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PREVENTION, EPIDEMIOLOGY AND LABORATORY ANALYSIS OF VIRAL HEPATITIS B

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ABSTRACT. Viral hepatitis B is a chronic, sometimes acute, infectious disease caused by the Hepadnavirus. The disease manifests itself with a variety of clinical symptoms, often leaving severe complications, and is widespread among the population. The causative agent of HBV is a DNA-containing hepadnavirus. These viruses have been isolated from humans and Peking ducks. The virus has a complex structure, consisting of two parts: the outer shell contains the surface antigen, HBsAg, and the inner core contains double-stranded DNA, the DNA polymerase enzyme, and HBsAg.

Keywords: Acute hepatitis, chronic hepatitis, sterilization, dispensary, IFA, PCR, special prophylaxis.

ПРОФИЛАКТИКА, ЭПИДЕМИОЛОГИЯ И ЛАБОРАТОРНЫЙ АНАЛИЗ ВИРУСНОГО ГЕПАТИТА Б

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АННОТАЦИЯ. Вирусный гепатит В — хроническое, иногда острое, инфекционное заболевание, вызываемое вирусом гепатита В. Заболевание проявляется разнообразными клиническими симптомами, часто приводит к тяжёлым осложнениям и широко распространено среди населения. Возбудитель вирусного гепатита В — ДНК-содержащий вирус гепатита В. Эти вирусы выделены от человека и пекинских уток. Вирус имеет сложную структуру, состоящую из двух частей: внешняя оболочка содержит поверхностный антиген HBsAg, а внутренняя — двуцепочечную ДНК, фермент ДНК-полимеразу и HBsAg.

Ключевые слова: Острый гепатит, хронический гепатит, стерилизация, диспансеризация, ИФА, ПЦР, специальная профилактика.

Introduction. Hepatitis B virus, compared to other viruses, is very resistant to environmental factors, physical and chemical factors. This virus retains its activity when frozen and thawed several times, and also does not lose its activity for up to 7 days when dried at +250 degrees. When heated to +600 degrees, the virus dies after 10 hours, when boiled or in an autoclave after 10-20 minutes, and in dry hot air at 1600 degrees after 1 hour. Modern disinfectants lose the activity of viruses only after 60 minutes.

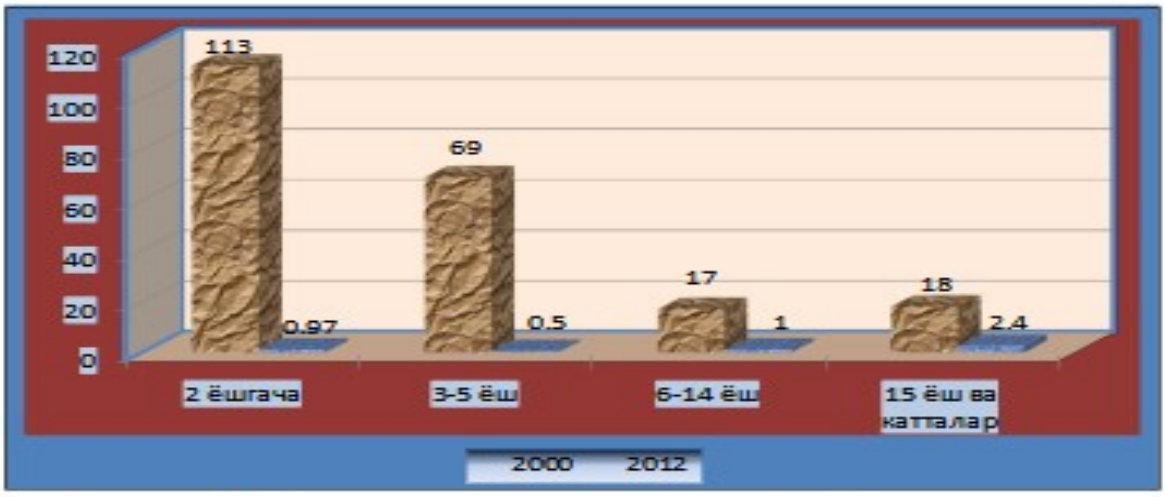
The main source of the causative agent can be patients experiencing chronic VGV disease, chronic virus carriers, patients with acute form with obvious clinical symptoms, patients with mild form without clinical symptoms.

The period from infection to the appearance of clinical signs of the disease can vary from 60 to 180 days. The average latent period is 2.5-3 months. After the viruses enter the skin or mucous membranes, local lymphadenitis occurs, then the viruses enter the blood, viremia develops, and the viruses enter the bone marrow and liver cells, i.e., hepatocytes.

Mechanism of transmission: Viral hepatitis B is transmitted by contact, when the integrity of the skin or mucous membranes is broken and the viruses are transmitted to a healthy person through blood or other body fluids. The most dangerous epidemiologically is the presence of viruses in the blood. Viruses in the body are mainly released into the external environment by natural and artificial means.

Viral hepatitis B is transmitted to healthy people by natural and artificial means of transmission. The natural transmission route is during sexual intercourse, from a pregnant mother to her baby during childbirth, and from the father to his baby through infected semen.

Patients are discharged from the hospital when there are no complaints, they feel well, their liver size decreases to normal levels in dynamics, the activity of ALT, AST and bilirubin decreases to twice the norm, and other analytical tests normalize, but at least 21 days later. Patients with OVHG undergo primary dispensary examination by the infectious disease specialist of the hospital where they were treated within 30 days after discharge from the hospital. Based on clinical indications, patients treated with OVHG may undergo examination in the infectious diseases departments of hepatological centers or regional polyclinics upon the written recommendation of the attending physician. The duration of dispensary observation is 1 year, with ALT, AST, and bilirubin tests being performed every 3 months.



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Diagnostic evaluation of hepatic and hepatobiliary disorders requires a comprehensive and systematic approach that includes both basic and additional laboratory and instrumental investigations. These diagnostic procedures allow for an accurate assessment of the functional state of the liver, detection of structural changes, and identification of viral and metabolic etiologies.

At the outpatient level, the primary goal of diagnostic testing is the initial evaluation of the patient's condition and identification of potential hepatic dysfunction. The following basic investigations are routinely performed:

- Complete Blood Count (CBC): provides information on hemoglobin levels, erythrocyte indices, leukocyte count, and erythrocyte sedimentation rate (ESR), which reflect general systemic responses to hepatic pathology.
- Urinalysis: helps in detecting bilirubinuria, urobilinogen, and other abnormalities associated with hepatocellular or cholestatic conditions.
- Biochemical Tests: include the determination of alanine aminotransferase (ALT), aspartate aminotransferase (AST), total and fractional bilirubin, and the thymol turbidity test, which together assess hepatic cytolysis and synthetic function.
- Serological Markers for Viral Hepatitis: detection of anti-HAV-IgM, HBsAg, and anti-HCV antibodies to identify acute or chronic viral hepatitis infections.
- Ultrasound Examination of the Abdominal Cavity (USG/UTT): provides non-invasive visualization of the liver, gallbladder, pancreas, and spleen, allowing assessment of organ size, echogenicity, and structural changes.

At the inpatient level, a more detailed evaluation is performed to confirm diagnosis, assess the degree of hepatic impairment, and monitor disease progression or treatment response. The mandatory diagnostic measures include:

- CBC with Platelet Count: essential for evaluating cytopenia and potential hypersplenism.
- Urinalysis: for continued monitoring of renal and hepatic parameters.
- Expanded Biochemical Profile: including ALT, AST, total and fractional bilirubin, thymol test, total protein, albumin, cholesterol, alkaline phosphatase (AP), and gamma-glutamyl transpeptidase (GGT).
- Coagulation Parameters: prothrombin index, fibrinogen, and international normalized ratio (INR) are assessed to evaluate hepatic synthetic capacity and risk of bleeding.
- Serological Markers of Viral Hepatitis (HBV Panel): detection of anti-HAV-IgM, anti-HEV-IgM, HBsAg (qualitative), anti-HBsAb, HBeAg, anti-HBeAb, anti-HBc, and total anti-HDV antibodies.
- Ultrasound of the Abdominal Cavity: for structural and vascular assessment.
- Coprogram: to evaluate intestinal absorption and digestive function.

Additional investigations are performed to refine differential diagnosis, assess comorbidities, and detect complications. These may include:

- Extended Biochemical Tests: measurement of lipoproteins, triglycerides, protein fractions, glucose, electrolytes (potassium, sodium, chlorides), amylase, nitrogen balance, urea, and creatinine to assess metabolic and renal function.
- Coagulogram: includes prothrombin time (PT), total fibrinogen, plasma recalcification time, ethanol test, and blood clotting time to evaluate hemostatic disturbances.
- Blood Acid-Base Status: determined in emergency settings to assess metabolic derangements.
- Anti-HIV Testing: performed with informed patient consent to rule out immunodeficiency-related hepatic manifestations.
- Polymerase Chain Reaction (PCR) Diagnostics: qualitative detection of HBV-DNA, HCV-RNA, and HDV-RNA for confirming viral replication and disease severity.
- Blood Group Determination: for clinical management and transfusion readiness.
- Autoimmune Markers: detection of antinuclear antibodies (ANA) and antimitochondrial antibodies (AMA) to identify autoimmune hepatitis and primary biliary cholangitis.
- Ceruloplasmin Test: indicated in the differential diagnosis of Wilson–Konovalov disease.
- Pregnancy Test: mandatory for women of reproductive age to guide therapeutic decision-making.
- Electrocardiography (ECG): for patients over 50 years old or with known cardiovascular disease to assess cardiac function prior to hepatotoxic treatment.
- Doppler Ultrasound of Hepatic and Splenic Vessels: to evaluate hemodynamic alterations and portal hypertension.
- Esophagogastroduodenoscopy (EGD/EPGDS): to detect varices and portal hypertensive gastropathy.
- Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) of the Abdominal Organs: for detailed structural and volumetric assessment of hepatic parenchyma and surrounding organs.
- Liver Elastography: to quantify the degree of hepatic fibrosis and stiffness.
- Chest Radiography (R-graphy): to evaluate possible pulmonary or cardiomegaly-related complications.

Conclusion. In the focus of acute and chronic HBV, final disinfection is carried out after the patient is admitted to an infectious disease's hospital or after his death. Regular current disinfection is carried out around the patient. The patient's personal hygiene items (toothbrush, comb, razor, manicure tools) must be separate, these items must be disinfected with disinfectants or by boiling. It is necessary to use protective equipment during sexual intercourse.

REFERENCES

1. O.M. Mirtazaev, L. P. Zueva, G.S. Matnazarova Epidemiology 2016 p. 335-336
2. Lok, A. S., & McMahon, B. J. Chronic Hepatitis B: Update 2019. Hepatology, 2019;70(4): p 1041–1056.
3. Kurbanov, F., Tanaka, Y., Mizokami, M. Geographical and genetic diversity of the human hepatitis B virus. Hepatology Research. 2008;38(1): p 2–11.
4. O.M. Mirtazaev, L. P. Zueva, G.S. Matnazarova Epidemiology 2016 p. 337-339
5. Terrault, N. A., Lok, A. S., McMahon, B. J., et al. Update on prevention, diagnosis, and treatment of chronic hepatitis B: AASLD 2018 Hepatitis B Guidance. Hepatology. 2018;67(4): p.1560–1599.
6. Order of the Ministry of Health No. 542 dated August 27, 2018 "On further improving measures for the diagnosis, treatment and prevention of viral hepatitis in the Republic of Uzbekistan" p.35-43

ИСПОЛЬЗОВАННАЯ ЛИТЕРАТУРА:

1. О.М. Миртазаев, Л. П. Зуева, Г.С. Матназарова Эпидемиология 2016 г. 335-336
2. Lok, A. S., & McMahon, B. J. Хронический гепатит В: Обновление 2019. Гепатология, 2019;70 (4): с 1041-1056.
3. Курбанов Ф., Танака Ю., Мизоками М. Географическое и генетическое разнообразие вируса гепатита В человека. Гепатологические исследования. 2008;38 (1): p 2-11.
4. О.М. Миртазаев, Л. П. Зуева, Г.С. Матназарова Эпидемиология 2016 г. 337-339
5. Terrault N. A., Lok A. S., McMahon B. J. и др. Обновление профилактики, диагностики и лечения хронического гепатита В: AASLD 2018 Гепатит В Руководство. Гепатология. 2018;67 (4): с.1560-1599.
6. Приказ Министерства здравоохранения No 542 от 27 августа 2018 года "О дальнейшем совершенствовании мер по диагностике, лечению и профилактике вирусного гепатита в Республике Узбекистан" с.35-43.