

RELEVANCE OF VIRAL HEPATITIS EPIDEMIOLOGY

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Annotation: *Viral hepatitis is a group of human infectious diseases that are caused by various hepatotropic viruses, have different transmission mechanisms and different outcomes. Viral hepatitis occupies one of the leading places in human infectious pathology in terms of incidence, breadth of distribution, severity of the course, the frequency of development of chronic forms and the economic damage caused. A review of the literature data on the epidemiology, etiology and pathogenesis of viral hepatitis is presented. The main reasons for the development of this infection are indicated. The results of domestic and foreign studies, as well as our own results are analyzed. The analysis of the data indicates that hepatitis is characterized by common pathogenetic processes in the liver.*

Key words: *Hepatitis, virus, hepatology, genotype, liver, hemocontact, homeostasis.*

Viral hepatitis is an infectious liver disease that causes diffuse inflammation of the liver tissue. With hepatitis, the entire liver is involved in the inflammatory process, as a result, liver functions are disrupted, which manifests itself in various clinical symptoms. Hepatitis can be infectious, toxic, medicinal and others.

Viral hepatitis is one of the most common diseases in the world. In most cases, viral hepatitis occurs subclinically and is diagnosed only on the basis of additional studies, including laboratory data. The spectrum of clinical manifestations varies greatly.

In the world, the incidence of viral hepatitis, especially with a parenteral mechanism of transmission of pathogens, is the most global and urgent health problem [2]. Viral hepatitis ranks third among infectious diseases in terms of breadth of spread, damage to public health and economic losses [5]. To date, viral hepatitis A, B, C, D, E are isolated, the pathogens of which differ in taxonomic characteristics, and the diseases – in epidemiological, pathogenetic features and in the likelihood of transition to chronic forms [11]. Recently discovered hepatitis F and G viruses have not been fully studied. Among all viral hepatitis, hepatitis B and C are the most common [6]. Parenteral viral hepatitis B and C, due to their wide spread, significant rejuvenation of the main groups of patients, severe course and formation of chronic forms with the development of cirrhosis and liver cancer, represent a serious medical and social problem [5]. Currently, a sharp increase in the incidence of chronic forms of hepatitis has been recorded, due to the active involvement of women of reproductive age in the epidemic process, which carries even greater social and economic losses, since, due to vertical transmission of infection from mother to fetus, the risk of giving birth to infected children increases [7]. In a number of subjects of the Russian

Federation, the coverage of the adult population aged 18-35 years with vaccination against viral hepatitis B is about 91% [10]. Despite this, the incidence of chronic viral hepatitis does not decrease [3]. After all, timely vaccination helps prevent acute hepatitis B, but does not affect the number of chronically infected patients [7].

The incidence of chronic forms of viral hepatitis B, according to Rospotrebnadzor, is 13-14 cases per 100 thousand population, chronic hepatitis C is 58.5 per 100 thousand cases, and the carrier rate of the hepatitis B pathogen is more than 40 cases per 100 thousand population [6]. Experts tend to believe that a significant part of "asymptomatic carriers" have chronic hepatitis B, which remains undetected [4]. The incidence of chronic hepatitis C has been increasing over the past decade [11]. According to Rospotrebnadzor, more than 500 thousand have been identified. patients with chronic hepatitis C (HCV) and 1.8 million carriers of hepatitis C virus [6]. According to Rospotrebnadzor, more than 40 thousand cases of newly diagnosed chronic viral hepatitis C (HCV) are registered annually in the world, of which more than 60% of HCV diseases are registered in people aged 20 to 39 years [1].

In the absence of specific treatment of parenteral hepatitis infected with viruses, the third part of the "asymptomatic carrier" develops cirrhosis of the liver after 10-30 years [5]. In this regard, timely treatment of HCV becomes particularly relevant. Viral hepatitis differ in the mechanisms of infection, transmission routes, but they are all characterized by common pathogenetic processes in the liver in the form of cytolytic, cholestatic and immuno-inflammatory syndromes [4]. Due to the generality of pathological processes, viral hepatitis can be classified by clinical form, severity and nature of the course. In recent years, mixed hepatitis (mainly B + C) has been increasingly diagnosed, which is due to the general mechanisms of infection. Despite this, the pathogenesis, clinical manifestations and the probability of chronization of these diseases are different [9]. According to the mechanism of transmission, all viral hepatitis are divided into two groups. Hepatitis with a fecal-oral transmission mechanism implemented by water, food and household contact – these include hepatitis A and E [3]. They are characterized by a wide prevalence, up to epidemics covering entire regions [3, 4]. The second group includes hepatitis B, C and D transmitted by parenteral (hemocontact) pathway [11]. According to clinical manifestations, hepatitis is divided into: manifest (jaundice, non-jaundice) and latent, or asymptomatic (subclinical, inapparent). According to clinical data and the results of laboratory studies of liver function, a time criterion is used to determine the acute cyclic course – up to 3 months, the acute prolonged (progressive) course – up to 6 months and the chronic course – over 6 months [6]. However, acute viral hepatitis can be completely cured, including, possibly, recovery with posthepatitis syndromes, or take a chronic course [8]. Severe (fulminant) forms with acute liver failure, characteristic of hepatitis B and D, often end in death, especially with untimely treatment. Almost all patients with hepatitis A and hepatitis E have a complete clinical recovery. The chronic course is characteristic only

of viral hepatitis B, C and D [7]. Chronic hepatitis is a diffuse inflammatory process in the liver lasting more than 6 months [6].

The main causative agents of this form of the disease are hepatitis B and C viruses [31]. It has been established that alcoholism, drug addiction, abuse of certain drugs, malnutrition predispose to the formation of chronic hepatitis [4]. In the external environment, viral hepatitis A is more resistant than typical enteroviruses. Hepatitis A is characterized by recovery, but in rare cases a clinical relapse is possible [10]. The possibility of the transition of acute viral hepatitis A to a chronic form has not been reliably established. The increase in the proportion of adults of reproductive age among the sick is alarming, because when infected with hepatitis A during pregnancy, the risk of untimely termination is doubled. Complications such as the threat of termination of pregnancy, premature placental abruption, premature discharge of amniotic fluid, uterine bleeding are also possible [7, 8]. Transmission of this infection from the mother to the fetus, as a rule, does not occur. Hepatitis B is a viral infection that can cause both acute and chronic illness. Acute hepatitis B (OVH B) is a widespread infection, it is characterized by symptoms of acute liver damage and intoxication (with or without jaundice). Chronic hepatitis B (HCV B) is a long-term inflammatory liver disease that can flow unchanged or regress under the influence of treatment or spontaneously, but can also turn into cirrhosis and liver cancer [11]. The probability of chronization depends on the age at which a person is infected. In adults with acute hepatitis B, a chronic infection develops in 5-10%, and 90% of children born to infected mothers will develop a chronic form of hepatitis B [7]. Hepatitis B virus is transmitted exclusively by parenteral route – by transfusion of blood and its components, by using medical instruments, by intravenous administration of drugs, etc. [2]. Natural transmission routes are relevant for hepatitis B: sexual (during sexual contact) and vertical (from mother to child in utero or during childbirth) [7]. Viral hepatitis C, like B, refers to anthroponotic nontransmissible parenteral viral infections [8, 9]. Sexual transmission of hepatitis C is less intense than with hepatitis B – in only 2% of cases.

The vertical transmission pathway occurs only in 3-6% of cases, the degree of risk increases sharply if the mother has concomitant HIV infection [2]. The lower activity of the mechanisms of transmission of pathogens of this infection is compensated by the long-term viremia of infected people and the frequency of chronization, which leads to an increase in the number of virus carriers. A characteristic feature of the hepatitis C virus is its significant genetic variability [1]. With the development of the pathological process, the simultaneous formation and existence of many immunologically different antigenic variants of the virus, which have significant adaptation capabilities, which allows it to avoid the actions of the host immune system, is possible. There are 69 cases of infection, most often these are non-jaundiced forms of the disease [6]. In 80-85% of cases, HCV develops. On average, 20-30% of patients with HCV develop cirrhosis of the liver after 20-25 years [6]. In the last decade, there has been an increase in the number of patients with coinfection – HIV + hepatitis B and/or C [2]. The question of the influence of hepatitis on the course of

HIV infection has not been sufficiently studied, although there is an opinion that hepatitis leads to the rapid progression of HIV infection and the development of AIDS [2]. According to numerous studies, viral hepatitis is a systemic disease and leads to changes in the state of many organs and systems of the body, including the main constants of homeostasis [11]. At the same time, the triggered compensatory-adaptive mechanisms change the metabolism and the functional state of all body systems. The presence of viral hepatitis is of particular relevance in women, as it is often accompanied by changes in the neuroendocrine regulation system and disorders of the reproductive sphere [5, 8, 9]. The neuroendocrine system of the body plays a leading role in the regulation of the reproductive system, which is one of the most important functional systems [3, 11]. It includes central and peripheral links that work on the principle of feedback.

The endocrine glands, together with the nervous and immune systems, regulate and coordinate the activity of all body systems, allowing them to adequately respond to the constantly changing conditions of the external and internal environment. Depending on the functions and target tissues of hormones, the neuroendocrine system is divided into several links. The main interest is its pituitary-ovarian, pituitary-thyroid and pituitary-adrenal links [8, 9]. According to the results of a study conducted at the Scientific Center for Family Health and Human Reproduction (Irkutsk), it was found that with viral hepatitis in women of reproductive age, disorders occur in all major links of the neuroendocrine regulation system [2, 3, 4]. An increase in the activity of the pituitary thyroid link of the neuroendocrine system, prolactinergic activity, estradiol and testosterone was found in both acute and chronic forms of hepatitis. The pituitary-adrenal system of women of reproductive age, patients with viral hepatitis B and C, is characterized by a decrease in 17-OH-progesterone in acute and chronic viral hepatitis while maintaining normal glucocorticoid activity. In women of reproductive age, patients with chronic viral hepatitis, with menstrual function disorders, compared with the group without disorders, there are more pronounced changes in the functioning and system of neuro-endocrine regulation, consisting in a lesser degree of increase in the content of total and free fractions of thyroid hormones, a decrease in prolactinergic activity, 17-OH-progesterone and an increase in estrogenic saturation of the body [7]. One of the reasons for the development of viral hepatitis is considered to be the inferiority of the immune response [7]. This process may be caused by a change in the functional state of the lipid peroxidation system – the antioxidant protection of blood (POL – AOZ) [3]. The multicomponent antioxidant system serves as a protective buffer that determines the transition to a pathological state, respectively, a failure in its functioning will contribute to the development of a state of oxidative stress and determine the severity of the disease [9, 10, 11].

According to the latest research of the Federal State Budgetary Institution "Scientific Center for Family Health and Human Reproduction" (g. Irkutsk), it was found that the analysis of the obtained results indicates a change in the functioning of the lipid status, as well as the sex – AOSIS system in women of reproductive age, patients with acute and

chronic viral hepatitis. Both forms of the clinical course of the disease are characterized by the accumulation of atherogenic fractions of blood and lipoperoxidation products with a simultaneous decrease in the activity of the AOS system. Moreover, in the group with an acute course of the disease, there were more pronounced metabolic disorders, which can modify the course of the pathological process in the future. The obtained results allow us to consider the indicators of lipid status, as well as the level of SEX intermediates as additional diagnostic clinical laboratory criteria characterizing the course of the pathological process in the liver [7].

Thus, the analysis of domestic and foreign literature, as well as our own experience, show the particular relevance of studying the pathogenetic mechanisms of viral hepatitis. Changes in the main constants of the body – the parameters of the neuroendocrine regulation system, lipid status, and the POL – AOZ system - play a special role in this. It is especially important to study these parameters in cases of reproductive health disorders in women with hepatitis. In case of detected violations, the use of therapeutic measures is required in accordance with the nature of the changes.

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