

ents respectively. 20% of women had Depressive episode (F32). Adjustment disorders (F43) were found in 32,3% of patients. Personality disorders (F60) and mental disorders due to brain damage (F06) were found in 15,4% and 13,9% of patients respectively. Cognitive impairment was found in 43,1% of patients and was characterized by mild cognitive disorders (asymptomatic neurocognitive impairment in Antinori A. [et al.] classification). Patients with cognitive impairment were characterized by visuospatial agnosia, visuomotor memory and coordination impairment, intellectual impairment with the decline in abstraction ability.

No difference in the level of cognitive impairment between HIV-infected patients with early syphilis and HIV-infected patients with early neurosyphilis was identified. The presence of cognitive impairment was significantly associated with lower counts of CD-4 lymphocytes in the blood ($343,53 \pm 223,93$ and $506,38 \pm 221,96$; $p=0,038$; $R=-0,36$, $p=0,031$). The severity of HIV-associated neurocognitive disorders (HAND), according to the BNCE test results, was linked to the following factors: hepatitis C coinfection ($R=-0,38$, $p=0,003$), substance abuse ($R=-0,39$, $p=0,002$) and intravenous drug use ($R=-0,51$, $p<0,0001$). Correlations between HAND and brain injuries, stage of HIV infection, time elapsed after being infected and viral load in the blood were not identified. Cognitive impairment in patients without mental disorders was found significantly less frequently ($R=0,58$; $p<0,001$). HAND were associated with mental disorders due to brain damage ($R=-0,93$; $p<0,0001$), dependence on stimulants ($R=-0,69$; $p=0,014$), opiate dependence ($R=-0,48$; $p<0,001$), and dependence on alcohol ($R=-0,28$; $p=0,037$). Patients with adjustment disorders were less likely to suffer from cognitive impairment ($R=0,27$; $p=0,047$). Social adaptation of patients with HAND was often assessed as low ($R=0,47$, $p<0,001$).

Conclusions. Cognitive impairment occurs in 43% of HIV-infected patients with early syphilis; it is more common in patients with comorbid mental disorders (mental disorders due to brain damage and addictive disorders) and affects their social adaptation. Its manifestations include visuospatial agnosia, intellectual impairment and visuomotor memory and coordination impairment. Early neurosyphilis has no effect on clinical manifestations of HAND.

Developing a technology for the early diagnostics of bacterial and fungal opportunistic infections in HIV patients

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This report presents the results the study looked into 66 patients who were hospitalized in the Infectious Disease Department with diagnosed HIV-infection in stages 2B and

further. The control group comprised 33 people who were examined and divided into health groups I and II. Microorganisms were identified by means of standard methods: bacterial swab test with application of selective growth medium, as well as using sensitivity of a given isolates to oxacillin, optochin, or bilis. Serotype *Streptococcus pneumoniae* was identified and defined by way of multiplex PCR. Microorganisms were isolated from swabs taken in the throat and nose, sputum, pleural fluid and blood.

Microflora of upper respiratory airways in the main group was represented by the following isolates: fungi *Candida*; *Staphylococcus epidermidis* and *Streptococcus mitis/oralis*; *Staphylococcus aureus*, including MRSA (45% of patients); *S. pneumoniae*, *Haemophilus spp*, *Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*. The composition of fungi *Candida* was represented by 4 species: the proportion of *Candida albicans*, *Candida tropicalis*, *Candida glabrata* and *Candida krusei*. According to the PCR tests, the main serotypes are 6ABC, and representatives of serotype 10A.

In the control group, gram-positive cocci prevailed: *Staphylococcus hominis*, *Micrococcus spp*, *S. aureus*, *Staphylococcus epidermidis*. Fungi *Candida*, *Proteus mirabilis*, *K. pneumoniae* and *Acinetobacter spp*.

The fact that the mucous membranes of the upper respiratory airways are colonized by flora of bacterial in HIV-positive patients can facilitate diseases caused by these microorganisms, therefore, such patients require routine observation, prescription of ART and taking antibacterial preventive measures against opportunistic infections already at the latent stage of the disease. HIV-positive patients shall have early specialized preventive treatment for the mentioned infections (vaccination).

Skin explant model for optimization of delivery of genetic vaccines and gene-based drugs

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Background: Electroporation (EP) is one of the most efficient approaches when it comes to intradermal gene delivery. The method has been known to enhance gene delivery and subsequent in vivo expression by 100–1000 fold, and is considered as crucial technique for delivery of therapeutic genes including CRISPR gene editing. Today, there is also a definitive evidence showing increased efficacy of gene immunization as compared to classical vaccine techniques. The efficacy of this technology in large animals is secured by electroporation-mediated gene delivery. Technologies and methods for gene delivery have been rapidly developing in the past few