-nine people were referred to existing PrEP services close to their residence that they had not heard about; 33 people after the 1st consultation decided not to proceed.

Thirty-five clients already attended follow-up visits (foreseen after 3, 6, 9 months); no one decided to quit PrEP. Overall, 66% of clients firstly opted for on-demand PrEP and 34% for daily PrEP; 9% referred to have switched from one to the other mostly due to specific occasions (vacation, Pride events…). Some transient side effects (nausea, chills, gastrointestinal problems) were reported in 34.8% cases. Concomitant use of chemsex, either "rarely" or "sometimes", occurred in 8.6%, similarly to what reported during 1st consultations (8.3%). Condom use decreased if compared to what initially referred (Figure 10). Number of partners was reported as increased by 42.8% of clients, while it remained stable for the others (57.2%). No HIV infections occurred; 3 cases of gonorrhea and 1 of acute HCV infection were identified.

Conclusions: TelePrEP has proven to be an essential service due to persisting barriers in accessing PrEP services, even after drug refundability was approved; the program will continue at least till end 2024. Management of remote follow-up data is complex; improvements are being introduced to optimize it.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_87.jpg

Testing, prevention and PrEP: clinical perspectives and community best practice

P 176 TESTING FOR HIV IN CBVCT SERVICES ADHERING TO THE COBATEST NETWORK - 2020-2023

L. Cosmaro[1], S. Curridori[1], S. Penon[1], M. Cernuschi[2], D. Calzavara[3], P. Russo[3], M. Prandelli[3], P. Meli[4], I. Mercurio[4]

[1]Fondazione LILA, Milano, Milan, Italy, [2]ASA Milano, Milan, Italy, [3]Milano Checkpoint, Milan, Italy, [4]Bergamo Fast-track City, Bergamo, Italy

Background: The three pillars for achieving the 95-95-95 UNAIDS targets are early ARV treatment for all, preventive measures such as PrEP and increased HIV testing to detect undiagnosed ongoing infections. The latter pillar is difficult to achieve, as vulnerable groups unaware of their HIV status may encounter difficulties in taking the first step towards testing at healthcare services. Community-Based Voluntary Counseling and Testing (CBVCT) centers are an alternative option that can intercept clients unwilling to seek testing elsewhere. This retrospective study focuses on testing data collected by Italian CBVCT services that joined the COBATEST network in the period 2020-2023.

Material and methods: To measure CBVCT activity in Italy, data provided by the COBATEST database were analyzed. COBATEST links organizations across Europe and Central Asia that offer CBVCT services for HIV and STIs, and promotes testing, early diagnosis and linkage to care in at-risk populations. COBATEST offers a common instrument to gather information on clients and a comprehensive database from which the data for this study were extracted, to highlight the increase in participation of Italian CBVCTs and give a descriptive analysis of data collected on HIV tests performed.

Results: From 2020 to 2023, the Italian CBVCT centers joining the COBATEST network increased from 2 to 25, covering different Italian regions and determining a consequent rise in number of tests performed. In 2020, 1135 people who had never tested before were tested for HIV; this number raised to 7411 in 2023 (figure 1). Reactive tests detected raised from 6 in 2020 to 35 in 2023; the proportion of reactive HIV tests remained stable ranging from 0.4 to 0.5 percent (figure1). The number of tests increased not only due to the increase in Italian organizations joining the COBATEST network, but also because these services incremented, year by year, their testing offer (figure 2).

Conclusions: HIV testing at CBVCT services adhering to COBATEST has increased over the years of the study period. This highlights increased awareness of alternative ways for HIV testing and counseling services; furthermore, it underscores the importance of having a variety of community testing centers that succeed in reaching vulnerable populations. Between 2020-2023, 82 new HIV diagnoses were made thanks to the CBVCT centers included in this study, confirming that community-based activities can significantly contribute to the 95-95-95 goal. Being part of an international network offers the opportunity to collect standardized data that reflect the national situation and to plan more effective actions. The contribution of CBVCT centers and their social relevance should be acknowledged by policy makers and their work should be adequately supported economically. In conclusion, our analysis highlights the relevance of CBVCT services in actively contributing to HIV testing and prevention strategies.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_88.jpg

Testing, prevention and PrEP: clinical perspectives and community best practice

P 177 SEXUAL ASSAULT IS ASSOCIATED TO LOSS TO FOLLOW-UP FOR NON-OCCUPATIONAL POST-EXPOSURE PROPHYLAXIS FOR HIV

G. Bozzi[1], A. Liparoti[1,2], A. Pastena[1,2], G. Ancona[1], C. Bobbio[2], N. Iannotti[1], B. Mariani[1], A. Muscatello[1], A. Bandera[1,2]

[1]Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milano, Infectious Diseases, Milano, Italy, [2]Unimi - Università degli Studi di Milano, Milano, Italy

Background: Post-exposure prophylaxis (PEP) is an important measure to reduce the risk of HIV transmission, but it is effective if properly completed; literature reports optimal adherence rates around 57% for non-occupational PEP in Europe. We aimed at assessing adherence to follow-up for PEP and identifying sub-populations at risk.
Methods: Subanalysis of the monocentric observational cohort study APE, aimed at assessing PEP adherence at a tertiary center in Milan, which includes a STI center, a general ER and an ob-gyn ER.
We analyzed demographic, clinical and serologic data from consecutive infectious diseases (ID) consultations for PEP from February 1, 2023 to January 31, 2024 (12 months) at IRCCS Policlinico, Milan. Patients not undergoing HIV testing at day-28 and not showing up at end-of-PEP visit were categorized as lost to follow-up. Frequencies for categorical variables and medians with [inter-quartile range, IQR] for continuous variables were used; Chi-squared, Fisher's exact and Mann-Whitney tests were used for categorical and continuous variables, respectively.
Results: A total of 270 patients received ID evaluation for PEP, 37 reporting occupational exposure (OE) and 233 reporting non-occupational exposure (NE). Evaluations were within 48 hours from exposure in 35/37 OE and 203/233 NE. OE median age was 32 years [IQR 26-42], 26/37 were female. NE median age was 26 years [IQR 22-33], 102/233 were female; 60/233 were extra-EU citizens. Overall, PEP was started in 238/270 cases (88.1%) according to guidelines and specialist's opinion, 91% OE and 70.3% NE. [Table 1] Of non-occupational cases, 88 (43.8%) reported sexual assault and received additional antimicrobial prophylaxis and emergency contraception where indicated at ob-gyn ER.
While 70% of OE patients had a protective hepatitis B antibody titer (anti-HBs ≥10 mIU/mL), 57.5% of NE patients did not show protective titers at baseline, despite reporting vaccination. A vaccine booster was offered to unprotected patients as per guidelines.
Of 212 individuals with NE who started PEP, 201 had available follow up data. Of them, 152/201 (75.6%) were adherent to follow up; all tested negative for HIV, HCV and T. pallidum-Ab at day-28. Conversely, 49/201 (24.4%) were lost to follow-up. Age, country of origin, time from exposure did not show association to loss to follow-up. On the other hand, 35/49 (71.4%) patients with loss to follow-up reported sexual assault, as opposed to 53/152 (34.9%) adherent patients ($p<0.0001$). [Table 2]
Conclusions: More than half of people evaluated for non-occupational risk exposure for HIV had non-protective antibody titers for HBV. Individual reporting non-occupational exposure completed PEP and follow up in 75.6% cases. Sexual assault was associated to loss-to-follow up, likely due to multiple reasons including trauma, social determinants and pill burden tolerance; this highlights an unmet need for targeted interventions.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_183.PNG

Testing, prevention and PrEP: clinical perspectives and community best practice

P 178 EVALUATING TOLERANCE AND SAFETY PROFILES OF PRE-EXPOSURE PROPHYLAXIS (PREP) FOR HIV: INSIGHTS FROM RENAL AND HEPATIC FUNCTION MONITORING

G. Cuomo, M. Menozzi, M. Albertini, V. Todisco, L. Gozzi, E. Martini, D. Lusetti, G. Guaraldi, C. Mussini

Azienda Ospedaliero-Universitaria di Modena - Università di Modena e Reggio Emilia, Italy

Introduction: the availability of HIV Pre-Exposure Prophylaxis (PrEP) is expanding in Italy. Tenofovir disoproxil/emtricitabine (TDF/FTC) exposure is associated with an increased incidence of adverse effects. Our study aim was to assess the safety and tolerability of PrEP, focusing on hepatic and renal function in the Modena cohort.
Methods: Retrospective study including data from April 2018 to February 2024. We included all patients >18 years old referred to our PrEP service, who had a minimum follow-up of 30 days (equivalent to 2 visits) and had either completed at least one course of TDF/FTC either on demand or daily. Nephrotoxicity was defined as an increase of at least 50% in creatinine by 2 mg/dL and ALT elevation above 40 U/L. Users underwent quarterly monitoring of serum creatinine and ALT, in addition to routine PrEP screening. Univariate analyses were conducted using chi-square and t-student tests to compare variables, and a Kaplan-Meier curve was used to identify renal failure events.
Results: 182 subjects started PrEP, 26 were excluded for not meeting inclusion criteria, leaving 156 subjects included. Predominantly male (98.7%) and of Italian origin (89.7%), the cohort primarily consisted of men who have sex with men (MSM). Risky sexual encounters were the main reason for initiating PrEP (80.1%). The on-demand regimen was favored by 62.8% of users, with adherence achieved in 94.9% of them. Median follow-up was 453 days. The discontinuation rate was 25%, mainly due to loss to follow-up (17.9%), with only one discontinuation attributed to side effects. Toxicity was reported in 23.1% of subjects, primarily gastrointestinal symptoms (13.5%), ALT elevation (5.8%), headache (2.6%), and one case (0.6%) of renal toxicity leading to PrEP discontinuation (Table 1). Analysis of serum creatinine indicated a statistically significant increase between baseline and follow-up measurements ($p<0.01$), while ALT levels remained unchanged (Table 2). Kaplan-Meier analysis revealed an increasing trend over time in cases with creatinine >1.4 mg/dL (Figure 1). Multivariate analysis showed a significantly longer PrEP period ($p=0.002$) and a greater % increase in creatinine ($p=0.041$) among individuals experiencing side effects versus who did not, with no differences regarding regimen type, adherence, or comorbidities. Users with comorbidities were significantly older ($p<0.001$), had fewer therapeutic interruptions ($p=0.016$), and exhibited a greater ALT delta between follow-up measurements ($p=0.047$) than healthy people (Tables 3-4).
Conclusions: PrEP demonstrated good tolerability among our users, with minimal reported side effects and discontinuations. Nonetheless, the observed statistically significant increase in serum creatinine during therapy and significant changes in ALT levels among patients with comorbidities underscore the importance of continued clinical and laboratory monitoring of PrEP recipients.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_252.png

Testing, prevention and PrEP: clinical perspectives and community best practice

P 179 RENAL TOXICITY IN A COHORT OF PREP USERS

L. Labate[1,2], C. Marelli[2], F. Rismondo[2], L. Taramasso[1], I. Schiavetti[3], L. Mezzogori[1,2], R. Schiavoni[1,2], C. Bartalucci[1,2], F. Centorrino[1], M. Bassetti[1,2], A. Di Biagio[1,2]

[1]IRCCS Ospedale Policlinico San Martino, Genoa, Italy, [2]Department of Health's Sciences, University of Genoa, Italy, [3]Department of Health Sciences, Section of Biostatistics, University of Genova, Genova, Italy

Background: Renal toxicity is one of the most important side effects of tenofovir disoproxil fumarate (TDF) and several studies have shown that it usually is a mild and reversible event.
Pre-exposure prophylaxis (PrEP) users may take TDF for an increasing number of years, with an intake similar to that people living with HIV usually have.
The aim of this study was to assess the frequency of decline in renal function and characteristics of people affected of it in a real-life cohort of people using PrEP based on TDF/emtricitabine (FTC).
Material and methods: This was a retrospective cohort study evaluating the decline of renal function in people starting TDF/FTC-based PrEP at our Hospital between 2018 and 2023.
Inclusion criteria: age ≥18 years, almost one follow-up visit assessing renal function after PrEP start.
Primary endpoint: to evaluate the decline of renal function after PrEP exposure.
Renal toxicity was defined as an increase of 0.3 mg/dl of creatinine, a threshold considered significant when assessing the development of renal function by Kidney Disease Improving Global Outcomes (KDIGO) definitions.
Results: Overall 185 people had at least one visit for PrEP counselling, 143 started PrEP during the study period and 139 had almost one follow up visit. Among them, 99% were males, 91% were Caucasians; median age was 36 years (IQR 31-45) and median baseline body mass index (BMI) was 24.6 (IQR 23.5-25.7). Thirty-two (23%) of them had at least one comorbidity, in the majority of cases a gastroenteric disease. Nine (6%) used nephrotoxic therapies such Non Steroidal Anti Inflammatory Drugs (NSAIDs), 18 (13%) used protein supplements and creatine and 9 (6%) used almost one recreational drug. One hundred and twenty four PreP users were tested at least once for creatinine with a median value of baseline creatinine of 0.9 mg/dL (IQR 0.8-1.0). Out of these, 92 had at least a creatinine value after the PrEP start. Twelve/92(13%) experienced an increase in creatinine levels equal or greater than 0.3 mg/dL. These people were older than the group without creatinine change, median(IQR) 47(37-51) vs. 35.5 (32.0-44.5) years; p=0.021), used more often daily PrEP versus on-demand PrEP (58% vs 20%, p=0.004), used NSAIDs more frequently (25% vs 6%; p=0.031) (Table 1).
Conclusions: Renal toxicity due to TDF is an important issue to consider. To assess the possible risk factors for developing renal toxicity, such as older age, use of NSAIDs, and daily dosing regimen,it is crucial to tailor the monitoring of renal function during the PrEP intake in particular key populations.
Further studies on the creatinine recovery after PrEP discontinuation are needed, especially facing an increasingly older population with comorbidity and polypharmacy among PrEP users.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_272.jpg

Testing, prevention and PrEP: clinical perspectives and community best practice

P 180 OUTREACH PROGRAMME IN SEX-ON-PREMISES VENUES: FACILITATING LINKAGE TO CARE AND PREVENTION SERVICES

D. Zagato[1], P. Vinti[1], P.M. Testoni[1], A. Bianchi[1], A. Pezzotti[1], A. Teofilo[1], G. Perrotta[1], M. Scarci[1], V. Gambini[1], M. Cernuschi[1,2]

[1]ASA – Associazione Solidarietà AIDS ODV, Milano, Italy, [2]HSR – Ospedale San Raffaele, Milano, Italy

Background: ASA is a community based organization active in HIV care and prevention since 1985 in Milano. ASA runs an outreach programme aimed at providing HIV and syphilis testing in sex-on-premises venues attended by gay men, bisexual men and other men who have sex with men since 2017.

Methods: Rapid dual HIV/syphilis test are offered. Each client of the outreach programme is identified through an anonymous unique alphanumeric identifier since 2021. Pre-test counselling is offered to all clients, that includes a structured interview investigating sexual behaviours and attitudes towards HIV and prevention tools. Demographics are collected and associated with the unique identifier, together with HIV/syphilis test results, and structured interviews data.

Individuals with a reactive test result get, on the spot, an appointment at the clinical centre most convenient for them, for confirmatory test and treatment initiation. Clients interested in starting PrEP are linked with PrEP programmes. A peer worker offers to exchange contacts, to further support with linkage to care. Clinical data is then collected with clients' consent and anonymized.

Data for rapid tests and interviews conducted between March 2023 and March 2024 was analysed using descriptive statistics. A longitudinal analysis was performed to assess clients' behavioural and attitude changes between 2021 and 2024.

Results: 150 tests and interviews were performed between March 2023 and March 2024. Client characteristics are summarised in Table 1. Clients were predominantly male (95%), aged 30-50 (59%), born in Italy (84%), not living in Milano (57%). 9% had never tested before, while 18% had a previous diagnosis for syphilis and 1 for HIV. 6 (4%) reported being sex workers, all of them migrants and 1 of them had never tested before.

2 tests were reactive for HIV (1,3%), 2 for syphilis and 1 for both. Diagnosis and treatment initiation were confirmed for all 3 clients with suspected HIV infection after exchanging contacts, and their clinical data is presented in Table 2.

57 clients were interested to starting PrEP, only 3 of them accepted to exchange contacts and for all 3 PrEP initiation was confirmed.

The longitudinal analysis revealed that 16 clients had already tested within the programme at least once. Of them, 5 (31%) had never tested before 2021. Also, 10 (63%) first reported not being interested in PrEP and changed their attitude at their latest interview.

Conclusions: The outreach programme has been effective in offering testing services to a number of clients facing significant barriers to access facility-based services, especially migrants, people living outside of Milano, and sex workers.

Support from a peer worker was instrumental in overcoming barriers in accessing facility-based services to get early HIV diagnoses and linkage to care, as migrants.

The programme has facilitated linkage to PrEP services, although effectiveness could not be ascertained.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_338.png

Testing, prevention and PrEP: clinical perspectives and community best practice

P 181 ALTERATION OF TRANSAMINASES IN PREP USERS: INVESTIGATION OF POSSIBLE CAUSAL FACTORS OTHER THAN FTC/TDF

C. Fusetti[1], M. Gerbi[1], F. Barone[1], S. Lazzarin[1], F. Caruso[1], R. Fattore[1], F. Petri[1], M.V. Cossu[1], A. Giacomelli[1], A. Gori[1,2], D. Moschese[1]

[1]Department of Infectious Diseases, Luigi Sacco University Hospital, Milan, Italy, [2]Centre for Multidisciplinary Research in Health Science (MACH), University of Milan, Milan, Italy

Introduction: A grade 1 increase in transaminases has been reported among side effects during oral PrEP with FTC/TDF.
Still, transaminases alteration is a common finding and can acknowledge multiple causes: concomitant infections, alcohol consume and metabolic syndrome, major hepatotropic viruses, pharmacological therapies, and substance abuse, such as chems and steroids whose consumption may not be promptly reported by users due to stigma.
Material and methods: Alanine aminotransferase (ALT) levels were collected at screening and follow-up visits of PrEP users from January 2022 to March 2024.
ALT values above the reference threshold were stratified according to severity, and the potential causes were explored by interview, if not previously reported.
Results: A total of 145 ALT altered determinations, corresponding to a severity grade 1 or higher, were recorded (Table 1).
In 88 cases (61%) at least one possible alternative cause to TDF/FTC for the transaminase elevation could be identified. In particular, in 49 cases there was a use of chems and in 30 of steroids as physical enhancers, the use of them was reported in 43% of the altered ALT detections. However, also concomitant therapies (31), a known chronic liver disease (9), daily alcohol consumption (2), or concomitant infectious diseases (6) were identified as possible confounders of ALT elevation. Among these, two findings were consistent with secondary syphilis, whose possible liver involvement could explain ALT alterations, while the other cases included one Mpox infection, one acute CMV infection, one acute toxoplasmosis, and finally one case of C. difficile colitis.
Of the 73 users for whom a pre-PrEP screening determination was available, 44 (60%) had an ALT alteration at the baseline.
In the cases where no other cause could be identified (57), the alterations were all mild or moderate. It was also assessed whether the increase remained stable during FTC/TDF prophylaxis over time; cases with at least 4 ALT determinations were included, representing a total of 21 users, of which only 5 had a stable elevation, suggesting a possible role for the drug as a cause.
Conclusions: In our experience oral PrEP with FTC/TDF is confirmed to be very well tolerated. In 60% of cases of ALT elevation, there was at least one possible factor other than FTC/TDF that could explain the finding. Moreover, most of the alterations, especially those with no other cause identified, were mild or moderate.
In nearly half of the cases a use of chems or steroids was reported, which is often not spontaneously disclosed by the users, unless they were specifically questioned after the alteration was detected. Our study therefore also highlights the importance of proactively investigating the use of chems and steroids in PrEP population in order to optimize their clinical management, avoid misinterpretation of the toxicity of FTC/TDF, and ultimately allow appropriate counselling on the risks associated with their use.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_341.png

Testing, prevention and PrEP: clinical perspectives and community best practice

P 182 UNIVERSITEST: PEER TO PEER APPROACHING. INFORMING AND TESTING

M. Niglio, F. De Gregorio, C. Grillo, F.R.P. Ieva, R. Papale, A. Narducci, C. Muscatiello, I.F. Bottalico, T.A. Santantonio, S. Lo Caputo

Unit of Infectious Diseases, A.O.U. Policlinico - Foggia, Italy

Background: A progressive decline has been observed in recent years in new HIV diagnoses against an increase in other Sexual Transmitted Diseases (STIs) even among the younger people. However, the number of tests carried out for these diseases remains low. During the COVID-19 pandemic, a large part of the population has learned about the usefulness of rapid diagnostic tests which can be widely used in the diagnosis of STIs. The aim of our study was to launch an information campaign on STIs with the offer of free testing for HIV and syphilis among students of the University of Foggia. The study was conducted by young doctors from the infectious diseases specialization school.
Methods: This is a trasversal observational study performed from November 2022 and still ongoing between Universitary Student of Foggia. Data were investigated with two anonymous surveys playes by Infectious Disease Residents of the University of Foggia with a peer-to-peer approach, investigating students' sexual habits and level of knowledge of STIs. In addition, we offered them rapid test (Abbott kits DETERMINE antigenic tests for HIV EARLY DETECT and SYPHILIS TP) for Syphilis and HIV infection, previous a signed informed consent.
Results: We enrolled 447 students, of whom 1% refused to undergo testing, while 99% of the students who agreed to be tested all tested negative for both HIV and Syphilis. 59% of the subjects enrolled were female and 41% were male A Chi-square test was conducted to determine if there were statistically significant differences in partner frequency and engagement in unprotected intercourse between the two sexes. The relationship between being female and the frequency of intercourse appears significant($p=<0.001$), as well as in having had unprotected sex ($p=<0.05$). However, it has been highlighted that 53% of the male subjects have had more than one sexual partner in the last year, compared to 33% of the female subjects. From the analysis based on questionnaire responses, we found that 81% of the students reported never having undergone testing for STIs. Additionally, 68% were unaware of available therapy for preventing HIV transmission, and 44% lacked knowledge about modes of HIV transmission.
Conclusions: From preliminary data, we observed a moderate adhesion to the STIs screening campaign in our population, mainly among men. However, there is a great demand for information on these topics and the presence of young doctors has facilitated a greater exchange of information. The lack of knowledge on the transmission of STIs compared with risky sexual habits that emerge from the results of the questionnaires highlights the need to implement effective information campaigns among young people on this topic. Educating the university population on a different approach towards STIs would allow correct and effective information on the prevention of STIs to be disseminated to the entire general population.

Testing, prevention and PrEP: clinical perspectives and community best practice

P 183 TWO AND A HALF YEARS OF IN- AND OUT-HOSPITAL COUNSELLING AND TESTING ACTIVITIES: TWO DIFFERENT AND COMPREHENSIVE PREVENTIVE STRATEGIES

G. Mancarella[1,2], A. Carraro[2], A, Gasperin[1], F. Izzo[1], D. Di Trento[1,2], S. Corazza[1], S. De Maria[1,2], A. Grimaldi[1], R. Marocco[2], V. Rossi[2], M. D'Achille[2], L. Lubrano[3], V. Mercurio[3], A. Petrillo[3], A. Girardi[3], V. Vitale[3], C. Del Borgo[2], A. Carnevale[3], M. Lichtner[1,4]

[1]Sapienza University of Rome, Latina, [2]Infectious Diseases Unit, SM Goretti Hospital, Latina, [3]Arcigay - Sei come sei, Latina, [4]Department of NESMOS, Sapienza University of Rome, Rome, Italy

In December 2020, the city of Latina joined the Fast Track Cities network to deal with the heavy impact that Covid19 pandemic had on preventive care and the rising rate of late HIV diagnosis. The infectious disease unit in association with the local LGBT+ organisation joined forces and opened Latina Checkpoint. The aim of this work is to talk about the two and a half years experience and what we learned from it.
To get tested at Checkpoint an online anonymous appointment can be scheduled. We first provide a community-based counselling and then HIV (Ab/p24), HCV(Ab) and Syphilis(Ab) tests. Results are given in 15 minutes and uploaded on the COBATEST website.
In our hospital clinic no scheduled appointment is needed, a phlebotomy is performed, results are available in 3 days, counselling is conducted by ID specialists and all three tests are offered.
Data were collected with COBATEST export tool and analysed by chi square and student t test.
Since January 2022, our checkpoint and hospital have provided 757 and 1067 tests, respectively. In this work we only considered the people who came to get tested for the first time, 600 at Checkpoint and 529 in the hospital. Population is described in table 1. There are no statistically significant differences regarding gender, percentage of overall reported condom use and unprotected vaginal sex. No HIV tests resulted reactive at Checkpoint, 15 HIV tests resulted reactive in the hospital. People hospital tested are older (median age 34 yo) and seem to have much more riskier sex, for example the 91,9% of MSM did not use condom, the 7,2% of sex related risk was for unprotected sex with PLWH, lastly 15,2% of test resulted positive for an STI.
People tested at Checkpoint are younger (median age 28 yo), seemingly more conscious about safe sex and probably got tested for HIV before in their life (59,3%). Even though 41% of people at checkpoint know about PrEP, only 2,5% are taking it.
From 2022 to 2023 there was a 30,9% and 20,5% increase in the number of people coming at checkpoint and at our clinic. The majority of people get to know our checkpoint initiative by internet and social networks (figure 2).
Our Checkpoint experience highlighted its great role in terms of prevention and linkage to care that this initiative had and will also have in the future. It can be predicted an increase of 44% in the number of people getting tested in 2024. Differences between people who come at Checkpoint instead of the clinic show us that it is a safe space to get screened and get info about sexual health, proving itself to be a functional place for primary prevention, on the other hand hospital is fundamental for secondary prevention with early HIV and STI diagnosis. Furthermore, we should put our effort in educating people about the tools we now have to prevent HIV transmission such as PrEP and PEP. Improving our Checkpoint activities will help us get closer to the Fast Track Cities goal of ending the HIV epidemic.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_358.jpg

Testing, prevention and PrEP: clinical perspectives and community best practice

P 184 HIV DRUG RESISTANCE TEST HARBOURING THE RT M184V MUTATION IN A PREP (PRE EXPOSURE PROPHYLAXIS) ADMINISTERED SEX WORKER

V. Micheli[1], A. Foschi[2], F. Bracchitta[1], L. Morelli[1], F. De Poli[1], A. Rizzo[1], M. Cossu[2], A. Gori[2,3], M.R. Gismondo[1]

[1]Laboratory of Clinical Microbiology, Virology and Bioemergencies, ASST Fatebenefratelli Sacco L. Sacco University Hospital, Milan, Italy, [2]Department of Infectious Diseases, Unit II, ASST Fatebenefratelli Sacco L. Sacco University Hospital, Milan, Italy, [3]Centre for Multidisciplinary Research in Health Science (MACH), University of Milan, Milan, Italy

Background: Pre-Exposure Prophylaxis (PrEP) is considered one of the most important recent biomedical advances in HIV prevention. Although its effectiveness is well established in the literature, compliance and retention of individuals using PrEP in reference services is challenging, especially in vulnerable populations.
Case Presentation: a 41-year-old Brazilian transgender sex worker who has been living in Italy for 20 years presented to the II Infectious Diseases Division of ASST Fatebenefratelli Sacco due to persistent fever, fatigue and bilateral cervical lymphadenopaty in August 2023. The patient had a history of recurring genital condylomatosis and several plastic surgery interventions. She had been regularly taking tenofovir disoproxil fumarate (TDF) and emtricitabine (FTC) as PrEP from 2020 until the middle of 2022 with time scheduled serological follow-up tests (the last negative HIV 1/2 Ab screening test was in May 2022). Thereafter, for unclear reasons, the administration of PrEP was both self-managed and not adherent to the schedule according to the national guide-lines. At the diagnosis of HIV infection on 10th August 2023 after three months of persistent clinical symptoms, patient's viremia was 29.000 cp/mL with HIV-1/2 Western – Blot test positive for all HIV-1 bands and a CD4+ cell count of 368 cell/microL (21%); in addition both HCV-Ab and HBsAg were negative. Next-Generation Sequencing HIV drug Resistance Test (Arrow HIV-1 Solution v2 on Illumina MiSeq platform) revealed a B subtype virus harbouring the 3TC/FTC signature mutation RT-M184V as major quasispecie (90%) with only polymorphisms detected on protease (PR-L10V) and integrase (IN-M50I) regions. According to the current strategy "test and treat" bictegravir/TAF/FTC regimen was promptly administered: despite the low baseline viral load probably due to the presence of the mutation RT-M184V affecting viral replication capacity, virological undectability resulted just 5 months after with an optimal immunological recovery (CD4+ 1000 cell/microL, 36%).
Discussion: we reported a case of a HIV-1 infection in a transgender sex worker with a PrEP associated mutation. The presence of RT-M184V alone without any other drug resistance mutations can be reasonably attributed to a suboptimal administration of PrEP rather than to the result of a mutated virus transmission. The consolidated strategy "test and treat" and the use of the two-drug regimen, dolutegravir plus lamivudine, for initial treatment highlights the importance of adherence counselling and monitoring: PrEP users should constantly be reminded of the importance of adequate drug levels and possibility of drug-resistant HIV. Implementation strategies for PrEP administration in different risk populations, especially in fragile setting, are needed.

Testing, prevention and PrEP: clinical perspectives and community best practice

P 185 IMPLEMENTATION OF A PROVINCIAL PREP CLINIC: ANALYSIS BY PUBLIC REFUNDABILITY AND NEW HIV INFECTION DIAGNOSES IN LATINA

A. Carraro[1,2], L. Cimino[1], G. Mancarella[1,2], R. Marocco[2], S. De Maria[1,2], S. Corazza[1], A. Grimaldi[1], A. Gasperin[1], M. D'Achille[2], V. Rossi[2], A. Carlesso[2], M. Renzelli[2], L. De Angelis[2], O. D'Onofrio[2], P. Addio[3], G. Bonanni[3], C. Del Borgo[2], A. Carnevale[4], M. Lichtner[5]

[1]Department of Public Health and Infectious Disease, Sapienza University of Rome, Rome, Italy, [2]Infectious disease Unit, SM Goretti Hospital, Sapienza University of Rome, Latina, Italy, [3]Pharmacy Unit, SM Goretti Hospital, Latina, Italy, [4]Arcigay Latina SeiComeSei, [5]Department of NESMOS, Sapienza University of Rome, Rome, Italy

Background: Pre-exposure prophylaxis (PrEP) reduces the risk of getting HIV from sex by about 97% when taken as prescribed; many phyco-social obstacles can limit the diffusion in provincial settings especially after pandemics. It's only since 2023 that the drug has been provided free of charge by Italian National Sanitary System.
Methods: This retrospective longitudinal observational study describes the population who received PrEP at the Infectious Diseases Outpatient Clinic (ID-OC) of S. M. Goretti Hospital in Latina in the period from December 2019 to December 2023 with a median follow-up of 48 weeks. The non-parametric Mann-Whitney test and the Chi-square test were used.
Results: Since the beginning a constant access of new subjects was observed with a plateau after first years of pandemic, with a progressive increase to October 2023 (refundability at our ID-OC), when we had a rapid growth (20% of the total) of users enrolled in just 2 months. Social media and Latina Check point was the main way to access to the ID-OC. Of the 45 enrolled, in whom there was no case of seroconversion nor side effects, 44 (97.7%) were male with an average age of 36 years, 43 (95%) were Italian, and 43 were men who have sex with men (MSM) (as shown in figure)
Comparison between who started PrEP before and after the refundability period showed that the latter tended to use PrEP more according to the daily schedule increasing from 16.6% to 33.3% (p=0,05) (table). 20 of them had previously (before PrEP) been diagnosed STIs (overall syphilis: 13 cases), while, after PrEP assumption, only 7 STIs were identified with no new cases of syphilis (4 cases of C. trachomatis, 2 of U. parvum and 1 of N. gonorrhoeae). We compared, then, new PLWH locally diagnosed in the biennium 2017-2018, prior to the implementation of the PrEP clinic, and those in the biennium 2022-2023. In this last biennium there was a reduction of MSM patients, compared with the first biennium: 20 patients (66,6%) in 2017-18, and only 13 (46,4%) in 2022-23. In addition, we compared the raw costs between the expenditure for providing the drug to PrEP users and the expenditure for antiretroviral therapy (ARV) of new PLWH, assuming that all PrEP users take the drug on a daily basis (overestimating their consumption). Expenditure is significantly lower for PrEP users. In the two-year periods 2017 -2018 and 2022-2023, EUR 420000 and 264000 respectively were spent on providing ARVs exclusively to newly diagnosed PLWH, whereas the expenditure on PrEP in the two-year period 2022-2023 was only EUR 19200.
Conclusions: Although our evaluation is extremely limited in terms of sample size and follow-up, we observed an important role in PrEP access increase by refundability, a high efficacy without side effects and a low rate of STI. The inversion of MSM rate in new HIV diagnosis could be associated to PrEP access, even if a deeper analysis and longer follow-up should be done.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_424.jpg

Testing, prevention and PrEP: clinical perspectives and community best practice

P 186 DIFFERENTIATED AND SIMPLIFIED PREP DELIVERY IN ITALY: ALIGNMENT WITH WHO GUIDANCE IS NEEDED

P. Vinti[1], E. Caruso[1], V. Calvino[2], L. Cosmaro[3], M. Farinella[4], N. Frattini[5], G. Giupponi[6], F. Leserri[7], S. Mattioli[8], P. Meli[9], A. Moznich[10], S. Patrucco[11], I. Pennini[12], F. Schlösser[13], M. Stizioli[14], D. Calzavara[1]

[1]Milano Check Point ETS, Milano, Italy, [2]ANLAIDS Nazionale ETS, Roma, Italy, [3]Fondazione LILA Milano ETS, Milano, Italy, [4]CCO Mario Mieli APS, Roma, Italy, [5]ASA ODV, Milano, Italy, [6]LILA Nazionale ONLUS, Como, Italy, [7]Plus Roma APS, Roma, Italy, [8]Plus APS, Bologna, Italy, [9]CICA ETS, Milano, Italy, [10]NPS Italia APS, Milano, Italy, [11]Arcobaleno AIDS ODV, Torino, Italy, [12]Arcigay APS, Bologna, Italy, [13]Nadir ETS, Roma, Italy, [14]PrEP in Italia, Brescia, Italy

Background: High PrEP coverage among people at substantial risk for HIV is essential to end AIDS as a public health threat by 2030. WHO encourages countries to simplify and demedicalise PrEP initiations, and to implement differentiated service delivery approaches. WHO has been updating its guidance on PrEP based on emerging implementation evidence, which may result in gaps in national guidelines incorporating those updates. In Italy, PrEP reimbursement within the national health system was approved in 2023, together with guidance for its delivery. Both the national PrEP guidelines and the AIDS strategic plan were last updated in 2017.

Methods: A policy analysis was conducted to assess inclusion of the WHO recommendations on PrEP adopted since 2017 into the current Italian national PrEP guidance. A list of recommended practices was extracted from the latest WHO PrEP guidance and their inclusion into the Italian guidance was checked.

Results: 24 practices recommended by WHO since 2017 were identified and grouped into three thematic areas. The policy analysis showed that only 9 of the 24 WHO-recommended practices are included in the Italian guidance (Table 1). Contrary to WHO recommendations, disclosure of personal details on sexual behaviour or drug use is required to access PrEP and only men who have sex with men are eligible for event-driven PrEP. PrEP is reimbursed within the national health system only when distributed at HIV clinics and can only be prescribed by HIV specialists. Community-based delivery is not linked nor integrated with the national health system. For those not eligible for event-driven PrEP, the Italian PrEP guidance recommends stopping PrEP 4 weeks after the last possible exposure, instead of 7 days as recommended by WHO.

Conclusions: The findings highlight a number of barriers to PrEP access in Italy. PrEP delivery is still highly medicalised and centralised in HIV clinics, making it undesirable for some members of key populations, and inaccessible to members of marginalised and underserved groups already facing barriers with the national health system. It is concerning that a number of evidence-based recommendations that do not entail additional costs and increase the acceptability of PrEP, especially for cisgender women and transgender people, were not considered. An evidence-based simplification of prescription requirements and clinical monitoring would allow same-day PrEP prescription and increase cost-effectiveness. The integration of community-based delivery and task-sharing with peer navigators and community health workers would increase PrEP accessibility, acceptability and cost-effectiveness. Not distributing PrEP outside of HIV clinics makes community-based PrEP services less convenient and less desirable. The current delivery model has to be reformed following WHO guidance, to make PrEP accessible to all those who can benefit from it and to increase coverage to a level that will make it effective population-wide.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_433.png

Testing, prevention and PrEP: clinical perspectives and community best practice

P 187 EVALUATION OF INJECTABLE LONG ACTING CABOTEGRAVIR AS RESPONSE TO ORAL PREP-RELATED MEDICAL ISSUES

R. Rossotti[1,2], A. Tavelli[3], A. Bianchi[2], D. Calzavara[2], E. Caruso[2], A. Soria[2,4], A. De Bona[2,5], C. Muccini[2,6], D. Moschese[2,7], R. Repossi[2], M. Cernuschi[2,6], A. d'Arminio Monforte[3]

[1]ASST Grande Ospedale Metropolitano Niguarda, Milan, Italy, [2]Milano Checkpoint, Milan, Italy, [3]ICONA Foundation, Milan, Italy, [4]IRCCS San Gerardo dei Tintori, Monza, Italy, [5]ASST Santi Paolo e Carlo, Milan, Italy, [6]IRCCS San Raffaele Scientific Institute, Milan, Italy, [7]ASST Fatebenefratelli Sacco, Milan, Italy

Background: Long-acting injectable cabotegravir (ICAB) has been recently approved by FDA and EMA as pre-exposure prophylaxis (PrEP). Despite the greater efficacy, ICAB represents an issue for PrEP management given the higher economic cost and the relevant burden on clinics workload. Aims of the present study are: (i) to describe the proportion of PrEP users requiring ICAB for medical or adherence issues; (ii) to evaluate factors associated to clinical need of injectable over the oral drug.

Methods: All individuals who attended at least two visits in a community-based PrEP service were included in the analysis. Users were considered in need of ICAB if they presented toxicity, adherence, or efficacy issues. Toxicity was defined as: two consecutive eGFR values below 60 mL/min; gastrointestinal side effects complaints after the third visit; discontinuation due to any adverse event. Poor adherence was defined as: post-exposure prophylaxis (PEP) prescription; sexual encounters without PrEP or condom reported more than twice; chemsex use for more than 8 months consecutively. Being cis woman was considered as an indication for ICAB given oral strategies poor efficacy.

Descriptive and non-parametric statistics were used to describe study population. Bivariate logistic regression analysis was employed to test factors associated to ICAB clinical need.

Results: The analysis included 1,056 individuals, mainly cis men (1,036, 98.1%), MSM (1,018, 97.0%), born in Italy (838, 79.4%), with a median age of 38 (IQR 33-47) years. According to the study definitions, 294 individuals (27.8%) would benefit from ICAB: they had a longer exposure to PrEP (27.8 vs 17.9 months, p<0.001) and were slightly older (40 vs 38 years, p=0.060). ICAB need was related mainly to adherence issues: 146 subjects showed continuous chemsex practices (13.8%), 88 reported sexual intercourses without PrEP or condom (8.3%), 71 received a PEP prescription while on PrEP (6.7%). Toxicity issues were less common: 29 individuals reported persistent side effects (2.7%), while eGFR <60 mL/min and discontinuation due to adverse events were registered in 3 subjects each (0.3%). Females were 14 (1.3%); 57 had more than one criterion (5.1%).

Adjusted logistic regression found that being heterosexual (aOR 3.01, 95%CI 1.20-7.55, p=0.019), being on PrEP for a longer time (aOR 1.04, 95%CI 1.03-1.05, p<0.001), health status VAS scale per 10% increase (aOR 0.90, 95%CI 0.82-0.98, p=0.013), and use of antidepressants (aOR 1.62, 95%CI 1.03-2.55, p=0.038) were associated to be in need of ICAB.

Conclusion: Around one forth of PrEP users attending a community-based service showed a medical issue that would benefit from ICAB. These data suggest that ICAB would respond to common problems in PrEP management. Nevertheless, clinical centers might be overwhelmed by economic costs and increasing workload. Thus, health system needs to be implemented to face the issues that this novel approach would pose.

Testing, prevention and PrEP: clinical perspectives and community best practice

P 188 SEXUAL HABITS AND STDS OCCURRENCE IN PEOPLE ATTENDING A NEW PREP CLINIC IN BRESCIA

D. Minisci[1], S. Reale[1], D. Laurenda[1], G. Tiecco[1], S. Arsuffi[1], I. Polesini[2], V. Castelanelli[2], A. Matteelli[1], F. Castelli[1], E. Quiros Roldan[1], E Focà[1]

[1]Division of Infectious and Tropical Diseases, University of Brescia and ASST Spedali Civili Hospital, Brescia, Italy, [2]ASST Spedali Civili Hospital, Brescia, Italy

Background: Despite established HIV prevention strategies, Brescia, remain one of the top five Italian cities with the higher incidence of new HIV infection. The offer of an alternative strategy for HIV prevention, among men who have sex with men (MSM), is crucial.
The aim of this study is to analyze the profile of people attending the new PrEP outpatients service.
Material and methods: This is a cross-sectional study with the aim to take a snapshot of the population belonging to the first 6 months opening of PrEP clinic of the Spedali Civili of Brescia from 29 Sep 23.
We collected data about sexual habits and risk perception by an anonymous survey, moreover we recorded prevalence of sexually transmitted diseases (STDs), as well as intake pattern, adherence, adverse events, and discontinuation of PrEP with a quarterly routine clinical evaluation.
Results: Out of 76 subjects evaluated in the PrEP clinic, this study includes data of 42 male subjects (17 PrEP-experienced coming from other centers and 25 PrEP-naïve), 93% (n=39) homosexuals and 7% (n=3) bisexuals, with a median age of 32±7 yo.
About sexual habits, 24% (n=10) report their first sexual intercourse before the age of 16, 64% (n=27) between the ages of 10-25 and 12% (n=4) over the age of 26.
Most of the population (76%, n=32) is single while 24% is in an open relationship with a median of 2 sexual partners per week for both groups; 64% of the population (n=27) use dating apps (83% to plan a date easily and 17% for shyness) aimed in 81% of cases for sexual purposes.
32% (n=8) of naïve people start PrEP because of routinely condomless intercourses, while 68% (n=17) report that they use condom and want to start PrEP to have sex more peacefully; 56% (n=14) of PrEP-naïve people use condoms, 88% (n=15) of PrEP-experienced people have routinely condomless sex and only 12% (n=2) of them continue to use it.
About PrEP intake, 70% (n=29) take it daily and 30% (n=13) take it on demand. 80% (n=34) had no side effects, while 20% (n=8) had mild gastrointestinal disorders resolved within a week and only 1-person discontinued PrEP due to an allergic reaction. 92% (n=39) reported full adherence to PrEP, while 8% (n=3) timetable inaccuracies.
Overall, 16 cases of STDs have been diagnosed in 12 subjects, 7 during screening at first visit and 5 at follow-up: 2 cases of isolated of latent syphilis, and remaining cases of gonorrhoea (n=4), chlamydia (n=5) and mycoplasma (n=5), managed by our STDs clinic successfully.
Conclusions: Our study shows a preliminary picture of PrEP population highlighting the importance of a safe HIV protection strategy among people with high-risk sexual habits. The benefits of PrEP program are not only to reduce HIV infection incidence, but also to screen and early treat STDs to reduce the incidence and prevalence as well in a population with high risk of STDs occurrence.

Vaccines

P 189 STRATEGIES BASED ON NUDGING TO REDUCE VACCINE HESITANCY IN PLWHA IN A NORTHERN ITALY CENTER

G. Orofino[1], M. Guastavigna[1], A. Ianniello[1], D. Arrue Diaz[2], E. Catellani[3], M. Martella[4], F. Bert[4], G.D. Greco[5], E. Remani[6], G. Calleri[1]

[1]Tropical and Infectious Diseases Division A, Amedeo di Savoia Hospital, Turin, Italy, [2]Medical Science Department, University of Turin, Turin, Italy, [3]Hospital Pharmacy, ASLTO5, Italy, [4]Public Health Department, University of Turin, Italy, [5]SISP, ASL Città di Torino, Turin, Italy, [6]Hospital Pharmacy, Amedeo di Savoia Hospital, Turin, Italy

Background: In our center many efforts have been made to implement vaccinations in PLWHA, as recommended by guidelines, especially after COVID19 outbreak. Our goal is to build a structured path that can be integrated into the outpatient routine, allowing us to easily identify hesitant patients, understand the reasons for their hesitation and address issues related to convenience and confidence.

Methods: We analized adherence to anti-SARS-CoV2, PCV/PPV, anti-Meningococcus ACWY (MenACWY) and B (MenB), anti-Haemophilus Influenzae (HIB), HPV9, HZric vaccines in 1385 PLWHA. In our centre, we administer anti-Pneumococcus (PCV/PPV), anti-Papilloma Virus (HPV9), anti-HerpesZoster (HZric) vaccines and we have access to the SIRVA, the Piemonte Regional Informative System of Vaccination, to monitor adherence to vaccinations. In 2023 we began implementing nudging, a multidisciplinary socio-economic approach, developed within the behavioral sciences, to facilitate individuals' decisions towards options more aligned with their values, while preserving their freedom to choose. During each outpatient visit, we remind them of the importance of vaccination and verify adherence to the vaccination schedule. Additionally, we decided to contact hesitant PLWHA by phone to administer the vaccine hesitancy questionnaire and conduct interviews about the reasons for their vaccine hesitancy and their beliefs about how to mitigate it.

Results: At January 2023, 1283 (93%) were adherent to the vaccination schedule, 73 (5%) received the anti-SARS-CoV2 vaccination but did not undergo any of the other prescribed vaccinations, 29 (2%) refused any vaccinations (Figure 1). We focused on 73 hesitant PLWHA: we reached out to 52 (71%) PLWHA by phone, 2 of them (3%) refused to discuss vaccinations; we were unable to reach 19 patients. At January 2024, 12 of the 73 selected PLWHA (16%) had received at least one of the prescribed vaccinations.

Through the questionnaire and the interviews we gained ingights that the main obstacles are primarily related to convenience. We found that trust in our center is high and may positively influence vaccination behavior. Moreover, phone contact, which was well received by patients, allowed us to early detect non-adherence to antiretroviral therapy.

Conclusions: The integration of the nudging approach into the outpatient routine, along with individualized phone contact, has yieldel promising feasibility results as a strategy to reduce vaccination hesitancy, although the numbers are small for now. Such an approach can be extended to other aspects of HIV infection treatment as a chronic condition.

(Figure 1)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_58.jpg

Vaccines

P 190 VACCINE UPTAKE PRE AND POST COVID-19 PANDEMIC AMONG PLWH

E. Suardi, R. Ligresti, E. Zaninetta, L. Biasioli, B. Lundgren, A. Santoro, F. Di Bartolomeo, T. Bini, F. Bai, G. Marchetti

Clinic of Infectious Diseases and Tropical Medicine, San Paolo Hospital, ASST Santi Paolo e Carlo, Department of Health Sciences, University of Milan, Milan, Italy

Imunization for vaccine preventable diseases is highly recommended in people living with HIV (PLWH), but vaccination coverage is often inadequate and vaccination acceptance is poorly studied in PLWH. Some reasons for unsatisfactory uptake may rely on unclear responsibility for vaccine counseling and administration, as well as vaccine hesitancy. Furthermore, the effect of the COVID19 pandemic on subsequent vaccine uptake in PLWH has not been thoroughly investigated.

We aimed to evaluate vaccine uptake and its associated factors during the period 2018-2023 according to 3 time points: pre-COVID19 pandemic, during COVID19 pandemic and after COVID19 pandemic. We further evaluated vaccine completeness.

This is a retrospective observational study conducted at the Infectious Disease Unit of San Paolo University Hospital, Milan, from 2018 to 2023.

We assessed subjects' participation in vaccinations (HAV, HBV, HPV, S. pneumonae, N. meningitidis, RZV) in 3 time periods: Jan2018-Dec2019 (pre-pandemic), Jan2020- Mar2022 (pandemic), Apr2022-Dec2023 (post-pandemic).

Uptake has been evaluated as the proportion of patients who received at least one of the scheduled vaccinations. Vaccination was incomplete when all scheduled doses were not administered during follow-up. Factors associated with vaccine uptake in the whole follow up and according with time period were evaluated by univariable and multivariable logistic regression. Chi-square test was used to compare the proportion of uptake according to calendar period.

1411 PLWH where enrolled, 77% were male and the majority (90%) were aged >50 (median age: 53 years, IQR 44 -59)(table 1).

Global uptake for all the vaccination proposed was 1317/1411 (93%), with the highest uptake observed for HBV (433/445 pts, 97.3%). For uptake and completeness for all the vaccinations see table 2.

Only ageing was significantly associated to a lower uptake (each yr more, AOR 0.942, 95% CI 0.912-0.973 adjusting for AIDS and comobidities). Overall, 997/1317 (75%) pts received a complete schedule for all the vaccinations and the highest completeness was observed for HBV vaccination (373/433 pts, 86%).

For Pneumococcal, HAV and MenB vaccine uptake was significantly lower during pandemic and post-pandemic compared to pre-pandemic period ($p<0.001$).

Vaccination uptake is high for PLWH engaged to our clinic and only older age was associated with lower coverage. Yet, for some of the vaccinations, uptake has declined since the beginning of the pandemic and remained lower thereafter, in contrast with findings observed for influenza vaccination in the general population.

COVID-19 pandemic has possibly led to changes in people's attitude toward immunization programs, and further studies are needed to address hesitancy, especially in vulnerable populations.

In this context, active vaccine offer along with patients' engagement may play a crucial role in improving vaccine acceptance and adherence, thus incrementing vaccine coverage in PLWH.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_79.jpeg

Vaccines

P 191 A SYSTEMATIC AND EVIDENCE-BASED APPROACH IN VACCINATION OF PEOPLE LIVING WITH HIV: THE NOTEBOOK OF CLINICAL VACCINOLOGY

S.M. Gherardi, P. Amoriello Lamberti, G. Adamo, G. Lobrano, N.R. Mallamace, C. Vazzoler, S. Pittalis, O. Zuccaro, V. Mazzocato, F. Conforti, F. Trani, G. Colaiocco

UOC Coordinamento delle attività vaccinali, ASL Rm2, Roma, Italia

Background: According to the WHO, globally 39 million people were living with HIV at the end of 2022 and about 630.000 people died of HIV-related illnesses worldwide in 2022. Still according to the WHO, vaccinations prevent approximately 3.5-5 million deaths per year. The importance of vaccinations is even more relevant in frail subjects, such as People living with HIV (PLWH), who are at greater risk of contracting infectious diseases and developing related complications. However, vaccination coverage for these patients is still very low. One of the reasons might be the absence of operational tools, apart from the European AIDS clinical society (EACS) guidelines, that can guide clinicians other than infectious disease specialists in promoting active vaccinations in these patients. Giving these data, the ASLRM2 Vaccinations UOC has produced the Notebook of Clinical Vaccinology, a document that summarizes the main indications on vaccinations in frail patients, which was distributed to hospitals and to general practitioners.
Materials and methods: Given the National Vaccine Prevention Plan in force, we analyzed the guidelines of the main scientific societies (EACS, CDC, WHO) and we performed a literature review on vaccinations for PLWH. We defined four groups homogeneous for vaccination strategies, based on higher risks to contract an infectious disease.
Results: Since the introduction of the Notebook of Clinical Vaccinology in June 2023, we observed a significant increase of the vaccination rate in PLWH, based on the data collected by our vaccine register (ClicVaccino-AVR). In the period from July to December 2023, a total amount of 1020 doses were administered compared to the 455 doses administered in the same period of 2022 (+124.18%) (Figure 1). The greatest increase was observed in the hepatitis B virus (HBV) vaccination which increased by 528.57% (14 vs 88 doses) followed by the recombinant zoster vaccine (RZV) which increased by 432% (25 vs 133 doses administered). Other important increases were observed in the serogroup B meningococcal vaccines (MenB, +220.45%, n=44 vs 141), in the pneumococcal 20-valent polysaccharide conjugate vaccine (PNC 20, +137.5%, n=16 vs 38), in the human papillomavirus 9-valent vaccine (HPV9, +105.66%, n=106 vs 218), and in the meningococcal conjugate vaccines (MenACWY, +96.15%, n=52 vs 102). No significant variations were observed for all types of flu vaccines. A relevant percentage increase was observed in measles-mumps-rubella vaccine (MMR, DT+200%, n=2 vs 6) and in diphteria-tetanus-pertussis vaccine (dTpa, +133.33%, n=12 vs 28), however the total amount of doses administered is still very low.
Conclusions: Despite the short period of observation, these data show that the Notebook of Clinical Vaccinology is a useful and innovative tool that facilitates the care of chronic patients, such as PLWH, optimizing the vaccination offer and increasing the awareness of clinicians and patients in different care settings.
(Figure 1)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_99.JPG

Vaccines

P 192 ANTIBODY AND INTERFERON RESPONSE IN HIV PATIENTS FOLLOWING MRNA-BASED SARS-COV-2 VACCINE

A. D'Auria[1], F. Frasca[1], M. Fracella[1], E. Coratti[1], G. Bugani[2], L. Santinelli[2], L. Maddaloni[2], R. Campagna[1], G. Ceccarelli[2], C.M. Mastroianni[2], O. Turriziani[1], G. Antonelli[1,3], G. d'Ettorre[2], C. Scagnolari[1]

[1]Department of Molecular Medicine, Laboratory of Virology, Sapienza University of Rome, Rome, Italy, [2]Department of Public Health and Infectious Diseases, Sapienza University of Rome, Rome, Italy, [3]Microbiology and Virology Unit, Sapienza University Hospital "Policlinico Umberto I", Rome, Italy

Background: Published data demonstrate that the mRNA-based SARS-CoV-2 vaccine elicits humoral and cellular immunity in HIV-1 individuals. However, the impact of the innate immune response on the efficacy of COVID-19 vaccination in HIV-1 infected individuals over time remains to be defined. Therefore, we aimed to analyze the anti-Spike antibody response and type I Interferon (IFN-I) signature in HIV-1 patients receiving COVID-19 vaccine over a one-year longitudinal study.

Material and Methods: Blood samples were collected from HAART-treated HIV-1 individuals (n=75) at baseline (prior to SARS-CoV-2 vaccination, T0), at the time of the second (2nd) dose (T1), 1 (n=48) or 6 months (n=27) after the 2nd dose (T2) and 1 year after the 2nd dose (T3). Measurement of SARS-CoV-2 Trimeric IgG was performed by chemiluminescent immunoassay. The levels of anti-SARS-CoV-2 IgG were compared to a group of healthy donors (HD, n=28) at each time point. Gene expression of IFN-I (IFN-alpha, IFN-beta and IFN-omega) was measured by RT/Real Time PCR in PBMC from 66 patients.

Results: Anti-SARS-CoV-2 Trimeric IgG levels increased significantly at T1 compared to T0, and at T2 compared to T1 ($p<0.001$), and there was a trend toward an increase at T3 in comparison to T2. HDs showed the same trend of a longitudinal increase in anti-SARS-CoV-2 Trimeric IgG (T0 vs T1 and T2 vs T3 $p<0.001$). No significant differences were observed in anti-SARS-CoV-2 Trimeric IgG levels between HIV-1 positive individuals and HDs. The baseline gene expression of IFN-alpha, IFN-beta and IFN-omega does not affect the development of anti-S IgG at any time point analyzed. Transcriptional analysis of type I IFNs over time revealed a decrease for IFN-alpha, IFN-beta, and IFN-omega at T2 in comparison with T1 and T0 ($p<0.01$). On the contrary, increased levels of IFN-alpha and IFN-omega were observed at T3 in comparison to T2 ($p<0.05$). Similarly, IFN-beta showed a trend toward a higher expression at T3 compared to the previous time point analyzed.

Conclusions: We found that HIV-infected patients showed an antibody response after SARS-CoV-2 vaccination comparable to that observed in healthy donors, which was not influenced by IFN levels. On the other hand, COVID -19 vaccination may affect the IFN-I signature.

Vaccines

P 193 EVALUATION OF FUNCTIONAL ANTIBODIES AGAINST HIV ENV AND TAT PROTEINS: ANALYSIS OF ANTIBODY-DEPENDENT CELL-MEDIATED CYTOTOXICITY (ADCC)

M. Martino[1], A. Cafaro[2], E. Torreggiani[1], A. Caputo[1], A. Tripiciano[2], B. Dallan[1], D. Proietto[1], M. De Laurentis[1], E. Tassani[1], V. Francavilla[2], F. Mancini[2], M. Campagna[2], P. Monini[2], R. Gavioli[1], F. Nicoli[1], B. Ensoli[2]

[1]Department of Chemical, Pharmaceutical and Agricultural Sciences, University of Ferrara, Ferrara, Italy, [2]National HIV/AIDS Research Center (CNAIDS), Istituto Superiore di Sanità (ISS), Rome, Italy

Background: Killing of infected cells by cytotoxic responses is essential for the control viral infections. In the context of HIV infection, the Antibody-dependent cell-mediated cytotoxicity (ADCC) is a relevant immune defense mechanism. Through his mechanism, effector cells such as macrophages, neutrophils, and, especially, natural killer lymphocytes, exploit antigen-specific antibodies to kill infected CD4+ cells.
In detail, ADCC against the HIV envelope was found to correlate with protection from infection in the RV144 Thay trial. Nevertheless, several questions remain unresolved, such as: i) the effectiveness of ADCC induced by different Env forms and ii) the role of ADCC against regulatory HIV antigens (such as Tat) or
Methods: The Rapid Fluorometric assessment of ADCC (RFADCC) assay was employed to evaluate the capacity of antibodies against Env or Tat to mediate ADCC. Peripheral blood mononuclear cells (PBMCs) from healthy donors were used as effector cells while double stained CEM NKr CCR5+, pulsed with different forms of Env or Tat and opsonized by specific antibodies, as target cells.
Results: We first evaluated ADCC in cells pulsed with monomeric gp120 proteins from clade B SF162, JR-CSF, or MN strain or with one clade C trimeric Env protein lacking the V2 loop (DV2-TV1) and incubated with two monoclonal antibodies (17b or 48d) directed against the CD4-induced binding site or with a gp140-specific polyclonal rabbit serum.
Although 17b bound to the three monomeric proteins better than 48d, of them, only SF162 was effectively targeted by 17b in ADCC. In contrast, neither monoclonal antibody mediated ADCC against DV2-TV1.
On the contrary, the anti-gp140 polyclonal rabbit serum bound both monomeric and trimeric Env, resulting in a high percentage of killing. The anti-gp140 polyclonal rabbit serum mediated cytotoxic activity was also evaluated by pulsing cells with another gp140 protein SF162.LS.gp140 clade B and two SOSIP (BG505 clade A and CNE8 clade C). An evident killing in all pulsation conditions was observed.
Secondly, we evaluate ADCC in in target cells pulsed with the Tat protein and incubated with a hyperimmune serum from a rabbit immunized with Tat, detecting high killing activity (>40%). Notably, we performed an RFADCC assay with sera from HIV infected donors, (on cART or naïve to cART), observing ADCC activity in anti-Tat positive serum.
Conclusions: Overall, this study demonstrates, for the first time, that human anti-Tat antibodies mediate ADCC. The results confirm Env-induced ADCC and indicates that different forms (monomeric vs trimeric) of Env show different levels of ADCC activity.
The data may have significant implications for the development of innovative, effective HIV vaccines based on Env and/or Tat proteins, as well as for the monitoring of protection indicators.

Vaccines

P 194 CORRELATION BETWEEN IMMUNE RESPONSE AND ADVERSE EVENTS IN MS PATIENTS AFTER SHINGRIX VACCINE ADMINISTRATION

I. Fato[1], L. Benedetti[1], D. Landi[1], F. Napoli[1], V. Barchi[1], A. Di Lorenzo[1], A. Imeneo[1], G. Alessio[1], F. Angelone[1], B. Massa[1], M.A. Zingaropoli[2], P. Pasculli[2], C.M. Mastroianni[2], M.R. Ciardi[2], M. Andreoni[1], G.A. Marfia[1,2], L. Sarmati[1], M. Iannetta[1]

[1]Tor Vergata University, Department of Systems Medicine, Rome, Italy, [2]Multiple Sclerosis Center, Policlinico Tor Vergata of Rome, Rome, Italy, [3]Sapienza University, Department of Public Health and Infectious Diseases, Rome, Italy

Background: Reactivation of Varicella Zoster virus (VZV) causes Herpes Zoster (HZ), which is more frequent in patients with an immune system compromission. In 2018 a recombinant vaccine for HZ and postherpetic neuralgia prevention (Shingrix) has been approved for the elders and immunocompromised young adults. We aimed to investigate the association between cell mediated (CMI) and humoral (Hu) immune responses and adverse events (AE) after vaccination, in a cohort of people with multiple sclerosis (PwMS) on disease modifying therapies (DMT).
Material and methods: Vaccination schedule consisted of two doses of Shingrix administered two months apart. AE were investigated with a structured questionnaire, submitted to patients a week after each dose. CMI was assessed through an INF-gamma release assay (IGRA) specific for VZV glycoprotein-E (gE). Hu response was assessed through a commercial ELISA, detecting total anti-gE immune globulin (Ig)-G. All the tests and questionnaires were performed after the first (T0) and the second dose (T1). One month after the second dose (T2) a supplementary assessment of CMI and Hu responses was performed. Categorical variables are presented as absolute frequency and percentages (%) and quantitative variables as medians and interquartile ranges (IQR). Categorical data were analyzed using the Chi2 test. Differences between groups were assessed by the non-parametric Mann-Whitney test. The level of statistical significance was <0.05.
Results: We enrolled 32 PwMS, mostly women (24/32, 75%), with a median age of 56 years (43-59). All of them were receiving DMTs during the vaccination. Severity and duration of the adverse events are reported in Table 1. The symptoms analyzed were pain, redness and swelling at the site of the injection, fever, chills, asthenia, headache, myalgia and arthralgia (frequencies at T0 and T1 reported in Table 2). CMI was considered valid (2-fold increase of IFN-gamma production from baseline) in 23 patients (71.87%), while the Hu response was considered valid (50% increase of OD from baseline) in 28 patients (87.5%). 20 patients (62.5%) showed valid both CMI and Hu responses. Our data suggest an association between higher levels of CMI or Hu responses and the presence of specific adverse events (Table 3). Higher specific CMI responses at T2 were associated with headache and arthralgia after the first dose and fever, arthralgia and chills after the second dose. Higher Hu responses at T2 were associated with redness and swelling at the site of injection after the first dose and with headache after the second dose.
Conclusions: Our data suggest an association between systemic symptoms, particularly arthralgia, and higher CMI. These data are consistent with other findings showing an association between higher humoral responses and adverse events, while very few studies investigate the same association with CMI.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_118.jpg

Vaccines

P 195 EVALUATION OF CELL-MEDIATED IMMUNITY TO HPV NONAVALENT VACCINE (GARDASIL9®) IN A COHORT OF PEOPLE LIVING WITH HIV

L. Ansaldo[1], L. Benedetti[2], R.A. Cavasio[2], V. D'Aquila[2], R. Iannazzo[2], M. Compagno[1,3], M. Ciotti[4], L. Sarmati[2,3], M. Iannetta[2,3]

[1]PhD Program in Microbiology, Immunology, Infectious Diseases and Transplants (MIMIT), Tor Vergata University, Rome, Italy, [2]Department of Systems Medicine, University of Tor Vergata, Rome, Italy, [3]Infectious Diseases Unit, Policlinico Tor Vergata, Rome, Italy, [4]Clinical Microbiology and Virology, Virology Unit, Policlinico Tor Vergata, Rome, Italy

Background: HPV anorectal infection is the main cause of anal cancer in people living with HIV (PLWH); tetravalent vaccine has proven to elicit a sustained cell-mediate immunity (CMI) response and to be effective in the primary and secondary prevention of HPV-related anal dysplasia. Data are lacking about the nonavalent HPV vaccine. Aim of our study is to assess the cell-mediate immunity in response to Gardasil9® vaccination in a cohort of PLWH.

Materials and Methods: We recruited PLWH in follow-up at the Infectious Diseases HIV Clinic of Policlinico Tor Vergata; Inclusion criteria were age ≥18 years, to be on antiretroviral therapy for at least 6 months and not being vaccinated for HPV. Gardasil9® was administered at baseline (T0), after 2 months (T2m) and 6 months (T6m). A final visit was performed 1 month after vaccine last dose (T7m). Blood samples were collected for viro-immunological follow-up and to assess CMI with IGRA test using peptide libraries for L1 (included in Gardasil9®) and E2 (not included in Gardasil9®) of HPV 16 and 18, dosing IFN-γ with an automated system (ELLA). Anorectal swabs were performed for HPV-DNA detection. Data are shown as median (IQR). Friedman test was used to compare medians and Spearman test was used to test correlation between quantitative variables.

Results: 20 patients were enrolled, 19 were men (95%) with a median age of 47 years (39–52). Median years of HIV infection was 8 (4–13), with CD4 nadir of 369 cells/µl (137–460) and HIV-RNA zenith of 96245 cp/ml (25850–491000). Clinical characteristics are shown in Table 1. HPV anorectal infection at T0 with at least one high risk (HR) HPV genotype was detected in 16 out of 18 patients (89%), with a median number of HR genotypes of 2.5 (1–4), and a median of low risk (LR) genotypes of 1,5 (1–2,75). HPV16 was found in 5 patients (28%), while HPV18 was found in 2 patients (11%); HIV viro-immunological control was maintained in the entire population during the study period. CMI from T0 to T7m was assessed in a subset of 9 patients; T-cell response to L1 of HPV16 and 18 significantly increased from T0 to T7m ($p<0.001$, Figure 1). Conversely T-cell response to E2 of HPV16 and 18 did not show any significant increase over time. At T7m, L1 specific T-cell responses for HPV 16 and 18 showed a positive correlation with CD4+ nadir (Spearman rho: 0,8 p=0,06, and rho 0,9 p=0,02), and 4/9 patients obtained clearance of multiple HR HPV genotypes at T6m.

Conclusions: IGRA is a suitable tool to assess HPV specific CMI in immunocompromised hosts, such as PLWH, with the potential of guiding further dose of Gardasil9® in poor responders. PLWH with a low CD4 nadir may retain an "immunological scar" which prevent the development of an intense cell-mediated immune response specific to HR HPV, even after achieving an immunological reconstitution with increased CD4 cell counts.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_138.jpg

Vaccines

P 196 PREP ACCESS HIGHLIGHTS WORRISOME GAP IN VACCINATION COVERAGE AGAINST HPV AND OTHER VACCINE PREVENTABLE STIS

R. Fattore, A. Giacomelli, M.V. Cossu, F. Barone, C. Fusetti, F. Caruso, G. Scaglione, F. Fama, M. Gerbi, P. Raimondo, A. Gori, D. Moschese

Department of Infectious Diseases, Luigi Sacco University Hospital, Milan, Italy

Introduction: PrEP use is rapidly increasing in Italy since its full reimbursement by the National Health System. PrEP allows STIs-exposed individuals to be managed in appropriate settings and being offered a number of preventing interventions. Among these, preventive vaccines against STIs are pivotal interventions among PrEP users. Aim of our study was to assess the prevalence of STIs vaccine coverage at the time of PrEP start as well as acceptability rate of newly vaccine offered.

Materials and methods: All individuals who accessed our PrEP service (Luigi Sacco Hospital outpatient STIs clinic, Milan, Italy) between January 2022 and February 2024 were included. Vaccination status was ascertained at the time of PrEP start by means of clinical interview and the assessment of the electronic vaccine certification when available. All unvaccinated individuals were proposed to receive HPV vaccination and all other available vaccines against STIs.

Results: During the study period, 348 individuals started PrEP at our center, primarily MSM (98%), along with 5 transgender women (1,4%) and 3 cisgender women (0.9%). 251 (72.3%) individuals resulted HPV and/or other STIs-vaccine unexposed at the time of PrEP start. All but 1 individual started the STIs vaccination schedule: 210 underwent HPV vaccination, while 40 were already HPV-immunized and received other vaccines. Remarkably, over 99% of these patients immediately accepted the vaccination cycle when proposed.

Conclusions: The vaccination coverage for vaccine preventable STIs is worrisome low in people who presented at our STIs outpatient clinic to start PrEP. The immediate vaccine acceptance by almost all individuals highlights a serious information gap and access barriers in pivotal preventive interventions that deserve to be urgently filled. In particular, campaigns to inform about the importance of HPV vaccine before the start of sexual activity irrespectively of gender are urgently needed.

Vaccines

P 197 LACTOFERRIN ASSUMPTION IN VACCINATED SUBJECTS INFECTED BY SARS-COV-2 MAY INFLUENCE TIME LENGTH OF NEGATIVIZATION

G. Costanza[1], T. Cosio[2], M. Ciotti[1], C. Lanna[3], L. Rosa[4], C. Galluzzi[3], R. Gaziano[2], S. Grelli[1], P. Valenti[4], L. Bianchi[3], E. Campione[3]

[1]Unit of Virology, Tor Vergata University Hospital, Rome, Italy, [2]Department of Experimental Medicine, Tor Vergata University Hospital, Rome, Italy, [3]Dermatology Unit, Department of Systems Medicine, Tor Vergata University Hospital, Rome, Italy, [4]Department of Public Health and Infectious Diseases, University of Rome La Sapienza, Rome, Italy

Background: The pandemic due to SARS-CoV-2 infection comported enormous changes from every point of view, from social habits to certainties in the scientific world in the last 3 years. Measures, such as lock-down of communities, social distancing, and quarantine-type for those suspected to be infected slowed down the COronaVIrus Disease 19 spread. Lactoferrin (Lf), a glycoprotein of the transferrin family, was used as "alternative remedy against COVID-19".
Methods: we conducted a randomized, double-blind, two-arm study comparing the efficacy and safety (placebo and Lf) of Lf in negativization time length of SARS-CoV-2 positive subjects with few symptoms. The search and identification of SARS-CoV-2 positivity was performed at Virology Unit of the Tor Vergata Policlinic, (Rome) by RT-PCR. Lf or placebo was taken at home by medical personal and assumed by the infected subjects. For each subject was collected clinical parameters at baseline (positive swab for SARS-CoV-2 detection) and at follow-up (negative swab). Descriptive and inferential statistical analysis was performed.
Results: 120 subjects were enrolled in this study from November 2021 to March 2022. 92% of enrolled subjects were vaccinated and the negativization time for SARS-CoV-2 was lower in subjects who received Lf compared to placebo arm, specifically 9.89 vs 11.2 days, respectively.
Conclusion: the intake of Lf in pauci-symptomatic SARS-CoV-2 positive subjects with two doses of vaccine reduced the time of negativization.

Vaccines

P 198 ANALYSIS OF SPIKE-SPECIFIC IMMUNITY INDUCED BY IDLV-SPIKE IN MICE: COMPARISON BETWEEN FEMALES AND MALES

A. Gallinaro[1], C. Falce[1], A. Zappitelli[2], M.F. Pirillo[1], M. Borghi[2], A. Canitano[1], Z. Michelini[1], S. Cecchetti[3], M. Rosati[1], A. Tinari[4], A. Di Virgilio[5], A. Cara[1], D. Negri[2]

[1]National Center for Global Health, [2]Department of Infectious Diseases, [3]Confocal Microscopy Unit NMR, Confocal Microscopy Area Core Facilities, [4]Center for Gender Medicine, [5]Center for Animal Research and Welfare, Istituto Superiore di Sanità, Rome, Italy

Background: Studies on vaccines against several pathogens indicated higher immunoreactivity in women than in men. In particular, females develop higher antibody responses and experience more adverse events following vaccination than males. However, few COVID-19 vaccine researches reported sex-disaggregated vaccine efficacy data from both preclinical and clinical studies. Therefore, clear conclusions on functional immune responses induced by COVID-19 vaccines in females and males are not yet available. We recently showed that integrase-defective lentiviral vector (IDLV) delivering the optimized Wuhan Spike protein with cytoplasmic tail truncation, D614G mutation, double proline substitutions and mutated furin cleavage site, was highly immunogenic in mice, eliciting persistent cross-reactive neutralizing antibodies (nAbs). Here we compared the immunogenicity of IDLV expressing the optimized Spike from either Wuhan (IDLV-S-Wu) or Omicron BA.1 VoC (IDLV-S-BA.1) in both female and male mice.

Material and methods: Simian Immunodeficiency Virus (SIV)-based IDLV-S-Wu and IDLV-S-BA.1 were produced by co-transfection in 293T cells. Spike expression was evaluated by transmission electron microscopy (TEM), confocal microscopy (CLSM) and Western Blot (WB). BALB/c mice (6 females and 6 males per group) were immunized once with either IDLV-S-Wu or IDLV-S-BA.1. Kinetics of anti-Spike Ab response was assessed by ELISA and neutralization assays up to 24 weeks.

Results: Spike proteins were expressed at high levels in the transduced cells and incorporated efficiently on IDLV-S-Wu and IDLV-S-BA.1 virions. Intramuscular immunization of BALB/c mice with either IDLV-S-Wu or IDLV-S-BA.1 elicited persistent anti-RBD IgG with similar kinetics in males and females. All animals developed homologous nAbs that persisted until 24 weeks p.i. in females, while decreased after the peak response in males. Moreover, females developed higher cross-nAb titers than males regardless of the vector used as a vaccine. Importantly, all IDLV-S-Wu immunized mice developed cross-nAbs against Delta, Beta and Omicron BA.1, BA.2 and BA.5 VoC, although at lower levels compared to anti-Wuhan nAbs. Conversely, IDLV-S-BA.1 induced cross-nAbs against the Omicron VoC, showing strongly reduced cross-reactivity against Wuhan, Delta and Beta VoC, regardless of sex.

Conclusions: We confirm that IDLV delivering optimized Spikes represent an efficient vaccine against SARS-CoV-2. We showed that Wuhan induced a better cross-neutralizing response than Omicron BA.1 derived Spike, as observed in humans vaccinated with mRNA. Moreover, we showed that nAbs, but not anti-RBD binding IgG, are significantly different between females and males. Sex-related differences in COVID-19 vaccine immunogenicity should be further investigated to enhance the specificity and efficacy of preventive strategies.

Vaccines

P 199 NEUTRALIZING ANTIBODIES TITERS AGAINST TEN VIRAL SPIKE PROTEIN VARIANTS OF SARS-COV-2 IN THE SERUM OF PATIENTS RECEIVING DIALYSIS BEFORE AND 30 DAYS AFTER THE XBB1.5 UPDATED MRNA VACCINATION

G. Lipari[1], C. Pellaton[2], C. Fenwick[2], R. Gingis[3], V. Fattizzo[3], N. Landriani[1], C. Airaghi[1], S. Khemara[3], A. Gabrieli[3], G. Pantaleo[2], A. Riva[3], M. Gallieni[3], M. Tarkowski[3]

[1]ASST Fatebenefratelli Sacco, Milan, Italy, [2]Lausanne University Hospital, Lausanne, Switzerland, [3]Università degli Studi di Milano, Milano, Italy

Background: In the last 4 years from the start of the COVID-19 pandemics SARS-CoV-2 has continuously mutated to create viral variants which could escape partially or completely the immune protection induced by previous infections and original mRNA vaccine. New updated vaccines have been released and one of them included the sequence of the Spike protein corresponding to the XBB1.5 variant.
Methods: In the present study we have performed the analyses of the IgG neutralization titers against 10 viral variants in dialysis patients and healthy controls vaccinated with XBB 1.5 containing mRNA vaccine. 74 patients receiving maintenance dialysis and 10 healthy controls were enrolled. The nephrology patients had been vaccinated with 4 doses the original mRNA based vaccines and in November 2023-January 2024 they received the 5th dose with the XBB1.5 updated vaccine. Healthy controls received 3 doses of the original vaccine, and at the end of 2023 received an additional dose of XBB 1.5 updated vaccine. Serum samples were taken before the vaccination and 1 to 1,5 months later. The surrogate IgG SARS-CoV-2 neutralization test, developed and provided by Lausanne University Hospital researchers was used to evaluate the response to the vaccination and its potentials to neutralize 10 SARS-CoV-2 viral variants.
Results: Dialysis patients mount significant response to the vaccination in terms of the production of neutralizing antibodies. Those who were vaccinated and received up to 4th doses responded strongly with the production of neutralizing IgG, especially against wild type (WT) and Delta Sars-CoV-2 variants but not for other variants. 5th dose of new, XBB 1.5 vaccine gave significant boost and augmented the neutralizing IgG titers not only against WT and Delta variant, but significant increased against XBB,BQ.1,BA.1,BA.2,BA.4,GK.1,and EG5.1 variants. The levels of the IgG neutralizing titers of patients were not significantly different from those of healthy controls.
Conclusions: Dialysis patients respond to SARS-COV-2 XBB1.5 updated vaccine similarly to healthy controls. This vaccine vaccine generated high IgG titers that can neutralize new SARS-CoV-2 variants. These data support the vaccination of fragile nephrologic subjects with the updated vaccine may provide eventually better protection from severe diseases and extend protection against new variants.

Vaccines

P 200 NEUTRALIZING ANTIBODY RESPONSE TO THE HIGHLY DIVERGENT BA.2.86 SARS-COV-2 LINEAGES IN VACCINATED HEALTH CARE WORKERS WITH OR WITHOUT SUBSEQUENT INFECTION

I. Varasi[1], C. Biba[1], M. Buggert[2], A. Sonnerborg[2], F. Ceccherini-Silberstein[3], M.M. Santoro[3], R. Kaiser[4], G.H. Rubio[4], J.P.V. Pereira[5], K. Serwin[6], V. Gurksniene[7], A. Dias[8], R. Ribeiro[9], J. Fonseca de Morais Caporali[10], J. Andrade Pinto[10], F. Incardona[11,12], M. Zazzi[1], I. Vicenti[1], on behalf of the EuCARE project study group

[1]Department of Medical Biotechnologies, University of Siena, Siena, Italy, [2]Department of Medicine Huddinge Karolinska Institutet, Stockholm, Sweden, [3]Department of Experimental Medicine, University of Rome Tor Vergata, Rome, Italy, [4]Institute of Virology, University of Cologne, Cologne, Germany, [5]Department of Gastroenterology, Hepatology and Infectious Diseases, Medical Faculty and University Hospital Duesseldorf, Heinrich Heine University, Duesseldorf, Germany, [6]Department of Infectious, Tropical Diseases and Immune Deficiency, Pomeranian Medical University in Szczecin, Poland, [7]Infection Control Department, Vilnius University Hospital Santaros Klinikos, Lithuania, [8]Microbiology Laboratory, Centro Hospitalar de Lisboa Ocidental, Portugal, [9]Occupational Medicine Service, Centro Hospitalar de Lisboa Ocidental, Portugal, [10]School of Medicine, Federal University of Minas Gerais, Brazil, [11]EuResist Network GEIE, Italy, [12]InformaPRO S.r.l., Italy

Background: Since the emergence of the Omicron variant, SARS-CoV-2 has been evolving into a constellation of related lineages. One key issue is whether past natural and/or vaccine induced immunity remains effective against latest lineages. Aim of this work was to investigate in a live virus in vitro assay, the neutralizing antibody (NtAb) response against BA.2.86 and ancestral B.1 SARS-CoV-2 in a cohort of previously vaccinated health care workers (HCWs) with or without following infection, enrolled in the EuCARE consortium.

Methods: Two-fold serial dilutions of heat-inactivated sera were incubated with 100 TCID50 of each SARS-CoV-2 virus stock at 37°C for 1 h and added to 10,000 pre-seeded Vero E6 cells per well in 96-well plates. After 72 h at 37° C, cell viability was determined through the CellTiter-Glo® 2.0 Cell Viability Assay (Promega). The NtAb titer was defined as the reciprocal value of the sample dilution that showed a 50% protection of virus-induced cytopathic effect (ID50). Each run included an uninfected control, virus back titration and a known SARS-CoV-2 neutralizing serum. Statistical analyses were performed using IBM SPSS Statistics, v. 20.

Results: A total of 53 HCWs (49±11 years, male 13%) from the EuCARE cohort participated in the study, including 35 (49±11 years, male 9%) SARS-CoV-2 vaccinated with 4-5 doses but never infected and 18 (49±10 years, male 22%) SARS-CoV-2 vaccinated with 3-5 doses and then infected during the early Omicron waves. Globally, 77% HCWs received mRNA vaccines. The median [IQR] number of overall immunization events was 5 [4-5] and 4 [4-4] in the infected and uninfected group, respectively ($p<0.001$). Sera were collected at median 18.0 [16.0-130.0] days since the last immunization event, with a significant difference between groups (146 [17-216] vs. 17 [16-21] days in infected and uninfected HCWs, respectively; $P = 0.006$). Overall, NtAb titres to B.1 were significantly higher than to BA.2.86 (1257 [325-4343] vs. 121 [51-374]; $p<0.001$). Only three individuals (two uninfected and one infected) lacked measurable NtAbs against BA.2.86. The uninfected group had significantly higher NtAb titres compared with the infected group (Figure 1), both against B.1 (2224 [792-4983] vs. 316 [239-1187]) and against BA.2.86 (1257 [325 -4343] vs. 121 [51-374]; $p<0.001$ for both comparisons). Overall, there was no significant correlation between days since last immunization and NtAb levels to B.1 (rho = -0.071; $p = 0.612$) while a marginal correlation was found with BA.2.86 (rho = -0.027; $p = 0.055$).

Conclusion: HCWs with multiple exposures to SARS-CoV-2 vaccines with or without following omicron infection have NtAbs to the highly divergent BA.2.86 virus, although with titres one order of magnitude lower than those to the ancestral B.1. The case file is being expanded and cell mediated immunity studies are ongoing to complement NtAb response data and clarify the breadth and duration of immunity to SARS-CoV-2 variants.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_282.png

Vaccines

P 201 HEPATITIS A VIRUS PROTECTION STATUS IN CIS MALES AND TRANSGENDER FEMALES WHO LIVE WITH HIV AND HAVE SEX WITH MEN: A RETROSPECTIVE OBSERVATIONAL STUDY

S. Reato[1,2], G. Carrozzo[1,2], A.Giacomelli[1,2], A.L. Ridolfo[2], S. Antinori[1,2]

[1]Dipartimento di Scienze Biomediche e Cliniche, Università degli Studi di Milano, Milan, Italy, [2]III Division of Infectious Diseases, ASST Fatebenefratelli Sacco, Luigi Sacco Hospital, Milan, Italy

Background: Hepatitis A is an important sexually transmitted infection (predominantly via oral–anal contact), and an effective vaccination is available.
This study aims to characterize HAV protection status and associated demographic and clinical factors in a cohort of PWH with male sex assigned at birth and having sex with men as the mode of HIV-acquisition.
Materials and methods: We conducted a single center retrospective observational study on a cohort of PWH (cis males and transgender females who have sex with men), who attended the outpatient HIV clinic of the Infectious Disease III Division, Luigi Sacco Hospital, Milan, Italy, during 2023.
Demographic data, including age, gender, ethnicity, CD4+ count, HIV-RNA levels, HAV serology and HAV vaccination status were collected and analyzed. Protection against HAV was assessed until February 2024 and defined as having a positive HAV IgG serology or having received HAV vaccination.
Results: The study included 766 PWH: 676 (88.2%) cis males and 90 (11.8%) transgender females, with a median age of 50 years (IQR 40-59). The majority were of Caucasian ethnicity (583, 76.1%). Their median CD4+ count was 714 cells/mcl (IQR 551-905), and almost all (94%) had undetectable HIV-RNA (<50 copies/mL) (Table 1).
A total of 588 people (76.7%) were protected against HAV having a positive serology (468, 61.1%) and/or having received HAV vaccination (one dose 5.5%, at least two doses 28.2%), while 178 (23.5%) were found to be unprotected due to a negative or unassessed HAV IgG serology (Figures 1 and 2). There were no significant differences in demographic and clinical characteristic between protected and unprotected groups.
Non-Caucasian individuals (183/766, 23.9%) were less frequently vaccinated against HAV compared to Caucasian individuals (12.6% vs 40.3%) but were more frequently positive for HAV IgG (80% vs 57.3%), likely due to a higher frequency of natural infection (Table 2).
Conclusions: In our cohort of people at high risk for HAV, we found a high level of protection against the infection. However, the not insignificant proportion of unprotected individuals, emphasize the need to test all at risk individuals for HAV and offer vaccination to those who are found to be unprotected.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_290.jpg

Vaccines

P 202 BEYOND THE BARRIERS: THE IMPACT OF HPV VACCINATION PROGRAM VARIATION AMONG MSM PLWH

D. Laurenda[1], M. Inverardi[1], I. Izzo[2], S. Arsuffi[1], B. Fioretti[1], D. Castelli[2], S. Capone[2], P. Zanotti[2], F. Gaffurini[2], I. Polesini[2], E. Focà[1], E. Quiros-Roldan[1], F. Castelli[1]

[1]Division of Infectious and Tropical Diseases, University of Brescia and ASST Spedali Civili Hospital, Brescia, Italy, [2]ASST Spedali Civili Hospital, Brescia, Italy

Introduction: Until the spring of 2023, complimentary HPV vaccination for men who have sex with men (MSM) people living with HIV (PLWH) was recommended exclusively up to age 45. Prior to the eligibility criteria extension, a study conducted at our hospital pointed out unsatisfactory level of HPV vaccination coverage among this subgroup. We routinely recommend HPV vaccination in multiple settings such as scheduled follow-up appointments or during sexual transmitted infections (STIs) evaluations. Through this study, we aimed to estimate the impact of HPV vaccination program variation among our cohort of MSM PLWH. Thus far, a paucity of Italian data is available for appropriate comparison.

Materials and Methods: This is a retrospective monocentric study conducted at the Department of Infectious and Tropical Diseases of Spedali Civili in Brescia. All the PLWH followed at our clinic that verbally declared to be homosexual or bisexual were included in our analysis. Reviewing our medical records, we collected data on current HPV vaccination status.

Results: 899 MSM PLWH were included in our analysis. In our previous study, we only identified 214 patients vaccinated for HPV (214/899, 23.8%). Moreover, most of the unvaccinated patients were considered ineligible to initiate the schedule due to age restriction. After its removal, in only twelve months, 111 patients (111/899, 12.3%) received the first dose of HPV vaccination (mean age 51.7, 30-69). 89 of them (89/111, 80.2%) were older than 45 years old. 69 second doses were administered and 22 patients completed the schedule.

Conclusions: Considering our results, the recent modification of HPV vaccination strategy elicited a prompt response among our MSM PLWH cohort. In accordance with literature, enhancing accessibility is an impactful approach to increase vaccination coverage, independently of the preventable disease. Addressing HPV knowledge and awareness of its carcinogenic potential are feasible avenues to reduce vaccination hesitancy. Further research is needed, especially in our country.

Vaccines

P 203 VARICELLA ZOSTER VIRUS VACCINATION IN IMMUNOCOMPROMISED PATIENTS WITH HAEMATOLOGICAL AND RHEUMATOLOGICAL DISEASES: SPECIFIC T-CELL RESPONSE MEASURED WITH AN IN-HOUSE INTERFERON GAMMA RELEASE ASSAY

L. Coppola[1,2,3], L. Benedetti[1], G. Montagnari[1], M. Compagno[1,2,3], L. Campogiani[1,2,3], V. Malagnino[1,3], F. Meconi[4], M.S. Chimenti[5], M. Andreoni[1,3], L. Sarmati[1,3], M. Iannetta[1,3], M. Andreoni[1,3], L. Sarmati[1,3], M. Iannetta[1,3]

[1]Department of Systems Medicine, University of Tor Vergata, Rome, Italy, [2]PhD Program in Microbiology, Immunology, Infectious Diseases and Transplants (MIMIT), Tor Vergata University, Rome, Italy, [3]Infectious Diseases Unit, Policlinico Tor Vergata, Rome, Italy, [4]Haematological Diseases Unit, Policlinico Tor Vergata, Rome, Italy, [5]Rheumatological Diseases Unit, Policlinico Tor Vergata, Rome, Italy

Background: The reactivation of varicella-zoster virus (VZV) causes herpes zoster (HZ). VZV-specific T-cell – mediated immunity (CMI) is considered fundamental to prevent HZ. Age and immunomodulating drugs can impair VZV-specific CMI and contribute to HZ occurrence. A new adjuvanted recombinant subunit vaccine (HZ/su) has been recently approved for the prevention of
HZ in adults with immunosuppression. Our study aimed to investigate VZV-specific immunity in haematological (HE) and rheumatological (RH) patients under immune modulating treatments or chemotherapy after HZ/su vaccination.
Material and methods: HE and RH patients under active treatments were enrolled in the study. Two doses of HZ/su were administered 1 month apart (T0 and T1 respectively), with a follow-up visit 1 month after the second dose (T2). T-cell responses were assessed at T0 and T2 with an in-house Interferon Gamma Release Assay (IGRA), consisting of heparin whole blood stimulation with VZV gE and Immediate Early (IE)-63 peptide libraries. Each test included a negative (NC) and positive (phytohemagglutinin, PHA) control. IFN-gamma production was measured with the automated ELLA platform. Data were represented as median (interquartile range, IQR). Medians were compared using the non-parametric Wilcoxon matched-pairs signed rank test.
Results: We enrolled 19 patients (14F/15M) with severe immunodeficiency who completed the vaccination schedule and with at least 1 month of follow up after the second dose. 13 (68%) had HE disease (2 multiple myeloma [MM], 11 B-cell lymphoma [BCL]); 6 (32%) had RH disease (all with rheumatoid arthritis) under corticosteroid and Jak-2 inhibitors treatment. Median age was 63 years (IQR 56-71). All patients were under active treatments. Median IFN-gamma production after gE stimulation was 1.1 pg/ml, and 46.7 pg/ml at T0 and T2, respectively (Wilcoxon $p<0.001$). Median IFN-gamma production after IE-63 stimulation was 1.3 pg/ml, and 1.1 pg/ml at T0 and T2, respectively (Wilcoxon $p=0.1$) (Figure 1). An effective vaccinal response was defined as a 4-fold increase in IFN-gamma production in the gE stimulated condition, from T0 to T2. 5/19 (26%) patients were considered as non-responder (all of them with HE malignancy, 1 MM and 4 BCL)
Conclusions: VZV gE IGRA is a sensitive and specific tool to assess CMI after HZ/su vaccination in HE and RH patients. HZ/su elicited a significant T-cell response in all patients with RH diseases and in more than 60% of patients with HE malignancy. However, 5 patients had a limited or absent increase of IFN-gamma production from T0 to T2. This aspect highlights the importance of assessing VZV-specific after HZ/su vaccination CMI in patients with HE malignancy receiving immune modulating treatments or chemotherapies to verify protection from VZV reactivation and HZ development.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_373.png

Vaccines

P 204 BEHAVIORAL AND EPIDEMIOLOGICAL SURVEY ON COMPLIANCE TO RECEIVE NEW BOOSTER DOSES OF ANTI-SARS-COV2 VACCINE IN PLWH

G. Del Duca[1], A. Vergori[1], I. Sperduti[2], A. Cozzi Lepri[3], F. Drobniewski[4], M. Fusto[1], M. Plazzi[1], V. Mazzotta[1], J. Paulicelli[1], R. Gagliardini[1], A. Antinori[1]

[1]Clinical and Research Department, National Institute for Infectious Diseases Lazzaro Spallanzani IRCCS, Rome, Italy, [2]Biostatistics and Bioinformatics Unit-Scientific Direction, IRCCS Regina Elena National Cancer Institute, Rome, Italy, [3]Centre for Clinical Research, Epidemiology, Modelling and Evaluation (CREME), Institute for Global Health, University College London, London, UK, [4]Global Health, Tuberculosis and Microbiology, Infectious Diseases, Imperial College London, London, UK

Background: Currently,rejecting new anti-SARS-CoV-2 vaccine booster doses (NVDs) that can qualitatively improve the response by extending it to new variants in immunosuppressed and elderly people might be a concern. Here,we aim to investigate attitudes toward the anti-SARS-CoV-2 vaccine by analyzing the empirical factors associated with compliance to receive late NVDs (4thand 5th).

Material and Methods: We included participants (pts) of HIV-VAC study (EC approval:91/2022) with a previous complete vaccination schedule and eligible for the NVDs.All pts signed informed consent. Pts were asked to complete an anonymous survey of 13 multiple-choice questions on demographics and vaccination attitude. The association between the categorical variables was analyzed by the Chi-Square test. Receiver Operating Characteristic (ROC) analysis was applied to the continuous variable of age to estimate the most appropriate cut-off values and to divide patients into 2 groups ("compliant" vs."non-compliant") with different outcome probabilities. A multivariable logistic regression model was used to assess the influences of covariates demographic/behavioral on the endpoint. The p-values < 0.05 were considered significant. All analyses were performed using the statistical software SPSS (v. 29.0,SPSSInc.,Chicago,IL,USA).

Results: 316 pts underwent the survey with a median age of 54 years (range 27-76),79.7% male, 89.2% Caucasian, and 43.4% with 13 years of education. Overall, 240 (75.9%) pts were compliant [168(70%)4th,72(30%)5th] and 76 (24.1%) not-compliant [63(19.9%)4th,13(4.1%)5th]. Table1 shows characteristics and comparisons between the 2 groups. By multivariate analysis, older age (p=0.012) and being informed about the NVDs through non-institutional sources (friends/internet/book/social, p=<0.0001)were associated a higher risk of being non-compliant to vaccination (Table2). In addition, most of the compliant pts trusted that the vaccine would protect them(62.5%);in contrast, the non-compliant aged 50 or older were mostly worried about potential side effects justifying their decision to refuse vaccination with the interference with their usual activities (34.4%)[Figure1a,1b,1c]. Importantly, as of today, 30.4% (73/240) of compliant pts received the NVDs while 95.2% (4th) and 100% (5th) of non-compliant pts are still refusing to get vaccinated.

Conclusions: Our data suggest that use of non-official sources to get information regarding benefit/risks of vaccination is associated with higher rate of non-compliance to NVDs. In PLWH aged >50 concerns about side-effects and interference with usual activities seem to be a barrier for vaccination. In contrast,most compliant pts reported that they accepted the vaccination offer to protect themselves from infection. However,these responses do not always correspond with future behavior. This information could be a useful tool at the public health level to identify strategies to encourage using official information sources to increase uptake.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_417.png

Vaccines

P 205 SPECIFIC T-CELL RESPONSES TO VARICELLA ZOSTER VIRUS GLYCOPROTEIN E ONE YEAR AFTER VACCINATION WITH A RECOMBINANT ADJUVANTED SUBUNIT VACCINE IN PEOPLE WITH MULTIPLE SCLEROSIS ON DISEASE MODIFYING TREATMENTS

M. Iannetta[1,2], L. Benedetti[1], L. Coppola[1,3], G.F. Angelone[1], I. Fato[1], G. Montagnari[1], D. Landi[4], F. Napoli[4], V. Barchi[1], G. Alessio[1], A. Di Lorenzo[1], A. Imeneo[1], G. Mataluni[4], C.G. Nicoletti[4], E. Teti[2], M. Andreoni[1,2], G.A. Marfia[4,5], L. Sarmati[1,2]

[1]Department of Systems Medicine, University of Rome Tor Vergata, Rome, Italy, [2]Infectious Diseases Unit, Policlinico Tor Vergata, Rome, Italy, [3]PhD Program in Microbiology, Immunology, Infectious Diseases and Transplants (MIMIT), Tor Vergata University, Rome, Italy, [4]University of Rome Tor Vergata, Multiple Sclerosis Clinical and Research Unit, Department of Systems Medicine, Rome, Italy, [5]IRCCS Neuromed, Unit of Neurology, Pozzilli (IS), Italy

Background: Varicella-zoster virus (VZV)-specific T-cell–mediated immunity (CMI) is considered fundamental to prevent Herpes Zoster (HZ). Age and immunomodulating drugs can impair VZV-specific CMI and contribute to HZ occurrence. A new adjuvanted recombinant subunit vaccine (HZ/su) has been recently approved for the prevention of HZ in the elders or in young adults with immune system impairments. Here we investigate VZV-specific immunity in patients with multiple sclerosis (PWMS) patients on disease modifying treatments (DMTs) 1 year after HZ/su vaccination.

Material and methods: Patients on active follow-up in the MS Unit of Policlinico Tor Vergata were enrolled in the study. Two doses of HZ/su were administered 2 months apart (T0 and T1), with follow-up visits 1 month and 1 year after the second dose (T2 and T3, respectively). CMI was assessed at T0, T1, T2 and T3 with an in-house Interferon Gamma Release Assay (IGRA), consisting of heparin whole blood stimulation with VZV gE and Immediate Early (IE) -63 peptide libraries. Interferon (IFN)-y production was measured with the automated ELLA platform. At T3 CMI was also assessed with an in-house Elispot system, using the same stimuli of the IGRA to stimulate freshly isolated peripheral blood mononuclear cells (PBMCs). Wilcoxon and Friedman tests were used to compare matched data. Correlations were assessed with the Spearman's rank test.

Results: 10 PWMS (6 females) have been sampled at T3, so far. Median age was 46 years (IQR 44-59), median Expanded Disability Status Scale (EDSS) was 1,5 (IQR 1-5). All patients were on DMTs. Treatments were distributed as follows: dimethyl fumarate (4/10), glatiramer acetate (1/10), natalizumab (2/10), fingolimod (2/10), ocrelizumab (1/10). Median IFN-y production after gE stimulation was 6.6 pg/ml, 12.2 pg/ml, 129.1 pg/ml and 16.58 at T0, T1, T2 and T3, respectively (Friedman p<0,001) (Figure 1A). According to the Dunn's multiple comparison test, VZV-gE specific CMI significantly increased at T2 compared to T0 (p<0.001), while at T3 IFN-y production after gE stimulation significantly decreased (Wilcoxon p = 0.01). The results of the IGRA test were confirmed with an in-house Elispot, with a good correlation between the two assays (Spearman's Rho 0.7, p=0.02) (Figure 1B). PWMS with an impaired VZV-gE specific CMI at T3 were on treatment with fingolimod and dimethyl fumarate.

Conclusions: Our in-house IGRA is a sensitive and rapid method to assess VZV-gE specific CMI after HZ/su vaccination, as demonstrated by the comparison with the Elispot assay.

HZ/su significantly increased VZV-specific CMI in PWMS on DMTs one month after the completion of the vaccination schedule. However, CMI tends to decrease after 1 year, specifically in PWMS on fingolimod and dimethyl fumarate. This evidence needs to be further investigated and correlated with HZ reactivation events in PWMS on DMTs to understand its clinical relevance.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_440.png

Viral hepatitis

P 206 RISK OF HBV REACTIVATION AND LOSS OF ANTI-HBC IN ANTI-CD20 TREATED MULTIPLE SCLEROSIS PATIENTS: A SIX-YEAR OBSERVATIONAL COHORT STUDY

Y.C. Fosso Ngangue[1], P. Pasculli[1], M.A. Zingaropoli[1], F. Dominelli[1], F. Ciccone[1], M. Antonacci[1], G. Ferrazzano[2], A. Conte[2], C.M. Mastroianni[1], M. R. Ciardi[1]

[1]Department of Public Health and Infectious Diseases, Sapienza University of Rome, Italy, [2]Department of Human Neurosciences, Sapienza University of Rome, Rome, Italy

Background: Hepatitis B virus (HBV) reactivation during immunosuppressive/immunomodulatory therapy is still a hot topic worldwide. Both HBsAg-positive subjects and subjects with serological signs of previous resolved HBV exposure (HBsAg negative/HBcAb positive) are at risk of reactivation. The study aimed to stratify and monitor HBV reactivation risk in people with multiple sclerosis (pwMS) treated with anti-CD20.
Materials and methods: At the Neuroinfectious Unit, pwMS were longitudinally evaluated for infectious risk before starting, switching, or during disease-modifying therapies (DMT). HBsAg, anti-HBs, and anti-HBc (IgM and IgG) were periodically assayed by immunochemiluminescence. In pwMS with serostatus suggestive of previous HBV exposure, a watch-and-wait approach by periodic evaluation of HBV-DNA was used.
Results: A six-year observational study was carried out and 254 pwMS (154 females/100 males, median age [IQR] 51 [42-60] years) were enrolled. Overall, 89/254 (35%) pwMS were treated with anti-CD20 and among them, 14/89 (16%) were HBcAb+ HBsAg+/-. Through the initial assessment of infectious status, 2/14 (14%) HBcAb+ HBsAg+ pwMS with detectable HBV-DNA were identified and were therefore treated with antiviral before the start of anti-CD20 treatment. On the other hand, during anti-CD20 therapy, 4/14 (29%) pwMS showed a transient loss of HBcAb after a median [interquartile range, IQR] of 6 [5-6] years. In this 6-year observational study, 1/14 (7%) pwMS showed two HBV blips after 1 and 5 years, respectively. Moreover, 2/14 (14%) cases of HBV reactivation were observed. No correlation was found between HBsAg titers and hepatic enzymes (AST, ALT, total and direct bilirubin).
Conclusion: Although there is no doubt, that anti-HBc is an important and excellent screening marker to identify patients with ongoing or previous HBV infection, our data showed that during the anti-CD20 therapy, it is possible to observe a loss of HBcAb probably due to the immunomodulatory action of these drugs. Infectious disease screening in pwMS candidates for DMT helps to mitigate infectious risk. During DMT, a regular assessment of infectious risk allows to avoid discontinuing MS therapy and guarantees a higher degree of safety. Preventive prophylaxis and monitoring strategies in selected pwMS allowed anti-CD20 treatment to continue safely. The pre-emptive HBV monitoring strategy avoided exposure to potential toxicity for unnecessary drugs and reduced the risk of developing antiviral drug resistance.

Viral hepatitis

P 207 BULEVIRTIDE FOR THE TREATMENT OF HEPATITIS D: A CASE SERIES

F. Caruso[1], A. Giacomelli[1], S. Sollima[1], A. Gori[1,2], S. Antinori[1], C. Magni[1]

[1]Department of Infectious Diseases, Luigi Sacco Hospital, ASST Fatebenefratelli Sacco, Milan, Italy, [2]Department of Pathophysiology and Transplantation, Centre for Multidisciplinary Research in Health Science (MACH), University of Milan, Milan, Italy

Background: Infection with hepatitis D virus is a relatively rare yet significant health concern.
HDV infection is associated with a rapid onset of cirrhosis and increased risk of hepatocellular carcinoma. While some progress has been made using interferon therapy, outcomes have shown a high variability, often accompanied by a high incidence of relapses.
A milestone in HDV management occurred with the approval of bulevirtide by the EMA in 2020. This marked a significant advancement in the treatment landscape for patients afflicted by chronic hepatitis delta (CHD), particularly those with compensated cirrhosis. The Italian Medicines Agency (AIFA) granted approval for its reimbursement on April 13th, 2023. This decision facilitated its broader dissemination and availability to a wider patient population.
Methods: In this case series we collected clinical and virological data regarding patients who accessed our center (Luigi Sacco Hospital outpatient hepatological clinic, Milan, Italy) since the licensing of bulevirtide by AIFA. Patients were followed until 24 weeks from treatment start. All patients underwent treatment with daily, self-administered subcutaneous injections of bulevirtide 2mg in combination with a background treatment for HBV with NUC analogs. The primary end point was a 2log decrease in HDV-RNA viremia.
Results: Eight patients have met the eligibility criteria for receiving bulevirtide, all of which had stage A cirrhosis according to the Child-Pugh classification. Four out of the 8 patients had previously been treated with IFN without success. Three out of the 8 individuals were people with HIV under stable antiretroviral treatment.
Baseline characteristics of the eight patients are summarized in Table 1.
As of April 2024 five patients have completed the first 24 weeks of treatment, one has completed 12 weeks while two started treatment during march 2024 and are now completing the first 4 weeks of therapy.
Therapy was well tolerated by all participants, with only one adverse event recorded, a self-resolving itch.
From a virological perspective, after the initial 24 weeks of treatment, every patient met the primary endpoint, demonstrating a decline of over 2 log in HDV viremia, as for the one that has completed the 12 weeks an initial decrease of 0.44 log UI/ml has been described.
Additionally, we observed a decline in alanine aminotransferase (ALT) levels in four out of the six patients that completed the first 12 weeks. Our findings regarding HDV viral load and ALT levels are summarized in Graphic 1 and Graphic 2, respectively.
The remaining two already had liver enzymes within the normal range at baseline.
No patient lost the hepatitis B surface antigen.
Conclusions: Our experience underscores the safety, feasibility, and efficacy of bulevirtide monotherapy in patients with CHD with and without HIV. Nevertheless, additional studies are needed to assess the long-term benefits and determine the optimal duration of treatment.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_175.png

Viral hepatitis

P 208 HBS ISOFORMS AS INNOVATIVE BIOMARKERS IN PREDICTING VIROLOGICAL RESPONSE IN CHRONIC HEPATITIS DELTA PATIENTS TREATED WITH BULEVIRTIDE MONOTHERAPY

S. D'Anna[1], R. Salpini[1], E. Degasperi[2], L. Duca[3], M.P. Anolli[2], L. Piermatteo[1], D. Sambarino[2], M. Borghi[2], F. Facchetti[2], F. Ceccherini-Silberstein[3], R. Perbellini[2], P. Lampertico[2,4], V. Svicher[1]

[1]Department of Biology, University of Rome Tor Vergata, Rome, Italy, [2]Division of Gastroenterology and Hepatology, Foundation IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy, [3]Department of Experimental Medicine, University of Rome Tor Vergata, Rome, Italy, [4]Department of Pathophysiology and Transplantation, CRC "A. M. and A. Migliavacca" Center for Liver Disease, University of Milan, Milan, Italy

Background: HDV exploits HBV surface protein (HBsAg) for the release of its progeny and entry into hepatocytes. HBsAg consists of 3 isoforms: Large- (L-HBs, predominantly present in virions and mediating binding to NTCP-receptor), Middle- (M-HBs) and Small-HBsAg (S-HBs). Here, we investigated the still unknown kinetics of HBs-isoforms under bulevirtide-treatment (BLV).

Methods: 36 consecutive patients (pts) with HDV-related compensated-cirrhosis starting BLV 2mg/day monotherapy were enrolled, all under effective NUC-treatment. L-HBs, M-HBs and S-HBs were quantified by ad-hoc designed ELISAs (Beacle Inc.) at baseline and at week 48 (W48) samples for all pts and, additionally, at week 96 (W96) for a subset of 16 pts. HDV-RNA was quantified by Robogene 2.0 (LoD:6 IU/mL). Virological (VR) and combined responses (CR) were defined as >2log decay or undetectability (TND) of HDV-RNA alone or with ALT normalization during BLV, respectively.

Results: At baseline, median (IQR) values of HDV-RNA was 5.1(4.3-5.7)logIU/ml while of S-HBs, M-HBs and L-HBs were 3681(1240-7184), 813(260-2262) and 5(1-12)ng/ml, respectively. At W48, VR and CR were observed in 69% and 67% of patients, while 50% of pts achieved HDV-RNA TND or <100IU/ml. A >10% decline of S-HBs, M-HBs and L-HBs levels was observed in 53%, 53% and 31% of pts (median [IQR] decline: 1323[731-3712], 327[79-589] and 10 [4-14]ng/ml, respectively). HDV-RNA decrease during BLV was more profound in pts with baseline M-HBs>500ng/ml than in those with M-HBs<500ng/ml (3.5[2.6-4.1] vs. 1.4[0.5-3.1]logIU/ml, P=0.002). M-HBs>500ng/ml significantly correlated with achieving VR and CR at W48 (91% of pts with vs. 36% of pts without M-HBs>500ng/ml achieved VR, P=0.01; 68% vs. 29% achieved CR, P=0.04). Pts with baseline L-HBs<9ng/ml were more likely to achieve HDV-RNA TND or <100 IU/ml at W48 (63% vs. 17%, P=0.01). The combination of pre-treatment L-HBs<9ng/ml plus HDV-RNA<5logIU/ml was the best predictor for achieving HDV-RNA TND or <100IU/ml at W48 (77% vs. 35%, P=0.04).
At W96, VR and CR were achieved by 14/16 (87.5%) and 11/16 (68.8%) pts. A >10% decline respect to W48 of S-HBs, M-HBs and L-HBs levels was observed in 44%, 31% and 38% of pts (median [IQR] decline: 1178[384-3538], 250[188-565] and 3[2-3]ng/ml, respectively). The combination of pre-treatment L-HBs<9ng/ml plus HDV-RNA<5logIU/ml was the best predictor for achieving HDV-RNA TND plus ALT normalization at W96 (80% vs. 18%, P=0.04).

Conclusions: Quantification of L-HBs and M-HBs along with HDV-RNA may better reflect the burden of circulating infectious virions in HBV/HDV co-infection, providing a promising tool to identify patients more likely to respond to BLV.

Viral hepatitis

P 209 FIRST CASE OF HEPATITIS B VIRUS (HBV) REACTIVATION IN A PATIENT WITH BREAST CANCER RECEIVING CDK4/6 INHIBITOR DRUGS

F. Capriotti, L. Foroghi Biland, P. Rabatelli, A. Fabiano

University of Parma, Italy

Background: Reactivation of overt or occult Hepatitis B virus (HBV) infection due to the use of immune-suppressive therapy for solid tumors is a significant cause of liver-related morbidity and mortality, even in low endemic countries. Although international oncological societies suggest HBV screening in all patients, anticipating systemic anticancer therapy, suboptimal testing rates constitutes an issue. Palbociclib and Ribociclib are CDK4/6 inhibitors, recently approved for metastatic luminal breast cancer. In previous randomized controlled trials, HBV/HCV screening was not mandatory, and no specific data are available regarding liver toxicity in chronic carriers of viral hepatitis. Hence, HBV reactivation can pose a real clinical problem in the management of oncological patients.
Case report: A 71-year-old woman was diagnosed with breast cancer in 2001. She underwent surgery and was treated with adjuvant endocrine therapy and radiotherapy, with complete response. In 2010, she was admitted to Infectious Diseases Unit for osteomyelitis of the toe, and resulted compatible with a profile of chronic HBV inactive infection (HBsAg and anti-HBc positive with negative IgM, HBV-DNA 1530 IU/mL), with normal transaminase levels. At that time, an ultrasound showed moderate liver fibrosis. In 2014, she was diagnosed with skull and vertebral metastasis, treated with cycles of radiotherapy and hormone agents, with partial response. In December 2022, disease progression was radiologically documented. Combination treatment with Palbociclib in association with Fulvestrant, an anti-estrogen drug, was started, monitoring her liver and kidney function, without any significant modifications.In December 2023 a short cycle of low-dose oral corticosteroids (two weeks, prednisone 7.5 mg daily) was administered for pain management. In January 2024, because of a sudden increase of the transaminase levels, a virological test was performed again, which showed HBV reactivation with a three-log increase in HBV DNA, compared to baseline (HBV-DNA 1810000 IU/mL). The oncological regimen was stopped, and antiviral therapy with Entecavir was initiated. Two months later, liver functionality tests returned to normal, with low levels of HBV-DNA (172 IU/mL). US and transient elastography showed moderate liver fibrosis (7.9 kPa), with no significant change from previous radiological tests.
Conclusions: According to international guidelines, low dose, short term steroid treatment, is not a risk for HBV reactivation. Even if we cannot exclude an additive role for this treatment, CDK 4/6 inhibitor should be considered the main causative agent for reactivation in our patient.We suggest that chronic carriers of HBV -like the patient studied here- may experience hepatitis reactivation following treatment with these drugs. These findings need to be confirmed by bigger trials. However, this case highlights the importance of HBV screening and prophylaxis in people receiving this new drug class.
(Figure 1, Table 1)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_236.png

Viral hepatitis

P 210 BULEVIRTIDE EFFECTIVENESS AND SAFETY IN CIRRHOTIC AND NON CIRRHOTIC PATIENTS IN SARDINIA

A.A. Mariani[1], C. Fanelli[1], F. Pes[2], L. Denti[1], V. Fiore[1], A. Muredda[1], M.A. Seazzu[1], L. Chessa[2], A. Civolani[2], G. Alagna[3], I. Maida[1]

[1]Department of Medicine, Surgery and Pharmacy, AOU Sassari, Italy, [2]Policlinico Monserrato, AOU Cagliari, Italy, [3]SSD Hepatology, AOU Sassari, Italy

Introduction: HBV/HDV coinfection is considered to be the most severe chronic hepatitis. In fact, HDV over infection is associated with major risk of hepatocellular carcinoma (HCC), decompensated cirrhosis, need for transplant and premature mortality. In Italy, its prevalence is between 4,5 and 13% of all HBsAg+ (SEIEVA data, updated to 31/12/2023). In 2020 a new drug against HDV chronic infection in compensated liver disease have been developed, called Bulevirtide. Since it became refundable by Italian sanitary system in 2023, a few studies have been conducted. Our aim was to evaluate its safeness and preliminary effectiveness data among compensated-HDV carriers in Sardinia, Italy.

Methods: We collected retrospectively data of consecutive HBV/HDV patients in treatment with bulevirtide 2 mg/day followed at four Sardinian hepatology ambulatories in Sassari and Cagliari from June 2023 to March 2024. We evaluated the evolution of Alanine transaminase (ALT) and HDV-RNA levels in blood, at the baseline and at week 4,12 and 24. Furthermore we analyzed bulevirtide safety collecting any adverse events (AE) occurred during the treatment.

Results: We collected data of 9 HBV/HDV patients (88.9% Italians) treated with bulevirtide from June 2023 to March 2024. Among the nine patients included, five were male (55.6%) and the mean age was 63±11 years old. In the observed population, at baseline, no one was HIV coinfected; five patients were (55.6%) previously HCV infected. At baseline, five patients presented compensated cirrhosis (Child A), whereas the other four only not presented cirrhosis. One patient (11.1%) had HCC treated before bulevirtide start. Before treatment, all patients presented HDV-RNA > 500 copies/mL, ALT were elevated (> 49 U/L) in 5 out of 9 patients (55.6%), and HBV-DNA detectable (2210 UI/ml) in one patient (11.1%). The 77.8% of patients had Bulevirtide therapy alone (7/9), while 22.2% had Bulevirtide in combination with interferon (2/9). All patients continued Entecavir treatment for HBV during the study period (Tab. 1)

Within week 12 eight patients out of nine (88.9%) had ALT normalization, and three had HDV-RNA reduction of one logarithm (3/9, 33.3%), including one viremia negativization (11.1%). All three patients who performed the 24-week follow-up within March 2024, had AST normalization and HDV-RNA was undetectable (Fig.1).

The 88.9% of the cohort (8/9) showed good adherence and tolerability of the treatment, without any adverse event in both cirrhotic and non-cirrhotic patients. One lost-to-follow up was recorded for reported daze at week 4.

Conclusion: In our experience, bulevirtide 2mg treatment demonstrated to be effective, well-tolerated and safe in both cirrhotic and non-cirrhotic patients, including those with mild hepatitis. Moreover bulevirtide showed to be fast, reaching a clinical relevant HDV-RNA reduction and transaminases normalization already at week 12.

(Table 1, Figure 1. Figure 2)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_253.jpg

Viral hepatitis

P 211 HEPATITIS DELTA TESTING IN ADULTS WITH CHRONIC HEPATITIS B VIRUS INFECTION ATTENDING FOR OUTPATIENT CARE: WHO ARE THOSE UNSCREENED?

A. Di Lorenzo[1], D. Kontogiannis[1], C. Sorace[1], A.M. Crea[1], E. Teti[1], V. Malagnino[1,2], M. Iannetta[1,2], A.M. Geretti[1,2,3], L. Sarmati[1,2]

[1]Infectious Disease Clinic, Policlinico Tor Vergata, Rome, Italy, [2]Department of Systems Medicine, Tor Vergata University, Rome, Italy, [3]Department of Infection, North Middlesex University Hospital, London, UK

EASL guidelines on hepatitis delta virus (HDV) strongly recommend anti-HDV testing in all individuals with hepatitis B surface antigen (HBsAg) at least once, with re-testing advised for anti-HDV seronegative individuals exhibiting risk factors or clinical alterations. Previous studies reported variable rates of anti-HDV screening across populations, ranging from 8.5% (Kushner et al. 2015) to 49% (Brancaccio et al. 2023). Given these alarming findings, we conducted a survey of anti-HDV screening in adults in active follow-up for chronic hepatitis b virus (HBV) infection at Policlinico Tor Vergata Infectious Disease Unit in Rome.

All patients with positive HBsAg serology who had attended at least one outpatient visit between 1st March 2023 and 1st March 2024 were included. The data collected included demographic, clinical and laboratory parameters, HBV status, the year of the start of HBV follow-up, HIV and hepatitis C virus (HCV) co-infection status, and results of liver ultrasound imaging and elastography (FibroScan). Anti-HDV serology data were retrieved from the medical and laboratory records.

Differences between groups were assessed using the Mann–Whitney U test (two groups, continuous variable) or the Chi2 test (categorical variables). Statistical analyses were performed using the software JASP (version 0.18.3 JASP Team, 2024).

Among 223 patients in HBV follow-up, median age was 50 year (IQR 39-62) and most (122, 54.7%) were assigned male at birth. There was substantial diversity in country of origin (Table 1). Most individuals were HBeAg-negative (201, 90.1%), were receiving anti-HBV therapy with either entecavir or tenofovir (148, 66.4%), and had undetectable HBV DNA or HBV<10 IU/ml (139, 62.3) and normal transaminases (183, 82%). HDV screening results were available in 212 patients (95.1%), including 15 that resulted positive (prevalence 7%; 95% CI 4.0-11.4); 11 (4.9%) did not undergo anti-HDV screening (Table 2). The group without a screening result comprised a larger proportion of women (p= 0.06) and had a shorter duration of HBV follow-up with fewer clinic attendances (p<0.001). As a result, they also were less likely to have started anti-HBV therapy and to have a suppressed HBV DNA.

Our unit has achieved high, albeit incomplete, rates of anti-HDV screening, reassuringly exceeding the rates reported in the literature. Individuals without anti-HDV screening had significantly shorter duration of follow-up, usually because recently linked to our ID Unit, but there was also some indication that screening might have been less common among women. Implementing HDV reflex testing could ensure complete anti-HDV screening for all individuals that enter HBV follow-up.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_337.png

Viral hepatitis

P 212 DENGUE ASSOCIATED HEPATITIS: TWO CASE REPORTS AND LITERATURE REVIEW

B. Kertusha[1,2], A. Parente[1,2], T. Tieghi[1], P. Fabietti[1], S. Cacace[2], R. Marocco[1,2], M. Lichtner[3], C. Del Borgo[1,2]

[1]Infectious Diseases Unit, S. M. Goretti Hospital, Latina, [2]Sapienza University of Rome, Department of Public Health and Infectious Diseases, [3]Sapienza University of Rome, NESMOS Department

Background: Hepatic involvement in non-hepatotropic virus infections such as Dengue Fever is becoming more frequent. Dengue is an important arboviral disease, with at least 3.7 million cases and 2000 deaths reported in 2023. It affects mostly areas of Southeast Asia and South America, but global travel means that we must be prepared to recognize and treat the disease in all hospitals. Dengue leads to multiorgan involvement. Liver involvement ranges from asymptomatic transaminase elevation to acute liver failure. Transaminase elevation also correlates with disease gravity. We hereby describe two cases of Dengue Fever in two Italian travelers returning from South America and who presented persistent elevated levels of transaminases, affecting hospitalization length of stay. Then we describe the problem according to literature data.

Case presentation: The first one is the case of a 28 years old male returning from Santo Domingo who started developing a skin rash on the last day of his trip, associated with high fever and arthralgia and came in our Infectious Diseases Unit after 7 days. NS1 antigen was detected on his blood. On day 7 high transaminase levels were detected in his blood tests, AST/ALT 362/822 which then decreased very slowly and became normal again after five days. Bilirubin and coagulation were normal. An abdominal ultrasound revealed hepatic steatosis.

The second one is the case of a 16 years old female returning from Brazil and after two days developed high fever, epistaxis , headache and arthralgia. On admission she had AST/ALT values of 347/288 and 121.000 platelets/uL. Rapid antigen testing turned out positive for dengue virus. A diagnosis of vascular catheter related thrombosis was made, which prompted antibiotic and anticoagulant treatment. Despite this, transaminase values became normal on day 10 after admission.

Both patients were screened for HBV, HCV and HAV antibodies.

Discussion: Liver toxicity is a crucial feature seen in dengue infection, with hepatocytes and Kupffer cells being prime targets, as confirmed in biopsies and autopsies. Raised AST levels have been seen in 63%-97% of patients, while raised ALT levels in 45%-96% of patients. In most studies, elevation in AST is more than ALT, more during the first week of infection, with a tendency to decrease to normal levels within three weeks. The average levels of AST range from 93.3 U/L to 174 U/L, while ALT from 86 U/L to 88.5 U/L in various studies. Median AST and ALT values have been found to be higher for severer forms of dengue. Although hepatic disfunctions is usually self-limiting, it may pose considerable challenges in the wake of persistent high fever and the need to administer antipyretic drugs such as paracetamol. Given the last autochthonous cases, Dengue should be considered as a cause of hepatitis with febrile hypertransaminasemia also in Italy.

Viral hepatitis

P 213 HBV REACTIVATION AFTER IMMUNOSUPPRESSIVE THERAPY: AN OPEN QUESTION

M. Abbott[1], G. Valenti[1,2], A. Gizzi[1], S. Agrenzano[1], A. Ficalora[1], A. Mancuso[1,2], A. Sanfilippo[1], D. Spicola[1], I. Alongi[1], C. Buscemi[1], F. Onorato[1], A. Cascio[2], C. Iaria[1]

[1]UOC Malattie Infettive, ARNAS Civico-Di Cristina-Benfratelli, Palermo, Italy, [2]Infectious and Tropical Diseases Unit, Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties (PROMISE), University of Palermo, Palermo, Italy

We present a case of a 71-year-old man with a reactivation of HBV infection after immunosuppressive therapy.
He had a diagnosis of gastric maltoma (June '21) treated with 4 cycles of R-COMP (jul– nov '21). Before the chemotherapy he had been diagnosed with latent HBV infection with negative HBsAg, positive HBcAb and negative HBV-DNA and started prophylaxis with lamivudine. In June 2023 the prophylaxis was discontinued after > 12 months of clinical, radiological and histological remission of the gastric maltoma and HBsAb seroconversion (> 50 mIU/ml).
In August 2023 he was treated with high dose prednisone for 2 weeks for a symptomatic SARSCoV2 infection.
After a couple of months he began to show signs and symptoms of hepatic failure (asthenia, jaundice, acholic feces, hyperchromic urine), presented to the E.R and was admitted to our Ward.His laboratory exams showed hepatic failure (bilirubin t/d 28/24 mg/dl , GOT/GPT 800/1300 U/L , platelets 109000, INR 1,43, albumin 3.7 g/dl. RCP 0.94 mg/dl) and his vital signs were PAO 110/80 mmHg, FC 83 bpm, sO2 97%, FR 15 bpm, TC 38°C. He had no significative radiological findings at the CTscan and US. His serological status was HCV Ab negative, HAV IgM negative/IgG positive, HBsAg positive, HBcAb IgM positive, HBeAg positive, HBV-DNA 9369984 IU/ml, negative HDV Ab and HDV-RNA and was immediately started on tenofovir disoproxil fumarate. In the following days his liver function exams progressively worsened with total bilirubin of 36.8, platelets 56000 and INR 1.69 with a maximum MELD score of 30, but a transplant specialist consult excluded the need for urgent liver transplant. After one month he was discharged and the follow up continued as an outpatient. His liver function exams showed a slow but progressive improvement (see images)until the complete normalization at the 5months-follow up visit: GOT/GPT 32/30 UL, total bilirubin 0.85 mg/dl, INR 1.09, PLT 99000, negative HBsAg, HBV-DNA (< 20 UI/ml), HBsAb 6.56 mIU/ml.
Discussion and conclusions: The screening for HBV serological status is mandatory for all patients that undergo to immunosuppressive therapy and in some cases the antiviral prophylaxis is recommended. In our case the risk of reactivation of HBV infection at the screening time was high and our patient received the prophylaxis for > 12 months after the discontinuation of the chemotherapy. However the choice of the appropriate type of the prophylaxis and the timing of its discontinuation should be evaluated according to the reactivation risk stratification (at least 18 months after discontinuation of rituximab-based regimens).
Presumably the reactivation of HBV in our patient was triggered by the high dose corticosteroids treatment for SARS-CoV2 infection even if with his serological status and this kind of therapy should be considered at low risk (<1%).
EASL 2017 Clinical Practice Guidelines
Lau G APASL clinical practice guideline 2021
Shih CA Prevention of hepatitis B reactivation 2021 Jul
(Figure)

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_458.png

Viral hepatitis

P 214 NATURAL HISTORY AND MANAGEMENT PEDIATRIC HCV: 25 YEARS EXPERIENCE OF NORTH ITALIAN CENTER

F. Musto[1], M. Stracuzzi[1], V. Rubinacci[1], E. Crivellaro[1], C. Porro[1], A. Cibarelli[1], E. Ghidoni[1], G.V. Zuccotti[2,3], V. Giacomet[1]

[1]Department of Pediatrc Infectious Disease, Luigi Sacco Hospital, Universitt of Milan, Italy, [2]Department of Pediatrics, Vittore Buzzi Children's Hospital, University of Milan, Milan, Italy, [3]Department of Biomedical and Clinical Science, University of Milan, Milan, Italy

Hepatitis C Virus (HCV) infection natural history and management in Paediatric population are still debated. We retrospectively evaluated the outcome of a HCV pediatric population managed at the Pediatric Infectious Disease Unit of Luigi Sacco Hospital (Milan,Italy) from January 1997 to January 2022 (median follow-up 10 yrs) and we focused on the role of new drugs and transient elastography (TE). Fiftyseven patients were enrolled: 8 (14%) had a spontaneous clearance, 33 were treated (58 %), 7 (12%) were not treated because they were under 12 years old and 9 were lost at follow-up. HCV RNA was undetectable in all treated patients at the end of therapy, after 12 weeks (SVR12) and for the rest of their follow-up. All patients treated underwent elastography before and one year after therapy. Median stiffness pre-therapy was 5.6 kPa, and 9 patients (16%) had abnormal TE (> 7 kPa, median 8.7 kPa). Median stiffness after treatment in the abnormal group was 6.8 KPa. DAAs is a safe and effective therapy for HCV chronic infection in Paediatric population. Liver elastography is normal in the majority of vertically infected children before 12 years, but, when abnormal, it shows a significant improvement after DAAs treatment. Further studies are needed to evaluate the role of elastography at diagnosis and follow-up in children.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_478.png

Virology and pharmacology

P 215 OPTIMIZATION OF HIV-1 NEXT GENERATION SEQUENCING GENOTYPING DRUG RESISTANCE TESTING METHODS FROM BOTH RNA AND DNA ON ION GENESTUDIO S5 PRIME SYSTEM

L. Fabeni[1], F. Smoquina[1], F. Forbici[1], G. Berno[1], M. Rueca[1], G. Sberna[1], R. Gagliardini[2], V. Mazzotta[2], A. Vergori[2], I. Abbate[1], G. Rozera[1], A. Antinori[2], F. Maggi[1]

[1]Laboratory of Virology, National Institute for Infectious Diseases Lazzaro Spallanzani - IRCCS, Rome, Italy, [2]Clinical and Research Infectious Diseases Department, National Institute for Infectious Diseases Lazzaro Spallanzani - IRCCS, Rome, Italy

Background: Genotyping drug resistance testing methods for HIV-1 are continually evolving, as exemplified by Next Generation Sequencing (NGS) technology, which is gradually replacing Sanger sequencing (SS) in clinical diagnostics. A comparison between SS and NGS was performed, considering both DNA and RNA samples from naïve or experienced people living with HIV-1 (PWH).
Material and methods: 71 samples from PWH were selected based on viral loads (VL) [median (IQR) 4.7(3.5-6.1) log10 cp/mL] for NGS sequencing with the Ion GeneStudio S5 prime System by AmpliSeq (AmS) primers pool (Thermo Fisher), generating a total of 17 overlapping amplicons (from PR to INT). 20 additional samples were sequenced using the Ion Plus Fragment Library Kit (Thermo Fisher) starting from PR/RT (N=20) and INT (N=5) in-house amplicons. 71 samples were plasma RNA, and 20 were proviral DNA (prvDNA). Mutations were compared with those obtained with SS for samples with positive NGS PR/RT/INT sequencing. Sequences were interpreted by Stanford HIV-db. NGS minority variants (MV) were classified with a 5-20% frequency. Phylogeny was performed to determine viral subtypes and evaluate the proper clustering of the SS and NGS sequences from the same subject.
Results: By phylogeny, non-B subtypes were 51.1%. Overall, 86/91 samples (94.5%) had coverage ≥100x for PR/RT, 74/76 (97.4%) for INT, and 71/76 (93.4%) for the entire pol gene in the resistance-associated mutations (RAMs)/natural polymorphisms (NPs) positions. AmS failed PR/RT/INT sequencing in 2 RNA samples and only PR in 3 samples (1 prvDNA). SS was available for 60 samples with complete PR/RT/INT sequencing; at the 20% threshold, there were 257 RAMs/NPs. As expected, the majority (93.0%) were detected in both SS and NGS. A small proportion (2.3%) of mutations were present only in SS, whereas 4.7% were present only in NGS. Decreasing the threshold to ≥5%, 287 RAMs/NPs were identified (Table1). At this threshold, no MV to PI was detected, whereas additional RAMs (RNA) to NRTI (M41I, 6.5%, D67E, 5.3% of frequency) and INSTI (E138K, 11.0%, G140A, 5.6%, 7.0%, 11.0%) in different naïve individuals were identified. Other RAMs to NRTI/NNRTI (RNA: V75M, 19.0%, L100I, 11.0%; prvDNA: K101P, 15.0%, K103N, 11.0%) and INSTI (RNA: G140A, 6.6%, 16.0%, G163R, 17.0%; pvDNA: G140S, 16.0%) were also detected in experienced individuals. Of note, some samples with failed SS were successfully sequenced with NGS. NGS failed for samples with low VL, except for 2 samples, where SS also failed.
Conclusions: Overall, our results show that NGS by Ion Torrent S5 assays performance was comparable to SS, both using RNA and prvDNA at several VL. As expected, NGS detected MV setting the threshold to ≥5% which could not be detected by SS. That can improve treatment selection and clinical outcomes. However, the real weight of these MVs has yet to be determined, as is the case with implementing studies with a larger sample size.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_89.JPG

Virology and pharmacology

P 216 EVALUATION OF BROAD-SPECTRUM PIPERAZINE-BASED COMPOUNDS ABLE TO INHIBIT FLAVIVIRUS AND/OR SARS-COV-2 REPLICATION IN A LIVE VIRUS ASSAY

C. Biba[1], I. Varasi[1], P.A. Cavallaro[2], F. Giammarino[1], N. Bartolini[1], J.M. Vega-Pérez[3], F. Iglesias-Guerra[3], A. Leggio[2], M. Vega-Holm[3], I. Vicenti[1]

[1]Department of Medical Biotechnologies, UOC Microbiology and Virology, University of Siena, Siena University Hospital, Siena, Italy, [2]Department of Pharmacy, Health and Nutritional Sciences, University of Calabria, Arcavacata di Rende (CS), Italy, [3]Department of Organic and Medicinal Chemistry, Faculty of Pharmacy, University of Seville, Seville, Spain

Background: Despite intensive work, no specific antiviral therapy is available for Zika or Dengue flaviviruses (ZIKV, DENV) and only 2 drugs (Nirmatrelvir, NRM and Remdesivir) are available against SARS-CoV-2. The aim of this work was to evaluate the in vitro activity of a set of newly synthesized compounds (CMPs) against ZIKV, DENV and SARS-CoV-2.

Materials and Methods: CMPs were designed with a piperazine ring as central core, using a privileged structure-based approach for the functionalization of both nitrogens. Two families of piperazine-derived small molecules were designed with 2-phenyl piperazine (1°family, 1-29) or unsubstituted piperazine (2°family, 30-51). CMPs were tested in a live virus cell-based assay to determine their antiviral activity. Once assessed the 50% cytotoxic drug concentration (CC50), lung A549 ACE-2 TMPRSS-2 (A549-AT) and hepatoma Huh7 human cell lines were treated with non-toxic doses of each CMP and challenged with SARS-CoV-2 (A549-AT) and ZIKV/DENV (Huh7) viral stocks at 0.001 MOI. Each experiment was performed in 2 independent runs including a mock control, a virus control and 2 reference CMPs (NRM for SARS-CoV-2 and sofosbuvir, SOF for flaviviruses). The inhibitory activity of each CMP was determined by measuring the expression of SARS-CoV-2 nucleocapsid and ZIKV/DENV envelope by immunodetection. Results were expressed as half-maximal inhibitory concentration (IC50) using a non-linear fit normalization curve. Selectivity index (SI) was defined as the ratio between CC50 and IC50.

Results: The median CC50 of the 1°family was 61.5 [22.7-200.0] µM in Huh7 and 138 [36.5-200.0] µM in A549-AT (Table 1). The 2° family showed a median CC50 of 400.0 [112.9-400.0] µM in Huh7 and 129.9 [89.4-400.0] in A549-AT. CMPs 24 and 26 were active only against ZIKV in the low micromolar range (IC50 2.5±1.4 and 9.6± 4 µM; SI 80.0 and 2.5 respectively). CMP 50 showed broad activity against ZIKV (IC50 2.7±0.7 µM; SI =148.1) and SARS-CoV-2 (IC50 22.5±1.5 µM, SI= 7.6); nine CMPs were active against ZIKV (IC50 13.2 [3.2-43.7] µM, SI 11.8 [9.2-127]) and four of them (35, 39, 41 and 42) were active also against DENV (IC50 29.3±14.3 µM; SI 36.8±24.0). Globally, compounds with an IC50 <15 µM progressed to enzymatic assay and docking studies to establish the interactions with the active site of the enzyme.

Conclusions: CMP 50 displayed broad-spectrum activity vs. SARS-CoV-2 and ZIKV. Despite the anti-ZIKV activity of CMP 50 was higher than SOF, its anti-SARS-CoV-2 activity was 500-fold lower than NRM. However, its low molecular complexity will allow further structure-based optimization. CMPs 41, 42 and 49 inhibited ZIKV with IC50<5 µM displaying similar profile with respect to SOF. Of them, 42 showed higher SI than SOF both for ZIKV and DENV. Considering the lack of options for the treatment of ZIKV and DENV infections, these piperazine based compounds are promising for the development of a new class of pan Flavivirus agents.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_97.png

Virology and pharmacology

P 217 IDIOSYNCRATIC DRUG LIVER INJURY DURING LONG-ACTING HIV TREATMENT: A CASE REPORT

L. Lundgren[1], G. Giannetta[1], L. Albertini[1], M. Pieruzzi[1], F. Bai[1], E. Suardi[1], D. Cattaneo[2], A. De Bona[1], C. Tincati[1], T. Bini[1], G.C. Marchetti[1]

[1]Clinic of Infectious Diseases, San Paolo Hospital, ASST Santi Paolo e Carlo, Department of Health Sciences, University of Milan - Milan (Italy), [2]Department of Infectious Diseases, Luigi Sacco Hospital, ASST Fatebenefratelli Sacco, University of Milan – Milan (Italy)

Background: Transaminase elevation is a recognized, yet usually transient and rare adverse effect of long-acting injectable antiretroviral therapy (ART) drugs like cabotegravir and rilpivirine in people living with HIV (PLWH). We report a case of hepatopathy in a patient transitioning to long-acting injectable (LAI) ART and subsequently returning to oral therapy due to liver toxicity.

Case Presentation: We describe a 68-year-old man diagnosed with HIV since 2015, with a nadir CD4 count of 122 cells/mm³ and peak HIV-RNA of 302174 cp/mL (CDC stage A3). Virologically suppressed for years, he had been on combination ART since diagnosis with 3TC/DTG since 2019.

In May '23, he switched to LAI with intramuscular cabotegravir 600 mg/3mL and rilpivirine 900mg/3mL and received no oral bridging. The patient weighed 59 kg and was 170 cm tall (BMI 20.4 kg/m²). He received the second injection after 21 days due to personal reasons, but was still within the suggested time window of injection. Rilpivirine therapeutic drug monitoring (TDM) showed a trough concentration of 93 ng/mL (target >48 ng/mL) after the first injection. TDM for cabotegravir was not performed. The third and fourth injections followed at 8-week intervals. Asymptomatic transaminase elevation (AST 279 U/L, ALT 578 U/L) with stable immunovirological parameters occurred at the fourth injection. Repeated tests after 2 weeks confirmed elevated transaminases, prompting follow-up with supportive therapy and investigations. Rilpivirine TDM was rechecked, resulting in 107 ng/mL. Transaminases gradually decreased. Figure 1 shows AST and ALT levels, rilpivirine concentration, and dates of cabotegravir and rilpivirine injections.

Hepatic stasis indices and bilirubin were always within normal limits. The patient was vaccinated against HAV and HBV while HCV antibodies were negative. Serologies for T. pallidum, HEV, and Parvovirus B19 were negative, with negative HCV-RNA and CMV-DNA, and irrelevant EBV-DNA (42 cp/mL). Liver ultrasound was normal. Autoimmune disease investigations yielded inconclusive results.

In November '23, following a rapid decrease in transaminase levels, we proposed to continue LAI with a fifth dose, but the patient preferred to revert to oral 3TC/DTG regimen.

Discussion: This case highlights the importance of monitoring hepatic function during the transition to LAI. Rilpivirine TDM may be useful in assessing drug toxicity, but the lack of a universal reference range, particularly in the upper range, hinders dose adjustment in singular cases. Additionally, the patient received the second loading dose three weeks after the first, which, although clinically feasible, may have contributed to drug accumulation.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_103.jpg

Virology and pharmacology

P 218 COMPARATIVE EVALUATION OF 5 RT-PCR KITS FOR DENGUE VIRUS DETECTION

C. Fraccalvieri[1], M. Lucente[1], G. Garzillo[2], N. Nigro[1], B. Galano[1], G. Guarona[2], M. Ferraris[1], I. Giberti[2], B. Bruzzone[1], A. Domnich[1]

[1]Hygiene Unit, Policlinico San Martino Hospital, Genoa, Italy, [2]Department of Health Sciences, University of Genoa, Genoa, Italy

Background: Dengue is an arthropod-borne disease caused by an RNA flavivirus, of which 4 serotypes are known. The progressive increase in the number of cases worldwide has highlighted the need for rapid and accurate diagnosis of the infection, achievable by both serological and molecular tests. This study compared the diagnostic performance of 5 commercial RT-PCR kits for the detection of the virus in blood samples.

Material and Methods: During 2023, 25 plasma samples from individuals with symptoms consistent with dengue virus infection(DENV) were analysed in the regional reference Hygiene laboratory of the IRCCS S. Martino Hospital, Genoa.

Extraction was performed by the automated ELITe InGenius® (ELITechGroup Empowering IVD) platform. Altona, Clonit, Bio, Seegene and M10 commercial kits were used for amplification (Table 1). The turnaround time (TAT) is 1 hour for M10, almost 3 hours for the others. While the Altona kit only detects DENV, the other kits are multiplex RT-PCR's that identify different arboviruses.

Relative diagnostic accuracy was quantified by means of overall, positive (PPA) and negative (NPA) percent agreements with 95% confidence intervals (CIs). This analysis was performed overall and by serotype. A generalized linear mixed model was applied to investigate the association between the assay and Ct values. Assay-specific Ct means were separated with post-hoc Tukey contrasts. All analyses were performed in R stats packages v. 4.1.0 (R Core Team, Vienna, Austria).

Results: The 25 samples were tested in the 4 RT-PCR assays: 15/25 samples were positive to the DENV: 7, 2, 4 and 2/15 belonged to serotype 1, 2, 3 and 4, respectively. In the M10 assay, only 24 samples could be tested (1 was < 600 µl).

As shown in Table 2, the Seegene, Clonit and Altona RT-PCR kits showed a perfect 100% PPA. Conversely, the Bio kit performed worse with a PPA of 84.0%. The 4 false negative samples had relatively low viral loads (Ct values of 33–39 in other 3 RT-PCR assays) and belonged to serotypes 1 (N=1), 2 (N=2) and 3 (N=1). Indeed, when analyzed by serotype, the PPA of the Bio kit was 85.7%, 0%, 75.0% and 100% for serotypes 1, 2, 3 and 4, respectively. The M10 did not identify only 1 serotype 2 positive sample that had Ct values of 33–39 in the Seegene, Clonit and Altona assays. NPA was perfect for all assays tested (Table 2).

Distribution of Ct values provided by the 5 assays differed significantly ($P < 0.001$)(Figure 1 and Table S1).

Finally, when 8 serial half-log dilutions (5 replicates for each dilution) of a serotype 1 isolate were tested in the 5 assays, the Altona kit was deemed the most sensitive, while the Bio assay was the least sensitive(Table 3).

Conclusions: The results show that these tests can be useful tools for the laboratory diagnosis of dengue and generally showed good diagnostic performance combined with short TAT. In addition, the sensitivity of the multiplex assays was found to be almost equivalent to that of the single plex test.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_112.jpeg

Virology and pharmacology

P 219 SUCCESS RATE OF HIV DNA SANGER SEQUENCING IN PBMC AND WHOLE BLOOD SAMPLES

T. Allice, F. Cerutti, M.G. Milia, G. Gregori, E. Burdino, S. Monteleone, A. Bottoni, B. Simoncelli, E. Scuccimarra, V. Ghisetti

Laboratory of Microbiology and Virology, ASL Città di Torino, Italy

Background: The new Long-acting injectable dual therapy (cabotegravir + rilpivirine) has been shown to improve quality of life and/or adherence in virologically controlled patients already undergoing antiretroviral therapy (ART). However, several risk factors of virological failure upon switching to this treatment have been identified, including HIV subtype and resistance mutations to cabotegravir and/or rilpivirine detected in either HIV RNA or DNA. When HIV subtype and genotypic history is missing or incomplete, HIV DNA sequencing should be performed. HIV DNA sequencing is now routinely used for HIV-infected individuals on ART with or without genotypic history. Successful amplification of HIV pol gene (Protease, reverse transcriptase and integrase) has not yet correlated with HIV DNA levels. Since plasma HIV RNA predicts the success of HIV sequencing, it can be assumed that HIV DNA load in blood cells is likewise associated with HIV DNA sequencing success.

Aim of this work was i) to analyze the performances of HIV proviral Sanger sequencing in two different matrices: peripheral blood mononuclear cell (PBMC) and whole blood (WB); ii) to assess the relationship between HIV DNA viral load and HIV DNA sequencing results.

Materials and Methods: We analyzed 451 HIV DNA sequences derived from 399 persons living with HIV-1. We tested 358 HIV-DNA sequences starting from WB samples and 93 sequences from PBMC samples. Sanger HIV-DNA sequencing was performed using a home-made method. Protease (PR), reverse transcriptase (RT) and integrase (INT) genes were amplified using a nested PCR and sequenced using two sets of specific primers.

In 124 samples (from 124 persons living with HIV) we quantified total HIV-DNA with the HIV-1 DNA Test PRO (Diatheva) processed in automation with Elite InGenius platform (Elitech).

Results: The success rates of HIV DNA Sanger sequencing in the 358 WB samples were 66%, 66%, and 67% for PR, RT and INT amplicons, respectively. In the 93 PBMC samples, the sequencing success rates were 95%, 94% and 82% for PR, RT and INT genes, respectively.

Total HIV-1 DNA was detected in 124/124 samples and HIV-DNA levels were compared with success rate of HIV-DNA sequencing: mean levels of HIV-DNA were 510 and 573 copies/10^7 cells for HIV-DNA successfully sequenced and failed, respectively. Between the two groups, no statistically significant difference was observed (T test, p=0.38).

Conclusions: Our results showed that success rate of HIV DNA sequencing is higher with PBMC as starting material. No correlation between HIV-DNA quantity and HIV DNA Sanger sequencing success was observed.

Virology and pharmacology

P 220 EFFECTS OF DTG IN CARDIOVASCULAR SYSTEM DEVELOPMENT IN A MODEL OF ZEBRAFISH EMBRYO

S. Ferretti[1], C. Colangelo[2], D. Zizioli[1], I. Zanella[1,3], M. Alberti[2], F. Castelli[2], E. Quiros-Roldan[2]

[1]Department of Molecular and Translational Medicine, University of Brescia, Brescia, Italy, [2]Department of Clinical and Experimental Sciences, Unit of Infectious and Tropical Diseases, University of Brescia and ASST Spedali Civili di Brescia, Brescia, Italy, [3]Cytogenetics and Molecular Genetics Laboratory, Diagnostic Department, ASST Spedali Civili di Brescia, Brescia, Italy

Background: Dolutegravir (DTG), is one of the most prescribed antiretroviral drugs around the world for treating people that live with HIV infection, due to its efficacy, safety and low resistance but it was recently associated with a higher risk of hypertension and cardiovascular events. Notwithstanding, data on associations between INSTIs and specific cardiovascular outcomes are convoluted, and this question remains unsolved.
The aim of our study was to characterize the effect of DTG on heart development and angiogenesis, a very important process during the embryogenesis, by using zebrafish embryos, a vertebrate animal model widely accepted for in vivo assessment of chemical and drug toxicity and for developmental studies.
Material and methods: Wild-type zebrafish embryos were exposed to DTG doses in the range 1-20 μM from gastrula stage (4 hours post fertilization, hpf) up to 144 hpf. We established the dose-curve response in order to find optimal concentration for the next experiments, which was 1 μM (subtherapeutic dose). Angiogenesis and heart morphology were analyzed by Whole Mount In situ hybridization (WISH) with specific probes for genes that are crucial in vascular development, by a phosphatase assay and by using transgenic zebrafish lines.
Results: Pericardial edema and/or hemorrhage were evident in AB wild-type DTG-treated embryos at 48 hpf. Using the transgenic zebrafish line tg(bmp:EGFP), at 72 hpf we observed morphological malformations in the developing heart with a slight bradycardia (Figure 1A-B). At 30 hpf, the expression of fundamental genes in angiogenesis (fli1 and Ve-Cadherin) was reduced in embryos exposed to DTG (Figure 1C). The generation of the sub-intestinal venous plexus (SIVP) was also reduced at 72 hpf in DTG-treated embryos. Moreover, using the transgenic lines tg(fli1: EGFP) and tg(kdr:EGFP), we observed an impaired formation of the intersegmental vessels (ISVs) and the caudal venous plexus (CVP). In these experiments, most abnormalities were rescued by folic acid supplementation.
Conclusions: Our results in zebrafish embryos suggest that DTG may interfere with vessels and heart development and that folic acid may rescue these alterations. Further studies are however needed to understand the molecular mechanisms underlying these findings.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_172.jpg

Virology and pharmacology

P 221 HIV-DNA QUANTIFICATION AS PREDICTION OF GRT SUCCESS IN HIV-DNA NGS

F. Stefanelli[1], N. Randazzo[1], M. Lucente[1], C. Fraccalieri[1], S. Varesano[1], A. Domnich[1], L. Mezzogori[2], C. Bartalucci[2], S. Blanchi, A. Di Biagio[2,3], B. Bruzzone[1]

[1]Hygiene Unit, IRCCS Policlinico San Martino Hospital, Genoa, Italy, [2]Department of Specialist Medicine, Infectious Disease Clinic, IRCCS Policlinico San Martino Hospital, Genoa, Italy, [3]Department of Health Sciences (DISSAL), University of Genoa, Genoa, Italy

Background: Total HIV-DNA, including stable integrated proviruses and unintegrated (extrachromosomal and linear) forms, represents the viral reservoir of HIV. It is widely considered as one of the most important markers of persistence of HIV inside infected cells, reflecting the history of infection, and its quantification, besides being linked to both progression to AIDS and response to treatment, could also predict the feasibility of genotypic testing. Resistance associated mutations (RAMs) detection in proviral DNA has been increasingly used in people living with HIV (PLWH) with undetectable virus and without a historical genotype when a treatment switch is desirable. In this study a correlation between HIV-DNA levels and success of Next Generation Sequencing Genotype Resistance Testing (NGS-GRT) on HIV-DNA has been evaluated.

Materials and methods: Viral DNA was extracted from frozen blood samples with ELITe InGenius® cartridge SP1000. Library for NGS was prepared using the commercial kit AD4SEQ HIV-1 Solution v2 (Arrow Diagnostics). Coverage analysis of FastQ files, obtained on iSeq100 sequencer (Illumina), was carried out by means of SmartVir (SmartSeq S.r.l.) software and HIV Drug Resistance Database (Stanford University). HIV-DNA was quantified with HIV-1 DNA Test Pro (Diatheva) adapted on ELITe InGenius® device. Linear regression was used as statistical method, minimizing the Akaike's information criterion.

Results: For this study, 26 samples were processed. The demographic and clinical characteristics are summarized in Table 1. Inclusion criteria were undetected or inferior to detection limit HIV-RNA. The median detected HIV-DNA was 192 [IQR: 105 – 374] DNA cp/10^6 cells, the overall mean sequencing coverage for Protease (PR), Retro transcriptase (RT) and Integrase (INT) was 87.76 %, 80.48%, and 75.16% respectively, with a 76% of GRT success. In samples with at least 100 copies of HIV-DNA/10^6 cells, coverage data increased to 99.6%, 91.7% and 81.3%, with GRT success rate of 94.7%. Samples stratifications per HIV-DNA quantification are shown in Figures 1 and 2. The association between mean PR/RT/INT coverage and independent variables is shown in Table 2. Data suggest expected positive correlation between overall coverage, HIV-DNA content and CD4+ cells count nadir. In particular, the INT coverage strongly correlates with previous virologic failures, whereas a negative correlation was found between INT coverage and suppression duration.

Conclusions: As the NGS technique is relatively new and complex, predicting GRT success by knowing the HIV-DNA content could be particularly useful to save costs and time. In order to do so, a lot of variables should be taken into considerations. The simplest correlation between HIV-DNA and GRT success suggests that samples with less than 100 copies of HIV-DNA/10^6 cells should be not tested with this method, or at least, previously enriched to increase NGS positive outcome.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_200.png

Virology and pharmacology

P 222 ERDOSTEINE INHIBITS VIRAL INFECTION AND MODULATES INNATE IMMUNITY AND STRESS OXIDATIVE STATE IN RSV-INFECTED A549 CELLS

S. Strizzi[1], F. Danzo[2], C. Vanetti[1], M. Biasin[1], D. Radovanovic[2], P. Santus[2], D. Trabattoni[1]

[1]Department of Biomedical and Clinical Sciences, Università degli Studi di Milano, Milan, Italy, [2]Department of Biomedical and Clinical Sciences, Università degli Studi di Milano, Division of Respiratory Diseses, University Hospital "L. Sacco", Milan, Italy

Background: Glutathione (GSH) depletion characterizes several viral infections and various molecules have been suggested to restore GSH levels1. Erdosteine (ERD) seems to be useful in treating patients with these infections such as respiratory syncytial virus (RSV)2.
Aims: The main objective was to evaluate effects of ERD in RSV in vitro infection. Then we investigated the RSV-infected cell transcriptome to speculate on molecular pathways involved in ERD antiviral mechanism. We focused on the innate immune pathways of type 1 Interferon (IFN). Glutathione pathway was analysed to understand the impact on oxidative stress, as well.
Methods: Viral infection assay on A549 cell line has been set up adding ERD at 100mg/mL and 1000mg/mL after infection with hRSV A2001/3-12 at concentration of 1.26 TCID50/µL. Viral replication in culture supernatant was assessed by qPCR at 48h post-infection (hpi) by means of two specific primers targeting RSV sequences (N, NS1). At 72hpi innate immune response signaling and oxidative stress pathway were analyzed using RT-PCR custom-array with a set of 60 optimized primer assays.
Results: Post-treatment with ERD 1000µg/mL resulted in a statistically significant antiviral effect (p= 0.002) against RSV. Infected cells treated with ERD displayed an overexpression of innate immunity (IFITM1, IFITM3) and oxidative stress (GPX2) components. Interestingly, a decrease in expression level of CASP1, CASP4, CCL2, CXCL2, DDX58, ICAM1, IFNAR1, IL1B, IL8, IL6, ISG20, NFKB1, AHR, GPX3, and SOD2 was observed.
Conclusions: ERD modulates several molecular pathways involved in induction of anti-viral state. This is associated with upregulation of some ISGs and reduction of pro-inflammatory cytokines. Our data suggest the possibility of using ERD as adjuvant in respiratory viral infections.

Virology and pharmacology

P 223 COMPARISON OF SANGER SEQUENCING AND AMPLICON-BASED NGS APPROACHES FOR THE DETECTION OF HIV-1 DRUG RESISTANCE MUTATIONS

L. Fiaschi, C. Biba, I. Varasi, N. Bartolini, C. Paletti, I. Vicenti, F. Saladini, M. Zazzi

Department of Medical Biotechnologies, University of Siena, Siena, Italy

Background: The availability of commercial next-generation sequencing (NGS) kits will probably lead to the replacement of Sanger sequencing for HIV-1 genotypic drug resistance testing in the next few years. In this study we compared the ability of detecting drug resistance mutations through Sanger sequencing with two PCR amplicon-based NGS approaches, one using home-made amplicons and one based on the commercial CE IVD “HIV-1 solution v2” kit developed by Arrow Diagnostic.

Material and methods: We selected plasma samples with at least one resistance mutation as determined by routine genotypic testing through Sanger sequencing on PCR amplicons including PR, RT (aminoacids 1-400) and IN coding regions. The same PCR amplicons were used for tagmentation, indexing and library preparation through the Illumina DNA Prep kit (Illumina) for the home-made NGS approach. Viral RNA of the same samples was amplified through the “HIV-1 solution v2” kit which consists of a multiplex PCR generating 400 bp indexed fragments ready for library preparation. Both NGS libraries were loaded on Nano 2x250 bp v2 flowcells and run on a MiSeq platform (Illumina). FASTA files from Sanger sequencing were analyzed through the HIVdb Program v9.6 (HIVdb Stanford), while FASTQ files from NGS were analyzed through the HIVdb-NGS (beta) program (HIVdb Stanford) using ≥100 as minimum read depth and 5% as mutation detection threshold. Viral subtype on consensus sequences for each sample was determined through the COMET HIV-1 tool.

Results: We analyzed Sanger and NGS data obtained from 21 plasma samples with a median viral load of 4.8 log [4.4-5.2] HIV-1 RNA copies/mL. Subtype B was identified in 15 (71.4%) cases and CRF02_AG in 4 (19%). Comparable median read depth was obtained through home-made NGS and “HIV-1 Solution v2” kit (2445 [IQR 1949 -8548] reads vs. 4964 [2694-7899] reads, respectively, p=0.306, Mann-Whitney test). Regions with coverage depth <100 reads were detected in 12/21 and 1/21 with HIV-1 Solution v2 kit and home-made NGS sequences, respectively, occurring in 5 B and 7 non-B subtypes, mainly affecting codons 14-49 and 260-319 of RT, codons 1-75 and 201-288 of IN. As compared to Sanger sequencing, NGS based methods globally identified additional mutations in 10/21 (47,6%) cases, with agreement between methods in 6 cases. Newly identified resistance mutations have a frequency <20% in all but two cases and determined a different prediction of drug susceptibility in 6/21 (28.6%) with respect to Sanger sequencing data. Predicted drug susceptibility agreed among NGS based methods in 15/21 (71.4%) cases.

Conclusions: NGS based systems showed fair agreement for the detection of additional resistance mutations not identified through Sanger sequencing. However, the sensitivity of detection of minority mutations may be affected by low coverage issues frequently observed with the “HIV-1 Solution v2” kit.

Virology and pharmacology

P 224 DEPTH COVERAGE AND HIV-1 VARIABILITY NEGATIVELY AFFECT THE PERFORMANCE OF THE "HIV-1 SOLUTION V2" NGS SEQUENCING KIT FOR DRUG RESISTANCE MONITORING

F. Saladini[1], G. Marchegiani[2], V. Galli[3], M. Vatteroni[4], D. Spalletta[2], I. Giovannelli[3], C. Carone[3], R. Corsini[5], L. Fiaschi[1], C. Biba[1], I. Vicenti[1], A. Bezenchek[6], D. Armenia[7], M. Zazzi[1], M. Santoro[2], on behalf of the NGS Network

[1]Department of Medical Biotechnologies, University of Siena, Siena, Italy, [2]Department of Experimental Medicine, University of Rome "Tor Vergata", Rome, Italy, [3]Clinical Immunology, Allergy and Advanced Biotechnologies Unit, AUSL - IRCCS Reggio Emilia, Reggio Emilia, Italy, [4]Virology Unit, AOU Pisana, Pisa, Italy, [5]Infectious Diseases Unit, AUSL - IRCCS Reggio Emilia, Reggio Emilia, Italy, [6]IPRO-InformaPRO S.r.l., Rome, Italy, EuResist Network GEIE, Rome, Italy, [7]UniCamillus, Saint Camillus International University of Health Sciences, Rome, Italy

Background: "HIV-1 solution v2" (Arrow Diagnostics) kit is an IVD certified next-generation sequencing (NGS) system that has recently become available for routine HIV-1 drug resistance genotyping. A previous study has shown that this system can reliably identify resistance mutations with frequency >10%, although suboptimal sequence coverage can compromise the sensitivity (Armenia et al., ICAR 2023). This study aims to investigate the prevalence and the factors contributing to reduced sequence coverage by analyzing NGS data obtained from different Italian laboratories.

Materials and Methods: Routine NGS data from viral RNA generated through the "HIV-1 Solution v2" kit (Arrow Diagnostics) and Illumina MiSeq or iSeq100 platforms were collected with the relative viral load from four Italian laboratories. For the MiSeq instrument, fastQs were considered acceptable if the cluster density of the relative run was >600 and >800 K/mm^2 when using Nano and Standard 2x250 bp v2 reagents, respectively. Median read depth and sequence coverage were analyzed through the HIVdb-NGS (beta) program (HIVdb Stanford) using ≥100 minimum read depth, while viral subtype on consensus sequences for each sample was determined through the COMET HIV-1 tool.

Results: We collected 343 fastQs, 302 (88%) and 41 (12%) were generated through the MiSeq and iSeq100 platforms, respectively, while 216 and 86 were obtained using Standard and Nano reagent kits for MiSeq, respectively. Subtype B was identified in 199 cases (58%), while the most prevalent non-B subtypes were CRF02_AG (n=43, 12.5%), C (n=18, 5.0%) and F1 (n=17, 5.0%). Higher median read depth was obtained with iSeq100 platform (21684 [IQR 10932-39250] vs. 10241 [5370-15705] with MiSeq, p<0.0001, Mann-Whitney test) and with Standard (11449 [6223-18616] vs. 7554 [4397-10709] with Nano reagent kit, p<0.0001, Mann-Whitney test). Globally, low coverage issues were detected in 101 (29.4%) sequences, mostly affecting coding regions within reverse transcriptase than integrase and protease (68, 52 and 13 cases, respectively). Low coverage issues were mostly associated with non-B subtypes (55/145 cases [37.9%] vs. 46/199 [23.1%] in subtype B) and with MiSeq instrument (94/302 cases [31.1%] vs. 6/41 [14.6%] with iSeq100), while no difference was observed when considering Nano vs. Standard reagent kit. After correcting for viral load and the type of instrument, non-B subtype and median read depth were identified as independent predictors of low coverage by multivariate analysis (p=0.012 and p<0.0001, respectively).

Conclusions: This analysis on real life settings suggests that HIV-1 variability and depth of sequence coverage can affect the performance of the "HIV-1 solution v2" kit, confirming previous findings. Further upgrades of this sequencing kit are needed to improve the sequence coverage of non-B subtypes and the read depth among different sequencing platforms.

Virology and pharmacology

P 225 CASE REPORT ON THE EFFECT OF ANTIRETROVIRAL TREATMENT ON A YOUNG MAN WITH UNCERTAIN HIV DIAGNOSIS, IMMUNE DYSFUNCTION AND HIGH EXPRESSION OF HERVS

C. Matteucci[1], A. Minutolo[1], R. Scutari[1,2], L. Benedetti[3], V. Petrone[1], C. Cipriani[1], M. Zazzi[4], G. Marchetti[5], S. Grelli[1,6], E. Talassi[7], S. Casari[8], E. Balestrieri[1], F. Ceccherini-Silberstein[1]

[1]Department of Experimental Medicine, University of Rome Tor Vergata, Italy, [2]Multimodal Laboratory Research Unit, Bambino Gesù Children's Hospital, IRCCS, Rome, Italy, [3]Department of System Medicine, Clinical Infectious Diseases, University of Rome Tor Vergata, Rome, Italy, [4]Department of Medical Biotechnologies, University of Siena, Siena, Italy, [5]Santi Paolo e Carlo, Clinic of Infectious Diseases, University of Milan, Milan, Italy, [6]Virology Unit, Policlinic of Tor Vergata, Rome, Italy, [7]Unit of Neurology, Carlo Poma Hospital, Mantova, Italy, [8]Unit of Infectious Diseases, Carlo Poma Hospital, Mantova, Italy

Background: We describe a clinical case of a 39 years old Italian man, that started to be investigated from 2012 for an uncertain HIV diagnosis, when he began to complain several clinical symptoms. Several HIV-1/-2 tests, with frequent Ab antigen test positive for one or more viral proteins, never confirmed by immunoblotting and HIV-RNA and HIV-DNA tests were carried out. The first available CD4+ count (May 2013) was 543 cells/μL (35.70%), confirmed later as 526 cells/μL and with a CD4/CD8 of 0.94. In April 2021, when he complained of generalized malaise accompanied by night sweats, asthenia and neurological and renal disorders, we carried out ultrasensitive molecular analyses, confirming negative results for HIV-1 RNA, HIV-1 DNA and HIV-2 DNA, together we observed an altered immunophenotype demonstrating a strong immune dysfunction.
Case presentation: To formulate a more defined diagnosis, we investigated the expression of human endogenous retroviruses (HERVs), ancestral exogenous retroviral infections that comprise 8% of the human genome. HERVs have been co-opted in physiological roles, but an aberrant expression has been associated to cancer, autoimmunity, neurological disorders, and it has been demonstrated to be activated by infectious agents leading to immunopathology. First results showed a high expression of HERV-K and HERV-H at transcriptional and protein level. Hence, based on the consolidated knowledge on the implication of HERVs in various pathological conditions, and evidence on restoring of HERVs expression by antiretroviral drugs, he started on May 2023 a treatment with tenofovir and emtricitabine. Here we show the evaluation of HERVs expression and immunophenotyping before (T0) and after 6 months of treatment (T1). The expression of HERVs have been evaluated by RT-real time PCR and flow cytometry, in parallel with immunophenotyping, in comparison to reference values from healthy individuals (HDs).
At T0, a high percentage of CD8+ and the inversion of the CD4/CD8 ratio was observed (see Table1), with a high percentage of CD4 and CD8 effector populations, as well as exhaustion (PD1) and senescence (CD57) markers, highlighting a T cell dysfunction. At T1, a persistence of immune dysfunction was observed with slight recover of CD4/CD8 ratio. Moreover, a high percentage of CD19+Marginal and CD19+ Switched subpopulations was observed at T0 and confirmed at T1, suggesting an ongoing antigenic activation. The ratio of CD169 expression in monocytes vs lymphocyte (CD169 RMFI) was high a T0, but found decreased at T1, with a persistence of circulating CD169 +HLA-DR+ monocytes. At T0 he showed a high expression of HERVs at mRNA and protein levels found decreased at T1.
Conclusions: The results show reduced expression of HERVs after 6 months of treatment, but the persistence of an immune dysfunction. The treatment is still ongoing, and further analysis and clinical investigation may indicate potential benefits and the long-term effects.

Attach: https://www.icar2024.it/public/abstract/Attach_ABS_462.png

16° CONGRESSO NAZIONALE

ICAR

Italian Conference on AIDS and Antiviral Research

Provider e Segreteria Organizzativa
Effetti srl
Via G.B. Giorgini, 16 - 20151 Milano
Tel. +39 02 3343281 - Fax +39 02 38002105
icar@effetti.it - @ICARcongress

Seguici su

#icar2024

Con la sponsorizzazione non condizionante di

GILEAD
Creating Possible