

NEUROLOGICAL CHANGES IN HIV INFECTION

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Summary: One of the target organs of HIV is the nervous system: only 1/10,000 of the peripheral blood lymphocytes of AIDS patients are infected with the virus, while in brain tissue HIV affects every hundredth cell. Accordingly, one of the common manifestations of HIV/AIDS is damage to the nervous system. Neurological complications of HIV infection can be either caused by the retrovirus itself or due to opportunistic infections, tumors, cerebrovascular pathology, and the toxic effects of antiretroviral drugs. The clinical and epidemiological features of HIV infection, damage to the nervous system in AIDS, the course of opportunistic infections and their specific treatment among the adult population in the Samarkand region are analyzed.

Key words: HIV infection, opportunistic infections, AIDS, characterization, prevalence, nervous system, ART.

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НЕВРОЛОГИЧЕСКИЕ ИЗМЕНЕНИЯ ПРИ ВИЧ ИНФЕКЦИИ
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Аннотация: Одним из органов мишеней ВИЧ является нервная система: только 1/10000 доля лимфоцитов периферической крови больных СПИДом инфицирована вирусом, в то время как в ткани мозга ВИЧ поражает каждую сотую клетку. Соответственно, одним из частых проявлений ВИЧ/СПИДа является поражение нервной системы. Неврологические осложнения ВИЧ-инфекции могут быть как вызваны самим ретровирусом, так и обусловлены оппортунистическими инфекциями, опухолями, цереброваскулярной патологией, токсическим воздействием антиретровирусных препаратов. Анализируются клиничко-эпидемиологические особенности ВИЧ-инфекции, поражение нервной системы при СПИДе, течения оппортунистических

инфекций и их специфического лечения среди взрослого населения по Самаркандской области.

Ключевые слова: ВИЧ - инфекция, оппортунистические инфекции, СПИД, характеристика, распространенность, нервная система, АРВТ.

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Изменения нервной системы при ВИЧ-инфекции

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Introduction: HIV infection is the most widespread, widespread infection and is currently officially registered in all countries of the world. Preventing the spread of HIV infection occupies a special place among health problems, which is due to the global increase in HIV infection, significant socio-economic consequences of the epidemic, lack of reliable specific prevention means and significant treatment costs (2,3). In Russia, the total number of infected citizens in 2018 is 1,272,403 people. The incidence rate in the first half of 2018 in Russia was 35.2 per 100 thousand population. The incidence of HIV infection in 2018 is 666.1 per 100 thousand population. In Uzbekistan, the current situation with HIV infection cannot be analyzed separately from the situation throughout the world. According to official statistics from the Republican AIDS Center, as of January 1, 2018, 37,872 people with HIV infection were registered in the Republic of Uzbekistan (56% men, 44% women). At the same time, the share of parenteral transmission was 40.6%, sexual 41.8%, and vertical 3.4%. The age group from 18 to 59 years is most susceptible to infection. The prevalence of HIV infection is only 0.1% of the population, and the total number of HIV infected people is 109 people per 100 thousand inhabitants. A significant increase in HIV testing coverage (795,481 people in 2008, compared to 2,536,872 people in 2013) has led to an increase in HIV detection rates. Lack of awareness about HIV and prevention measures are the main reasons for the spread of the virus among the population.

Purpose of the study: To characterize the clinical and epidemiological data of patients with HIV/AIDS infection, taking into account secondary diseases and opportunistic infections according to the Samarkand Regional Infectious Diseases Hospital for 2017-2018.

Materials and research methods: The material for research and analysis was 145 seropositive patients staying in the regional infectious diseases hospital in 2017-2018. Data from patients' medical records were used for the study.

For all patients with HIV infection, general clinical and laboratory tests (general blood test, urine, stool), detailed biochemical blood test, serological blood test

(examination of hepatitis B and C markers) and ELISA diagnostics for HIV infection were carried out. Among nonspecific methods, immunological studies were carried out to determine the absolute number of CD 4 + lymphocytes, which were carried out in the regional AIDS center in Samarkand. The fact of HIV infection of all examined patients was confirmed using reference ELISA using test systems in a multireagent Voshar MRW-AM60.Voshar 203 and immunoblotting on test systems in a thermostated shaker Elmi-ST-3. Enzyme immunoassay was carried out using equipment from Rider technologies (USA). Laboratory diagnostic examination using ELISA for markers of HBV (HBs-Ag), HCV (HCV- Ag, HCV - IgM) was carried out using the above-mentioned equipment. A general blood test was carried out using a photoelectrocolorimeter by determining 12 parameters of blood cells. Biochemical blood parameters were examined on a KPD 89 biochemical analyzer with determination of total and direct bilirubin, ALT, AST . When carrying out the work, methods of epidemiological, clinical and diagnostic analysis were used, the corresponding categories of the population were ranked, the district's territories were ranked, taking into account the intensity of the epidemiological process. The diagnosis of HIV infection and opportunistic infections was established on the basis of the international revision classification, taking into account clinical symptoms and confirmed by laboratory data carried out in accordance with the current instructions of the regional AIDS center.

Results and discussions: The predominance of the disease in males was shown - 94 (64.8%), compared to females - 51 (35.1%). Of these, 85 (58.6%) are urban residents, 80 (55.1%) are regional and rural residents.

Below are the distribution indicators of seropositive patients who were hospitalized at the Samarkand Regional Infectious Diseases Hospital, by age category, by territorial prevalence and by clinical diagnoses (Figure 1).

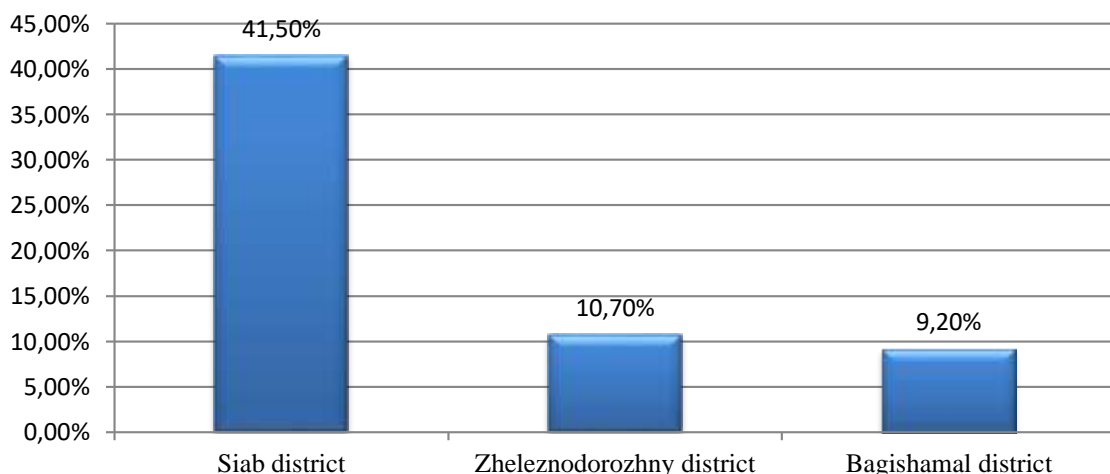


Fig.1 Indicators of distribution of patients in the city of Amarkand

As can be seen from Figure 1, an analysis of the dynamics of HIV prevalence in the region shows an increase in the proportion of urban residents - 58.6% compared to rural residents - 55.1%. According to the city of Samarkand, a high percentage of patients who applied was observed from the Siab region.

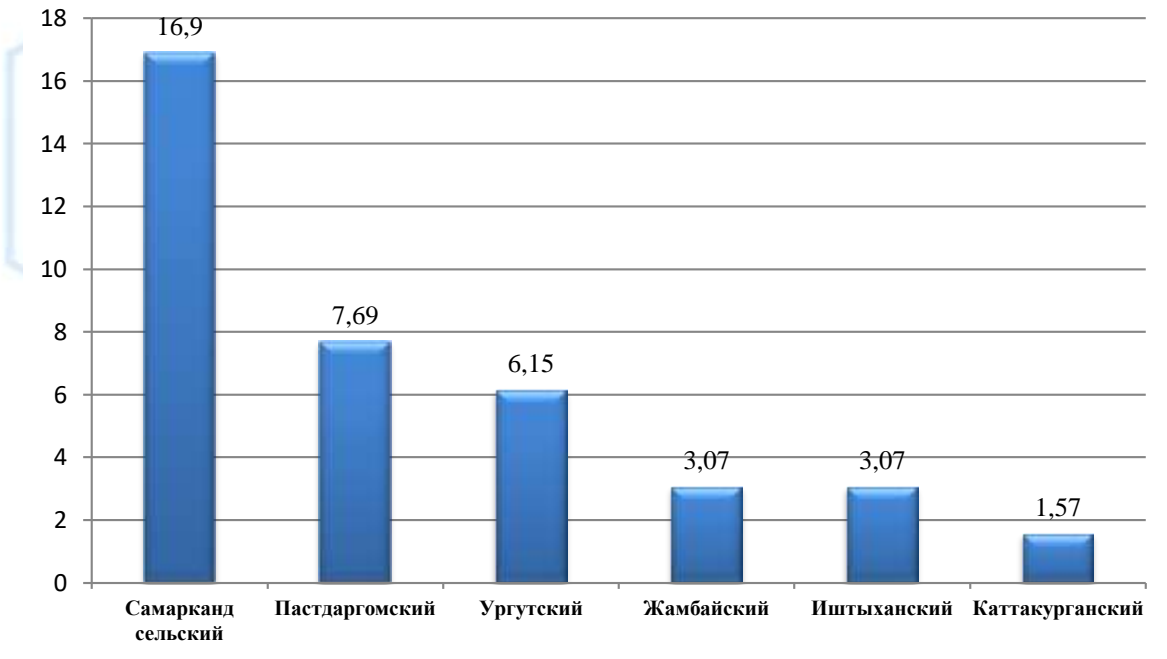


Fig.2 Distribution of patients by districts of the Samarkand region.

Regional distribution data showed a high percentage of patients who came from the Samarkand rural region.

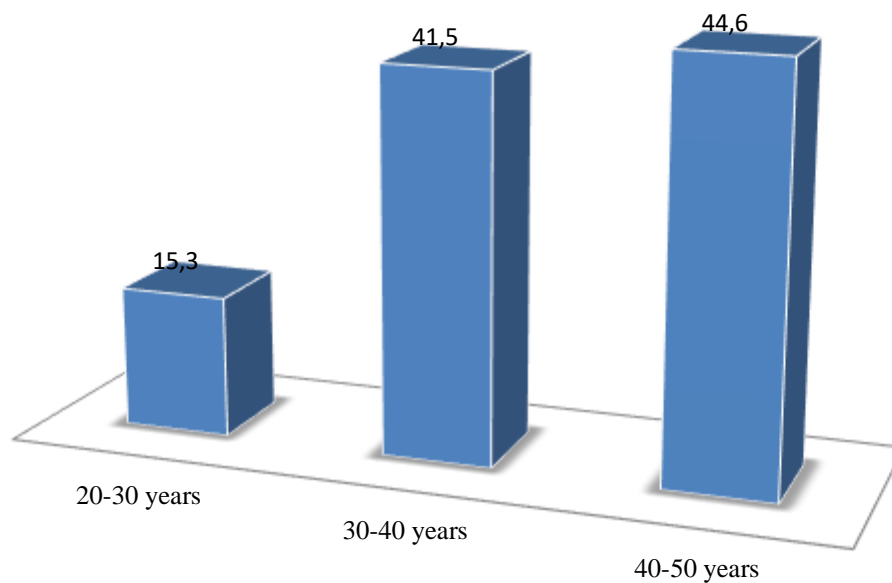


Fig.3 Distribution of patients by age

When distributing patients by age category, we found that the highest incidence rate occurred between the ages of 40 and 50 years – which amounted to 64 (44.1%) patients (Figure 3).

Upon admission to the clinic, patients were examined by a doctor, the patient's complaints were assessed, anamnesis of life and illness, objective data, and laboratory tests were carefully collected. The leading complaints upon admission were fever syndrome in 145 patients (100%), asthenic syndrome was also observed in all admitted patients, lymphadenopathy syndrome was observed in 141 patients (97.2%), hepatosplenomegaly syndrome - in 69 patients (47.5%), chronic fatigue syndrome - in 127 patients (87.5%), neurological syndrome was identified in 140 patients (96.5%).

All 145 patients were admitted to the hospital with varying degrees of fever (37.2 – 40.0 °C). The analysis of body weight deficiency showed that weight was less than 10% in 61 (42%) and more than 10% in 77 (53.1%) patients. High weight loss with cachexia was noted in 17 (11.2%) patients. The number of CD 4+ lymphocytes normally ranges from 800 to 1500 cells . in 1 ml of blood. In 62 (42.7%) patients there was a decrease in this indicator from 760 to 633 cells, in 44 (30.3%) patients from 633 to 510 cells, in 39 (26.8%) patients from 510 and below. A study of hemoglobin in peripheral blood showed that the level of 100-90 g/l was noted in 65 (44.8%), 90-80 g/l in 57 (39.3%), 80-70 g/l in 23 (15, 8%). A study of the number of lymphocytes showed 50-40% of lymphocytes in 79 patients (54.4%), 40-30% in 45 (31.0%), 30-20% in 14 (9.6%) 20% and lower in 7 patients which accounted for (4.82%). A biochemical blood test was carried out in 56 patients (38.6%) with liver pathology, when the patients showed increased levels of bilirubin and enzymes.

After an objective examination and laboratory testing, the patients were prescribed antiretroviral therapy. During antiretroviral therapy, drugs were prescribed according to a standard regimen.

Antiretroviral therapy included three main groups of drugs: nucleoside reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs) and protease inhibitors (PIs). From the NRTI group, azidothymidine , zalcetabine , didanosine , lamivudine , stavudine and timazide were mainly used . Of the NNRTI drugs, patients received saquinavir , indinavir , ritonavir , nelfinavir , loverid ... From the drugs in the PI group, saquinovir , indinovir , ritonavir , nelfinovir and abacavir were obtained . Immediately before the start of antiretroviral therapy, patients were tested twice for the content of DM 4 + cells.

Of the 145 patients admitted for inpatient treatment, 73 patients received antiretroviral therapy (ART). Of these, 28 patients were treated with the regimen: lamivudine + tenofovir + efvirenz , 24 patients with the regimen: lamivudine + zidovudine , 16 patients with the regimen lamivudine + abacavir , and 5 patients with the regimen: lamivudine + tenafafir .

As a result of treatment at the Samarkand Regional Infectious Diseases Hospital, out of 145 patients, 127 (87.5%) were discharged in satisfactory condition, 9 patients (6.2%) were transferred to other medical institutions, 6 patients (4.13%) left without permission. 3 patients (2%) were taken home in serious condition.

In general, the Samarkand region is characterized by regional differences in the prevalence of HIV infection, an increase in the proportion of urban residents in relation to rural ones. According to the city of Samarkand, most patients came from the Siab region. Regional distribution data showed a high percentage of patients who came from Samarkand rural region. The incidence and prevalence of HIV infection in different territories and in different population groups is constantly changing. Among the patients there were more males - 94 (64.8%) compared to females - 51 (35.1%). By age category, the highest incidence rate falls on people aged 40 to 50 years. According to clinical diagnoses, a high rate of concomitant opportunistic diseases was observed in patients diagnosed with chronic gastroenterocolitis - a total of 21 patients (14.4%), chronic hepatitis of unknown etiology - 14 (9.6%), fever of unknown origin - 15 (10.3%) , liver cirrhosis of unknown etiology - 15 (10.3%), persistent diarrhea, persistent fever - a total of 12 patients (8.27%), acute gastroenterocolitis - 10 (6.89%), acute gastroenteritis 9 patients (6.2%), chronic hepatitis C 9 patients (6.2%), chronic hepatitis B 9 patients (6.2%), chronic hepatitis B+C 8 patients (5.5%), chronic bronchitis - 6 (4.1%) , herpetic infection: herpes zoster – 4 patients (2.75%). Coinfection can negatively affect the course of HIV infection . In turn, HIV infection accelerates the course of the disease with viral hepatitis and significantly increases the risk of developing hepatocellular carcinoma. Body weight deficiency in the majority of patients was more than 10% - in 77 patients (53.1%), less than 10% - in 61 (42%) and only 17 people (11.2%) were admitted to the stage of severe cachexia. This means that most patients were admitted at clinical stages 3-4 of HIV infection . Mild anemia was detected in 65 patients (44.8%), moderate anemia in 57 patients (39.3%), and severe anemia in 23 patients (15.8%). To study the dynamics of the epidemic process in individual territories, it is necessary to organize and use constant epidemiological monitoring and behavioral studies to identify the sources of HIV by testing for virus markers in population groups with high HIV infection rates. Implementation of preventive programs among vulnerable groups of the population, which prevents these groups from being affected by HIV infection and reduces the risk of HIV infection among representatives of the general population. As well as raising awareness of citizens on HIV issues, informing them about methods of protection, creating an adequate perception of their own risk and motivating them to change dangerous behavior using diagrams and illustrations with examples in various places .

Conclusion: The results of the study showed that the progression of HIV infection is facilitated by opportunistic infections, that is, the worsening of

immunodeficiency leads to a decrease in the quality and life of patients, and therefore neurological changes are observed in the majority of patients. When managing such patients, we must take into account the psycho-emotional state of the patient.

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