EUROPEAN MEETING ON
HIV & HEPATITIS 2023

TREATMENT STRATEGIES & ANTIVIRAL DRUG RESISTANCE

ABSTRACT BOOK

European Meeting on HIV & Hepatitis 2023
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Oral Presentations

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V.7.0 was used for data analyses with p<0.05 considered statistically significant.

Results: A total of 282 participants were enrolled. The mean age was 41±14 years, with male predominant (62.1%). We had 15.6% symptomatic participants of which 59% had cough. The overall median positivity duration was 15[IQR: 9-23] days with 15[IQR: 13-16] in the first, 17[IQR: 11-26] in the second and 8[IQR: 4-12] in the third wave (p= 0.007). Positivity duration was significantly higher in males (16 versus 14 days, p=0.03) and people aged >40 years (15 versus 14 days, p=0.02). Positivity duration was not affected by presence or absence of symptoms (p=0.80). No significant correlation was found with viral load (r=0.03; p=0.61). Considering baseline (24.7±7.2Ct) and last viral load (29.3±5.9 Ct), the ΔCt (4.6±1.3) and positivity duration (15 days) revealed a kinetic in viral decay of 0.3±0.087 Ct/day.

Conclusion: A median positivity duration of 15 days is in accordance with viral clearance around 2 weeks for optimal confinement at community-level. Men and/or the elderly stand at higher risk of prolonged infection. Given the viral decay (0.3 Ct daily), we suggest personalized confinement periods. The variability of positivity duration according to waves could be function of strains which could be a factor influencing positivity duration.

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Replication of Clinical Isolates of SARS-CoV-2 is Not Modified by Androgens

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Background: Expression of the transmembrane protease serine 2 (TMPRSS2), involved in SARS-CoV-2 cellular entry, is androgen-regulated. By using models of SARS-CoV-2 pseudoviruses, some groups have suggested that antiandrogens could reduce the SARS-CoV-2 entry into lung cells but these results have to be confirmed by live virus-based assays.

Material and Methods: Caco-2 cells were infected (MOI=0.25) by a wild-type (WT) or by a delta variant (B.1.617.2) clinical isolate of SARS-CoV-2 in the presence of dihydrotestosterone (DHT, 10 nM during 24h) or enzalutamide (ENZA, 10 µM), which activates or inhibits the androgen pathway, respectively. TMPRSS2 mRNA and SARS-CoV-2 RNA were extracted by the RNeasy kit (Qiagen) and the NucleoMag Pathogen kit (Macherey-Nagel), respectively, and quantified by an in-house RT-PCR technique and by the TaqPath COVID-19 RT-PCR Kit (Thermofisher), respectively.
Respiratory viral loads (VLs) were measured by RT-PCR in the nasopharyngeal swabs of adult patients as a routine practice in our institution from March 2020 to November 2022.

Results: Caco-2 cells strongly supported the viral replication of both isolates (+ 8.0 to 9.1 Ct at Day 4 post-infection). Stimulation of Caco-2 cells by DHT increased the expression of TMPRSS2. However, treatment of the cells by DHT (10 nM) or EZNA (10 µM) did not induce any significant variation in SARS-CoV-2 replication at 24h and 48h post-infection.
Moreover, mean respiratory SARS-CoV-2 VLs, obtained over more than 2 years in our institution, were not significantly higher in men (Ct=25.48) than in women (Ct=24.90).

Conclusion: Our results do not argue in favour of a biologically relevant role of androgens on SARS-CoV-2 replication.

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Mental Health of People Living With HIV During Pandemic SARS-COVID-19 in Ukraine

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Background: The spread of COVID-19 and measures related to the pandemic have a significant impact on population mental health, namely on the cognitive, emotional and volitional areas and social communication. The persons suffering from chronic

infectious diseases as well as individuals infected with HIV belong to a high-risk group. The aim of our work was to assess the impact of anxiety and depression in people with secondary immunodeficiency caused by HIV on consent to vaccination against the coronavirus disease during the COVID-19 pandemic in Ukraine.

Material and Methods: 67 individuals with a diagnosis of HIV/AIDS in "Lviv Regional Information and Analytical Center of Medical Statistics" were surveyed from December 2021 to April 2022. The average age of the respondents was 35.67±1.25 years and ranged from 18 to 68 years. All individuals are being treated with antiretroviral therapy at the time of the survey. The GAD - 7 (General Anxiety Disorder - 7) questionnaire was used to assess the level of anxiety, and the PHQ - 9 (Patient Health Questionnaire - 9) was used to diagnose the level of depression. The HIV Registry software was used for statistical processing of the results.

Results: 52.2% of individuals were diagnosed with minimal anxiety, 25.4% - mild anxiety, 14.9% - moderate anxiety, and 7.5% with severe anxiety. 53.7% of respondents denied signs of depression, 28.4% of individuals were diagnosed with mild depression, 13.4% - moderate depression, and 4.5% of individuals with moderately-severe depression. 3.0% of respondents showed a combination of moderately-severe depression with severe anxiety. Among people with severe anxiety 73.3% were aware of their HIV status within 3 years. And among people with moderately- severe and severe depression, this figure was 75%.
Regarding the data on the incidence of SARS-COVID-19, in the group of individuals with moderate and severe anxiety, the rate of laboratory-confirmed cases was 26.7%, and among individuals with moderately-severe and severe depression - 25.0%. At the time of the survey, 34.3% of people refused to be vaccinated against SARS-CoV-2. Among individuals with moderate and severe anxiety 40% of respondents refused vaccination, and among individuals with moderately-severe and severe depression - 50% of surveyed people refused to be vaccinated.

Conclusion: The mental state of persons, namely, anxiety and depressive symptoms, can significantly affect the disease acceptance by patients and information perception. This leads to rejection of preventive and therapeutic measures due to the SARS-COVID-19 pandemic in particular, the consent for vaccination, which should be taken into account by health care workers. Mental health changes caused by SARS-COVID-19 pandemic issues should be considered for medical care of people living with HIV.

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Association of the Genes Coding The Renin-Angiotensin System (RAS) Polymorphisms With the Severity of SARS Cov-2

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Background: RAS plays one of the key roles in the pathogenesis of COVID-19 life-threatening complications.
Aim of the study: to establish the association of genes encoding RAS polymorphisms with the severity of SARS Cov-2.

Material and Methods: Genotyping of 206 DNA samples isolated from the plasma of patients was carried out by real-time PCR for genes:
• ACE2 at 3 loci: rs2074192 (G/A), rs2285666 (G/A) and rs413031713 (T/C),
• type 1 receptor gene for angiotensin-II- AT1R rs5186 (A>C).
A set of reagents for DNA extraction from blood plasma by phenol extraction, reagent kits manufactured by NPO DNA-Technology LLC, Russia. Primer design was carried out using the GenBank annotated nucleotide sequence bank, using the global pairwise alignment method in the nucleotide BLAST service (http://www.ncbi.nlm.nih.gov/).
The patients have been divided into 2 study groups based on the severity of COVID-19: Group 1 - 99 patients with severe COVID-19 (age - 64.0 (54.0; 71.0) years; men - 51/ 52%, women - 48/48%); Group 2 - 107 with moderate and mild forms of the disease (age - 61.0 (57.0; 68.0) years; men - 48/45%; women - 59/55%).
Statistical processing of the results of the study was carried out using the R program (http://www.r-project.org/) for Windows using additional packages for the analysis of genetic data "SNPassoc" (version 1.9-2). The genotype frequencies were tested for compliance with the