LABORATORY DIAGNOSTICS OF VIRAL HEPATITIS B IN KHARKIV

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Introduction. Viral hepatitis is one of the most pressing and social problems in the world. Hepatitis ranks eighth among the main causes of death. Among infectious diseases of human viral hepatitis occupy third place follow after an acute respiratory viral infections and infections of the gastrointestinal tract. In particular, as the WHO has written that 2 billion people on Earth suffered hepatitis B in some forms, as nearly a third of the world's population currently affected by viral hepatitis. The rate of spread and scale of infection are impressed: the number of carriers of the virus hepatitis B reaches 400 mln people. This situation contributes greatly to the spread of the disease at all areas. Epidemic process in most cases is hidden because official statistics show a low prevalence of the disease.

Around 2 million people are infected by hepatitis in unsafe injections. WHO notes that health services need to minimize the risks of transmission of hepatitis by using only sterile equipment, testing all donated blood and blood components for hepatitis.

The aim of the study was to study a state of laboratory diagnosis of viral hepatitis by using modern methods in Kharkiv.

Materials and methods. The study included 115 patients (groups are included 70 men and 45 women, whose average age is 38,5 ± 1,5 years) who were treated in Kharkiv Regional Clinical Infectious Hospital № 22. Patients were diagnosed and suffered viral hepatitis B during 2015 an average 1 month.

Laboratory methods for diagnosis of HBV are included an estimation of the concentration of alanine aminotransferase (ALT), aspartate aminotransferase (AST); total, direct and indirect bilirubin; alkaline phosphatase (ALP), γ-glutamyl transferase (γ-GT), lactate dehydrogenase (LDH), total protein, albumin and cholesterol, markers of replication virus hepatitis B (HBsAg, HBeAg, DNA HBV).

Results and discussion. Identification of markers cytolytic syndrome is showed increased content ALT (2426 ± 30 U/L), AST (1998 ± 27 U/L) and lactate dehydrogenase (255 ± 10 U/L) in 50 times the norm on 5-th day the course of disease in women and men. These changes reflect the typical course of HBV. There is a large amount of necrotic hepatocytes, which release a large quantities of enzymes in the blood. At the 4-th week of disease the dynamic of parameters was positive, because there was reduction of these markers almost to normal. Thus, we made findings that

liver enzymes ALT and AST are used as a laboratory parameter for diagnosis of viral hepatitis B, but determination the concentration of LDH in this case is less informative.

In the study group of patients with hepatitis B, we identified a high concentration of total bilirubin, which we are observed in women and men. It was happened in indirect bilirubin and it was increasing in 10 times, $p < 0,05$ compared with the control group. Clinically it was accompanied by the development of jaundice syndrome. At 4-th week of patient's hospitalization analyzes have shown that the level of total bilirubin was getting to normal. It was markers the state of the hepatobiliary system patients. Thus, the study of total bilirubin in hepatitis B can be used for diagnosis of liver damage caused by virus.

The main indicator of cholestatic syndrome is concentration of ALP, γ-GT. We have found that patients suffered hepatitis B, both women and men had a high concentration of ALP, which is increased in 37.5 times at women and 48.7 times in men, and γ-GT (which is increased in 8.4 times) than in healthy control group. At the 4 week stay of patient's hospitalization analyzes have shown that the ALP levels of γ-GT has tended to decrease and normalization.

We have analyzed the levels of total proteins, albumins and cholesterol in the blood serum. These parameters are indicators of hepato depressive syndrome. In the study we have found a moderate reduction of the levels of total proteins and albumins at patients with hepatitis B, both women and men and, when compared with the control group. It is characterized that the hepatitis B n our cases had a middle forms of severity. Cholesterol was within normal limits.

According to the data of this investigation for identify antigens HBsAg and HBeAg in the serum of patients and the control group (healthy) by immunosorbent assay, it has found that all patients ($n = 115$) revealed antigens of virus hepatitis B at 100%. Thus, immunoassay method for detection of hepatitis B markers gives us 100% result in the detection of virus in the blood.

According to the data of this study to identify the DNA of virus hepatitis B in patients and control group (healthy) by polymerase chain reaction (PCR), it was found that all patients ($n = 115$) revealed DNA of virus hepatitis B is 100%. Thus, the method of PCR in the diagnosis of hepatitis B gives us 100% result in the detection of virus in the blood.

Conclusions. We carried out a study of 115 patients Kharkov regional clinical hospital with a diagnostics of viral hepatitis B. We have analyzed the methods of laboratory diagnostics which are used in the hospital. Diagnostics of viral hepatitis B should include the diagnostics of antigenic structures by PCR, markers of cytolytic, cholestatic, hepatodepressive syndromes. The data coincide with literature data on the course of hepatitis B.