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### **The level of the latent presence of markers of intestinal infectious agents in HIV patients**

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**Background:** HIV infection is now the most important medical and social problem in the Russian Federation. Activation of opportunistic infections is one of the most frequent causes of death of HIV-infected patients. Intestinal infectious agents side by side with other microorganisms determine the characteristics of the course and prognosis of the disease. The latent presence of pathogens intestinal infections markers has not been studied in patients with HIV infection.

The aim is to study the frequency of detection and levels of LPS/O-antigens and of Shiga toxin in feces and in circulating immune complexes (CIC) in blood of HIV patients.

**Material/methods:** 123 HIV-infected patients with stage IV without diarrhea were surveyed in 2012-2014. The average age of patients was  $36,8 \pm 7,8$  years. The control group was 40 blood donors. We tested the paired stool samples and CIC in the qualitative coagglutination reaction (qCR) on slides for LPS/O-antigens as markers of main intestinal infections pathogens, and for Shiga toxin antigen in the semiquantitative agglutination reaction (sCR) on the plates. Specially prepared natural highly specific hyperimmune rabbit antiserum to LPS/O-antigen and Shiga toxin antigen and test systems for determination of antigens on the glass and plates were made in Federal research centre of epidemiology and Microbiology by name N. F. Gamalei. Statistical analysis was performed using conventional methods.

**Results:** For the first time it was revealed that HIV-infected patients with stage IV without diarrhea and without seeding of pathogenic enterobacteria have a high frequency of detection of LPS / O-antigens of Shigella, Salmonella, Yersinia, Campylobacter in stool samples. It was found the excess of detection rate and titers of antigen Shiga toxin in stool of patients with HIV, compared with donors, an increase of these indicators in mixed infection (in the presence of LPS / O-antigens of several pathogens in feces) ( $p \leq 0.01$ ). It has been established disturbance of production of specific antibodies

in blood to Shiga toxin in HIV infection patients with the IV stage and decrease level of specific Shiga toxin CIC.

**Conclusions:** Detection of mono- and mixed-O-antigens in the feces of patients with HIV infection indicates the presence of latent agents of intestinal infections that are undetected by bacteriological methods and do not manifest clinically as a diarrhea. In conjunction with increase in titer and frequency of Shiga toxin antigen detection testifies pronounced intestinal dysbiosis. Disturbance of production of specific antibodies to Shiga toxin in HIV infection patients with stage IV and Shiga toxin level increasing in the presence of mixed O-antigens of enteric pathogens in feces indicates "disruption" of the formation antishigatoxic immunity, which, in turn, can help sustain intoxication syndrome and reduce the effectiveness of antiretroviral therapy.