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# Clinical Course, Outcomes and Treatment of Viral Hepatitis in Patients with HIV: Features of the Clinical Picture, Diagnosis and Antiretroviral Therapy

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**Resume.** Currently, chronic viral infections are a serious medical and social problem. The most significant pathogens include human immunodeficiency viruses (HIV infection), hepatitis B and C (HBV and HCV). Despite the progress made in studying the etiology, pathogenesis, and clinical presentation of these diseases, they are still difficult to treat, which leads to a decrease in the working capacity of the infected population and an increase in the financial costs of healthcare.

**Keywords.** hepatitis B, hepatitis C, HIV infection, CD8 T cells, heterosexual contacts.

**Relevance.** According to the WHO, approximately 50 million cases of hepatitis B are registered annually in the world. About 2 million people die from this infection (9th place among the causes of death), of which approximately 100 thousand are from fulminant forms, 300 thousand from primary hepatocarcinoma and 700 thousand - from cirrhosis of the liver. The incidence of acute hepatitis B in our country ranges from 20 to 100 per 100,000 population in individual regions and averaged 42.1 per 100,000 in 2000[3].

But if the problem of viral hepatitis B, thanks to the introduction of vaccine prevention into practice, is to some extent solvable, then the problem of viral hepatitis C is far from being solved. In Europe and the USA, hepatitis C virus is the cause of 20% of acute hepatitis, 70% of chronic hepatitis, 65% of hepatocellular carcinoma, 40% of liver cirrhosis, 30% of liver transplantation. The frequency of newly diagnosed cases of hepatitis C is 1-5 per 100 thousand population, moreover, it is believed that the true figure is 5 to 8 times higher. In our country, in recent years, the incidence of hepatitis C has increased from 3.2 per 100 thousand population in 1994 to 19.3 in 1999, and in 2000 this figure was 20.7. In 60-80% of people, the disease becomes chronic. Chronic hepatitis C today can be diagnosed in 150-200 million inhabitants of the Earth

An even greater number are carriers of this infection - more than 350 million. According to WHO forecasts for the next 10-20 years, chronic hepatitis C will increase the number of patients with liver cirrhosis by 60%, the number of patients with hepatocarcinoma by 68% and the number of patients with hepatic decompensation by 280%, and thus the mortality from liver diseases may increase by 2 times [one].

A distinctive feature of the modern period is the occurrence of hepatitis of combined etiology (mixed - hepatitis), the proportion of which is progressively increasing. The presence of several hepatitis viruses in the body at the same time significantly increases the likelihood of adverse effects and outcomes of viral hepatitis [2].

A direct relationship has been established between an increase in the number of people who are intravenous drug users and an increase in the incidence of hepatitis with a parenteral mechanism of infection, HIV infection. According to the annual report of the UN International Narcotics Control Board for 2000, to date, there are about 180 million people in the world, which is 4.2% of the world's population over 15 years old[1].

The number of persons consuming psychoactive substances is also growing in Russia. If in 1991 the incidence rate of drug addiction in the country was 21.5 per 100 thousand of the population, then in 2000 it was 198.4, i.e. there was a ninefold increase in this indicator, and in absolute figures the number of registered patients diagnosed with drug addiction in 2000 was 286,659 people. The structure of drug addicts by types of drugs used, according to the above author, is quite homogeneous, about 90% of them use opioids [4].

When examining drug addicts, 5-15% of them have HBsAg, while 40-60% of the examined have antibodies to the hepatitis B virus. According to various authors, 75-85% of intravenous drug users are infected with the hepatitis C



virus, and among heroin users this figure rises to 90%. Of these, 38.6% of cases are mono-infection, and in 51.3% of cases there are mixed hepatitis. The most common infection is HBV+HCV.

**Purpose of the study.** To assess the clinical course and outcomes of viral hepatitis in HIV-infected patients in order to develop and optimize an algorithm for the treatment of viral hepatitis in HIV infection.

**Material and research methods.** The object of the epidemiological study was the population who underwent AH with HIV in the period 2021-2022, living in the territories of Andijan.

**Research results.** Against the background of a decrease in the incidence of acute hepatitis B and C, an increase in the incidence of chronic forms of these viral hepatitis was noted; a relationship has been established between the prevalence of viral hepatitis and HIV infection, especially among people who use intravenous psychoactive substances.

The prevalence of markers of chronic hepatitis B among HIV-infected patients ranged from 5.5% to 6.8% depending on the study region, mainly in combination with markers of hepatitis C or E virus. Markers of chronic hepatitis B alone were detected in no more than 2% of patients with HIV infection.

Co-infection with hepatitis C virus and human immunodeficiency virus ranged from 24.3 to 91.2%, depending on the route of infection with the immunodeficiency virus, and from 41.0 to 92.6%, depending on the study region.

The presence of HIV infection did not affect the clinical course and outcomes of acute hepatitis A, B, C; the frequency of outcomes of chronic hepatitis C in cirrhosis of the liver in HIV-infected people at stage III HIV infection was 0.26, and at stage IV - 0.49. The relative risk of liver cirrhosis in patients with HIV infection was 0.53.

Analysis of the parameters of ALT activity, the value of the histological activity index and the stage of fibrosis revealed a direct correlation between their changes in patients with CHC/HIV co-infection and patients with CHC: low ALT activity corresponded to low histological activity and fibrosis stage in patients with CHC/HIV infection with a histological activity index equal to 0-4 points and ALT activity is significantly higher compared with patients of the same group with a histological activity index equal to 5-8 and 9-13 points ( $p < 0.001$ ).

In patients with chronic hepatitis C, the ALT level and the stage of fibrosis correlated with each other in the presence of a pronounced degree of activity of the process in the liver: they were significantly higher in patients with a histological activity index equal to 9-13 points (for fibrosis  $p = 0.019$ , for ALT  $p = 0.012$ ).

Comparison of the results of the study of liver tissue in patients with chronic hepatitis C and chronic hepatitis B without HIV infection using the method of puncture liver biopsy and transient elastometry in most cases (75.0%) showed the coincidence or minimal discrepancy (by 1 stage of fibrosis) of the results of assessing the severity of liver fibrosis by the indicated methods.

Therapy of chronic hepatitis C in patients with HIV infection, pegylated interferon alfa-2a and ribavirin, who did not require antiretroviral therapy, showed efficacy and safety comparable to those in patients with chronic hepatitis C without HIV infection.

The frequency of achieving a sustained virological response in patients with chronic hepatitis C and HIV infection was significantly higher when prescribing pegylated interferon alfa-2a and ribavirin compared with the preparation of standard interferon alfa-2a with ribavirin.

Catamnesis of long-term outcomes of chronic hepatitis C therapy in HIV-infected patients made it possible to establish a sustained virological response in 87.5% of cases in the treatment regimen with standard interferon alfa-2a and in 75.6% of those receiving pegylated interferon alfa-2a with ribavirin ( $p < 0.05$ ).

Adverse events identified during the treatment of chronic hepatitis C in patients with HIV infection were similar to those in the group of patients with hepatitis C infection without HIV infection.

The use of transient elastography in patients with chronic hepatitis C and HIV infection and remission of chronic hepatitis C after a course of antiviral therapy showed a decrease in the severity of liver fibrosis in 87.9% of cases, and in 83.3% of cases when there was no remission of chronic hepatitis C after conducting a course of antiviral therapy, indications for a second course of treatment were determined.

**Conclusion.** The appointment of CHC therapy with PEG-IFN alfa-2a and ribavirin in patients with early stages of HIV infection in the absence of ART and signs of cirrhosis was substantiated. It has been shown that a decrease in the absolute number of CP4+-lymphocytes during therapy does not lead to clinical progression of HIV infection. In HIV-infected patients with hepatitis B and C, the likelihood of developing cirrhosis and death is 1.5 times higher at stage IV of HIV infection compared with stage III, which requires a revision of the tactics of managing this category of patients. The use and introduction into clinical practice of the method of transient elastography for assessing the stage



of liver fibrosis, including monitoring the effectiveness of ongoing antiviral therapy, is substantiated. An algorithm for diagnosing and treating hepatitis C in HIV-infected injecting drug users has been developed.

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