American Journal of Interdisciplinary Research and Development
ISSN Online: 2771-8948
Website: www.ajird.journalspark.org
Volume 07, Aug., 2022

# ACHIEVEMENTS AND PROSPECTS IN THE DIAGNOSIS AND TREATMENT OF HEPATITIS, CURRENT PROBLEMS OF VIRAL ETIOLOGY OF HEPATITIS IN CHILDREN

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**Abstract**
This paper summarizes, based on the experience of clinicians and scientists, viral, especially chronic viral hepatitis, a disease that is currently leading in frequency of occurrence and severe manifestations of complications, as well as causes of mortality. It describes the advantages and disadvantages, as well as the problems currently achieved in medicine for accurate, complete and timely diagnosis and treatment of the disease. The publication also spoke about the achievements achieved in our country in the field of diagnosis and treatment of viral hepatitis, as well as the research conducted in this area.

**Keywords:** Diagnosis of chronic hepatitis, treatment of chronic hepatitis cirrhosis of the liver, liver failure, liver transplantation

## Relevance

Hepatitis is damage or inflammation of the liver, is a disease of various etiological diseases and occurs in acute or chronic form. Hepatitis in children is mainly of viral etiology and virus transmission most often occurs perinatal from mother to child, as well as through contact with blood or other biological fluids, in particular during sexual contact with an infected partner, unsafe practice of performing injections and cuts with a piercing and cutting tool. Currently, viral hepatitis is a widespread disease in children and there is an increase in the incidence of especially viral hepatitis B or C due to young people. In the age group among children from 1 to 15 years old, there are about 11 million infected in the world, of which 6 million have virus replication [1-3]. Up to a year or perinatal infection of newborns with hepatitis B virus (HBV) or C (HCV) can occur in utero, during passage through the birth canal or after birth during care. Intrauterine HBV infection is rare, in 2-5% of cases, and the probability of infection intranatally is up to 90-95% of cases in the presence of viremia in the mother. Infection with HBV in children in the first year of life in 90% leads to the development of chronic hepatitis B (HCV) [4-7]. The risk of vertical HCV infection in newborns is possible, but remains poorly understood, and diagnosis is difficult. As a result of numerous clinical studies and practice of hepatology, it is known that chronic hepatitis B is a potentially life-threatening liver infection, the causative agent of which is the hepatitis B virus. According to WHO estimates, in 2019 there were about 300 million people living with chronic hepatitis B alone in the world, with about 1.5 million new infections occurring annually. However, despite the high incidence of hepatitis B, viral hepatitis C is one of the main global health problems among chronic liver diseases.

It is known that chronic hepatitis C is a slow progression of the disease and with a high probability leads to the development of liver cirrhosis, hepatocellular carcinoma and life-threatening complications associated with them. It is estimated that in 2019 from hepatitis. 820,000 people died in Russia, mainly as a result of cirrhosis of the liver and hepatocellular carcinoma (primary liver cancer). Therefore, in the first stage, it is important to determine the presence of this pathology in the early stages, as well as to start treatment of chronic hepatitis in a timely manner in order to prevent the

development of liver fibrosis. In recent years, numerous clinical and experimental studies have been conducted on the early diagnosis, treatment and prevention of liver fibrosis, measures have been taken to standardize the rules for the management of patients with progressive fibrosis and cirrhosis of the liver, as well as the tactics of using a number of drugs to influence the pathogenesis of liver diseases. In this regard, the problems of viral hepatitis, as well as their complicated ones, are among the most urgent in medicine in recent years [8-11].

Modern methods of diagnosis of hepatitis, fibrosis/ cirrhosis of the liver. Diagnostic methods are selected according to the type of hepatitis and the stages of the disease. It is known that in clinical practice, various laboratory and, if necessary, instrumental methods are mainly used to assess the functional state of the liver in the diagnosis of the disease. For the same reasons, the diagnosis was established on the basis of clinical, biochemical, serological and instrumental data. In the diagnosis and monitoring of chronic hepatitis, it is of great importance to determine the Australian antigen in the blood serum, which is currently being considered for pathogens of viral hepatitis B (HBV (anti- (HBV). This indicator is characterized by a high detection rate (from 50 to 100%) and a long persistence in the body. Two types of studies are used to diagnose hepatitis C caused by the virus: serological – to determine antibodies to HCV viruses (anti-HCV) and molecular biological – to detect virus RNA (HCV RNA) The specificity of modern diagnostic tests reaches 90% and higher [13]. Currently, in severe chronic hepatitis or the development of complications in order to identify the early stages of liver fibrosis and cirrhosis, the following modern laboratory tests are carried out. Today, the possibilities of noninvasive assessment and monitoring of fibrosis in the liver are widely studied. To determine the stage of fibrosis, the total content of NO - nitrites and nitrates in the blood serum was estimated by the ELISA method. Cellular immunity factors were assessed by the absolute content and percentage ratio of subpopulations of T-helper/inducers (CD4), T-suppressors (CD8) (by immunomagnetic separation using monoclonal anti-lymphocytic antibodies), the concentration of CD95 and TNF-α, as well as the activity of cytokines in blood serum was determined by ELISA. A number of similar papers have been published by many authors, which provide data on the diagnostic significance of serum markers of fibrosis, allowing to assess not only the stage of HCG, but also the activity of fibrogenesis in the liver, such as hyaluronic acid (HA), type 1V collagen. A significant correlation was established between the III and IV stages of fibrosis and the level of GC. The final stage of diagnosis of chronic hepatitis is the establishment of the clinical and morphological form of the disease. To do this, a puncture biopsy of the liver is performed, followed by a morphological study of the resulting punctate. In this regard, special research methods can be used to determine the level of apoptosis: the determination of platelet growth factor, p53, PCNA in biopsies was carried out by immunohistochemical method [11,12]

If conditions allow, instrumental examination methods should be used to confirm the diagnosis of chronic hepatitis. Of these, rheohepatography is of great importance, which serves to assess intrahepatic hemodynamics. And also in order to simultaneously determine the degree of HCV activity (by about 40%) and expand the

understanding of collateral circulatory disorders and the severity of portal hypertension, it was found that additional inclusion of Dopplerography in combination with echography. This method has been developed as the main and indirect criterion for the diagnosis of portal hypertension, which determines the same direction of structural and functional disorders of the liver vessels regardless of age. Various indices based on the ratio of a number of clinical and biochemical parameters are proposed: FibroTest and FibroMether (France), APRI (USA) and a number of others, a method of liver elastography has been developed. An informative method is a liver scan. Despite the successes achieved, in the era of molecular medicine there is a great need for laboratory tests that could more accurately determine the dynamic development of fibrosis/cirrhosis from pathogenetic positions and the influence of markers of aneoangiogenesis, necroinflammation, regeneration on its evolution [14-17].

Thus, improving the diagnosis of liver fibrosis in the early stages, assessing the rate of its development and developing methods to eliminate the processes of fibrogenesis in the liver are very important tasks not only for hepatology, but also for internal diseases in general. In connection with this, extensive pharmacological and toxicological studies of the cellular and subcellular levels were carried out in the laboratories of the Research Institute of Pediatrics and IHR of the Academy of Sciences of the Republic of Uzbekistan, as well as chemical and technological studies, especially of plant origin, which are widespread in Central Asia and Uzbekistan, as well as synthetic origin [18-21].

Successes and prospects in the treatment of hepatitis. The main goal and directions of treatment of chronic hepatitis is the prevention of progressive liver damage with the development of fibrosis or cirrhosis and hepatocellular cancer (HCC), this also makes it possible, provided that the replication activity of the virus is persistently suppressed and means the disappearance of HBV DNA from the blood serum. As mentioned above, the criteria for the effectiveness of antiviral therapy are various response options: biochemical, serological, virological and histological. In this regard, drugs that are effective for all strains of viruses that are used in certain time intervals, both during treatment and after its completion, are currently being successfully used. [22].

It is known that with liver diseases, especially infectious and toxic genesis, serious violations of its functions develop: metabolic, detoxification, synthetic, etc. Often liver diseases that end in recovery leave a “trace” of a metabolic disorder that persists for many years, and sometimes turns into a disease that requires drug therapy For the pharmacological protection of such liver disorders, hepatoprotective agents are often used. [Novikov V. E., Klimkina E. I. Possibilities of pharmacological protection of liver functions.]. There is a safe and effective vaccine that provides protection against hepatitis B at the level of 98-100%. Prevention of viral hepatitis B can prevent the development of complications such as chronic hepatitis and liver cancer. Hepatitis B is preventable through safe, affordable and effective vaccines. [9] Despite the suppression of the replicative activity of viruses with the help of highly effective antiviral drugs, the treatment of liver diseases accompanied by the formation of fibrosis is an extremely important task, while the prevention of the development of the

occurrence of this condition remains quite relevant and justified. Despite numerous studies in this direction, currently there are no specific drugs for the treatment and prevention of fibrosis.

Thus, the most rational approach to the treatment of liver pathologies is the use of natural and less harmful drugs, especially those obtained on the basis of plant origin that can prevent the occurrence, development and progression of these diseases. It also spoke about scientific achievements in the search and introduction of affordable imported drugs with high activity for the treatment of serious diseases, including hepatitis in children. Currently, there are many drugs that are used to treat liver diseases, however, when most of them are used for diseases associated with liver fibrosis, there is no clear mechanism of action that allows us to discuss the occurrence and progression of fibrosis in prevention. And at the same time, almost none of these drugs show such ability in clinical trials [11]. Therefore, today, with cirrhosis of the liver, liver failure, being one of the effective ways to increase the number of donor organs, in countries with a developed system of cadaveric donation, it can significantly reduce the mortality of patients on the waiting list. But this procedure is economically expensive and can cause various social problems. In this regard, despite a number of achievements in the treatment of chronic viral hepatitis, effective treatment of fibrous processes in the liver with medications has not lost its relevance today.

In the Republican Specialized Pediatric Scientific and Practical Medical Center, along with measures for the early diagnosis of severe diseases of various breeds and augmentation by scientists using modern diagnostic methods, deep and comprehensive scientific studies of hepalipine and yantazine, compounds with high hepatoprotective activity, obtained on the basis of local plant raw materials and synthetic compounds, including ecdystene, vegetable lycopene and fofolipids [23,24].

Modern solutions to the problems of hepatitis of viral etiology. In order to prevent, diagnose, treat viral hepatitis and work with the population, especially in pregnant women and children, the World Health Assembly adopted the first Global Health Sector Strategy on Viral Hepatitis for 2016-2020. This Strategy assumed the achievement of the goal of eliminating viral hepatitis as a public health problem by 2030 (with the aim of both reducing the number of new cases of chronic infections and reducing mortality compared to the baseline indicators of 2015). And also at the seventy-fifth session of the World Health Assembly took note of a number of new comprehensive global health sector strategies on HIV, viral hepatitis and sexually transmitted infections for the period 2022-2030.

WHO holds annual events dedicated to World Hepatitis Day aimed at raising awareness of the problem of viral hepatitis and understanding its significance. In 2022, WHO is holding World Hepatitis Day under the slogan "Providing care for hepatitis in the nearest availability" and calls for simplifying the procedures for providing services for viral hepatitis, ensuring their greater accessibility to the population [9].

Discussion and conclusions. Knowledge and best practices in this field are constantly changing. New research and experiments not only expand our understanding, but also facilitate disease prevention, therapeutic measures by changing research methods,

professional practice or medical treatment. It is known that hepatitis is a polyetiological diffuse liver disease characterized by varying degrees of severity of hepatocellular necrosis and inflammation, in which there is no improvement and development of liver cirrhosis for 6 months. Taking this into account, laboratory tests have been improved in recent years, allowing for accurate and timely diagnosis of the disease. However, with a severe course of the disease or the development of complications, the problems of early diagnosis remain relevant.

With a severe course of the disease or with the development of complications, the main task in determining the tactics of managing patients with HCG is to assess the degree of necroinflammatory changes and the stage of fibrosis in liver tissue. In this case, a puncture biopsy serves as the "Gold standard" for the diagnosis of hepatic HCG, which allows to determine the degree of inflammation activity and the severity of fibrosis. As with any invasive method, a biopsy requires compliance with the rules of its conduct in specialized institutions and qualified personnel to interpret the results, since there is always a risk of developing a number of complications.

Thus, despite the successes achieved in this area, the problems of early diagnosis, clinical course, choice of treatment method and outcomes of perinatal viral hepatitis B and C in children remain complex and insufficiently studied.

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