



Original Article

Symptoms of Acute and Chronic Viral Hepatitis: Effects on Human Body

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ABSTRACT

Objective: The objective of this article is to study the theoretical and applied principles of the symptoms of acute and chronic viral hepatitis and the consequences of their impact on the human body.

Materials and methods: The methodological basis of this study consists of various methods of scientific knowledge, including analysis, synthesis, scientific abstraction, analogy, comparison, graphical and tabular methods, generalization, and systematization.

Results: The research reveals a significant impact of these forms of hepatitis on the human body, particularly leading to a decline in liver function and the development of associated conditions such as cirrhosis and liver cancer. The study also identifies the most common symptoms of acute and chronic viral hepatitis, including flu-like symptoms, nausea, vomiting, fever, abdominal pain, loss of appetite, fatigue, joint pain, rash, diarrhea, darkening of urine, and yellowing of the skin and eyes. These symptoms manifest at different stages of hepatitis, such as the incubation period, acute hepatitis, chronic hepatitis, cirrhosis, and liver cancer.

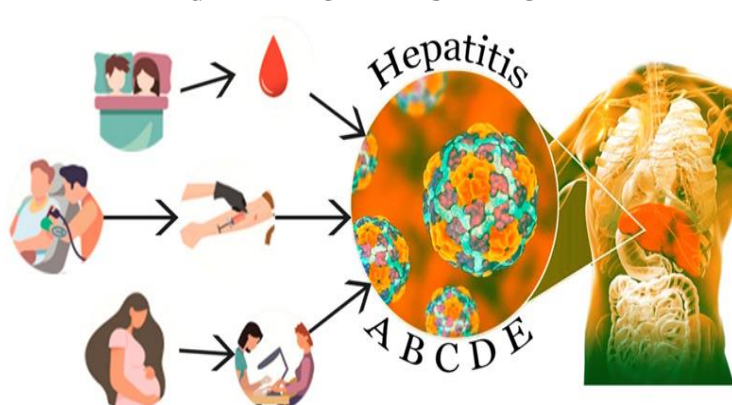
Conclusion: The study proposes several preventive measures, including population immunization, adherence to personal hygiene practices and handwashing, access to clean water and sanitation facilities, safe food handling, sterilization and disinfection of items used by infected individuals, use of disposable syringes for injections and blood transfusion, and promotion of responsible sexual behavior. These measures can significantly contribute to the prevention and control of acute and chronic viral hepatitis, ultimately improving public health outcomes.

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GRAPHICAL ABSTRACT



Introduction

Intensification of society development and close interaction of the population lead to the rapid spread of various viral diseases transmitted through contact with a sick person. At the present stage, the global problem of the spread of viral hepatitis has become extremely acute. They cause public health problems in the world and have a significant impact on the human liver, disrupting its function, and leading to the development of terminal illnesses. The growing trends in the spread of acute and chronic viral hepatitis are becoming a significant problem of modern medicine and are gradually transforming into the realm of society. It requires the development of a set of measures for effective prevention and control, since the consequences of its impact on the human body are quite weighty and, sometimes, extremely dangerous. Taking into account the outlined trends in modern conditions, the problem of deepening scientific research in the study of the symptoms of acute and chronic viral hepatitis and the consequences of their impact on the human body is extremely acute. Therefore, the chosen topic becomes highly relevant.

The article aims to study theoretical and applied principles of symptomatology of acute and chronic viral hepatitis as well as the consequences of their impact on the human body.

Literature review

The problem of acute and chronic viral hepatitis is reflected in the scientific works of leading domestic and foreign scientists who are actively

searching for methods and measures for their prophylaxis, prevention, and treatment. Canzater *et al.* [1] considered viral hepatitis a dangerous infection that causes severe liver disease, the appearance of cancer cells in the liver, and various inflammatory processes. Scientists note that the spread of acute and chronic viral hepatitis has reached critical levels, which have outpaced AIDS and tuberculosis in their growth rates. At the same time, Imhoff [2] found that the death toll from tuberculosis and AIDS in recent years is significantly lower than from viral hepatitis.

According to Litovka *et al.* [3] and Ratini [4], viral hepatitis types B and C which pose a significant threat to human health and provoke liver cirrhosis and hepatocellular carcinomas in 96% of cases have become especially threatening. At the same time, scientists note that the particular danger of this disease is its hidden nature and asymptomatic nature. The infection occurs through exposure to the blood or other fluids of a sick person.

Dienstag (2020) considered viral hepatitis to be the most common chronic liver disease caused by hepatotropic viruses. Moreover, it has been found that in recent years there has been a rapid increase in the number of diseases among children.

According to Pearson [5], their symptoms are atypical, unexplained, and severe. As a result, there are more frequent cases of the need to revise treatment protocols, and sometimes liver transplantation.

The hypothesis put forward by the previous researchers is shared by Hokinson *et al.* [6] who also investigated the growing trends in the incidence of severe acute hepatitis in children, the total number of which in July 2022 reached 1 thousand cases in the United States alone, and their etiology is still unknown. Similar trends in the spread of viral hepatitis are also observed in Japan, where, according to Sugimori *et al.* (2022), more than 30 thousand deaths are associated with liver disease due to viral hepatitis infection annually.

The severity and danger of acute and chronic viral hepatitis is proved by Lim *et al.* [7], who found a significant death toll due to viral hepatitis. At the same time, scientists claim that viral hepatitis has a significant negative impact on the human body and causes liver fibrosis and, as a result, leads to the development of cirrhosis, liver failure, and carcinoma.

The growing danger of the rapid spread of acute and chronic hepatitis among the population in different parts of the world and severe symptoms of the disease make it urgent to prevent and control this disease. In this context, Mak *et al.* [8] propose to increase attention to the formation of structured approaches to screening and the development of a set of measures to manage the spread of various forms of viral hepatitis. One of the options for implementing the proposed scientists considers immunization, vaccination, and the use of antiviral drugs of direct action, which are highly effective and safe measures.

Rogers [9] identified the causes of acute and chronic viral hepatitis, which are divided into infectious and non-infectious. In turn, infectious causes include viruses and parasites, and non-infectious causes include drugs and toxic substances. At the same time, the scientist clearly outlines the main symptoms of viral hepatitis, namely: (1) flu-like symptoms, (2) nausea, (3) vomiting, (4) fever, (5) abdominal pain, (6) loss of appetite, (7) fatigue, (8) joint pain, (9) rash, (10) diarrhea, (11) dark-colored urine, and (12) yellowing of the skin and eyes. Moreover, Rogers (2022) structured the types of viral hepatitis, in particular, mentioned that seven known hepatitis viruses are developing and rapidly spreading in the modern world: A, B, C, D, E, F, and G, among

which hepatitis viruses of types A, E, and F are transmitted by ingestion of infected food or water and are most often observed in places of population concentration, where there are unsanitary conditions and large crowds of people. Hepatitis viruses of types B, C, D, and G are transmitted through exposure to blood or other human fluids.

Thottacherry and Felman [10] identify the significant impact of acute and chronic viral hepatitis on the human body. It is manifested in the disruption of processes of toxin elimination from the blood, vitamin storage, and the production of essential hormones.

At the same time, Zarrin and Akhondi [11] found that the development of acute and chronic hepatitis differ significantly from each other, and their clinical study involves determining the level of aminotransferases and bilirubin. Based on the obtained results, a decision is made regarding the acute or chronic course of the disease.

Mehta and Reddivari [12] proved that the clinical picture of viral hepatitis varies significantly among patients and depends on the type of virus that infects the human body. As a result, in some patients, the course of viral hepatitis may be completely asymptomatic or mildly symptomatic. However, in some patients, under the influence of the hepatitis virus, the onset of acute liver failure can be observed very quickly. Therefore, taking into account these features, scientists propose to distinguish several phases of viral hepatitis morbidity, namely, (1) viral replication phase, (2) prodromal phase, (3) jaundice phase, and (4) recovery phase.

Daniel [13] emphasized the need to study the symptoms of acute viral hepatitis and suggests that the main symptoms of this disease should be divided into (1) general, (2) variable, (3) onset symptoms, (4) symptoms of the immediate course of the disease, and (5) recovery symptoms, because, as noted by Machram *et al.* [14], viral hepatitis is the most significant health problems, as no individual methods of treatment have yet been established. Moreover, the spread of the COVID-19 pandemic has exacerbated the problem of combating the rapid spread of acute and chronic viral hepatitis diseases, which is

confirmed by the results of studies conducted by Kondili *et al.* [15].

The importance of the problem of spread of acute viral hepatitis is emphasized by Kuma [16]. He insisted on the need for preventive measures against acute viral hepatitis in the global dimension, justifying this opinion by the treatment complexity of this type of disease and the need for its prevention. From this viewpoint, the scientist proposes wide use of anti-hepatitis vaccines and immunoglobulins. Along with this, it is equally important to carry out other preventive measures, in particular: thorough hand washing, sterile use of medical needles for injections, prohibition of sharing personal hygiene products, limiting the number of sexual partners, and practicing safe sex.

Thus, the conducted studies of theoretical aspects of the symptoms of acute and chronic viral hepatitis, as well as the consequences of their impact on the human body, allow us to identify a variety of scientific views on the selected issues. Moreover, it has been found that viral hepatitis in today's conditions is a dangerous and widespread disease that has a significant negative impact on the human body and the development of society and health care. These trends indicate the need for in-depth research in this area and the expediency of studying the features of the manifestation and treatment of viral hepatitis.

Materials and Methods

The study is founded upon various scientific methods to acquire knowledge in the medical field. Through analysis, synthesis, and scientific abstraction, the fundamental nature of acute and chronic viral hepatitis has been elucidated along with their key characteristics and impact on the human body. Analogical and comparative methods have been employed to outline the present status and trends in the investigation of acute and chronic viral hepatitis, as well as their associated symptoms. Visual representation of research outcomes has been facilitated through graphical and tabular approaches. Generalization and systematization methods have been employed to formulate hypotheses and draw conclusions based on the study findings.

The study draws upon a comprehensive information base, encompassing scientific literature authored by prominent domestic and foreign researchers, as well as reports from international organizations.

Results and Discussion

In today's conditions, the problem of widespread diseases such as viral hepatitis, which are a large group of diseases, has become more acute. They multiply in the liver cells and destabilize the process of its basic functions, as well as cause acute or chronic inflammation of the liver. As a result, cirrhosis and liver cancer may develop. The current stage of development of society and medicine is characterized by globalization approaches to define the main views in terms of research, detect, and treat viral hepatitis. It is known that currently several types of hepatitis viruses have been identified in the world, which significantly affects the symptoms of the disease. They pose considerable risks and dangers to human health. Let's see a systematic list of the main types of hepatitis viruses in [Figure 1](#).

It includes: (1) viral hepatitis, (2) toxic hepatitis, (3) autoimmune hepatitis, and (4) alcoholic hepatitis. The most dangerous and commonly spread is viral hepatitis, the symptoms of which are characterized by an increase in the size of the liver, pain in the right hypochondrium, resulting in a significant heaviness in this area, itching of the skin, jaundice, nausea, vomiting, fever, darkening of the urine, general weakness of the body, and low level of its performance. In modern medicine, there are two main forms of viral hepatitis: acute and chronic. Acute viral hepatitis is characterized by a short-term period of the disease. During acute viral hepatitis, the body fights the infection and in most cases the disease is asymptomatic. In some cases, liver failure and progression of other severe forms are diagnosed. Chronic viral hepatitis, on the other hand, begins to develop at the time of complication of acute viral hepatitis and is characterized by long-term (more than 6 months) preservation of liver virus antigen in the blood serum and high titers of viral DNA and RNA.

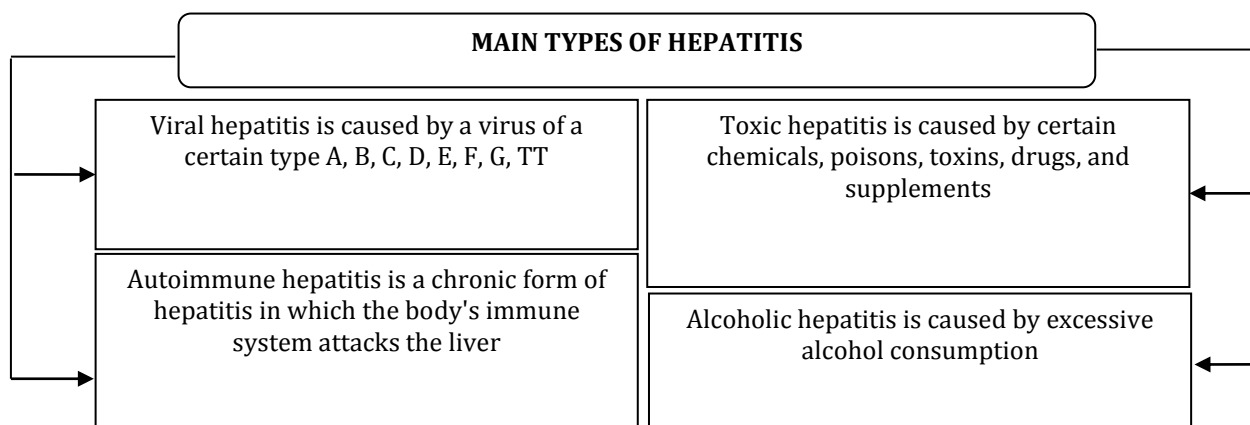


Figure 1: Main types of hepatitis

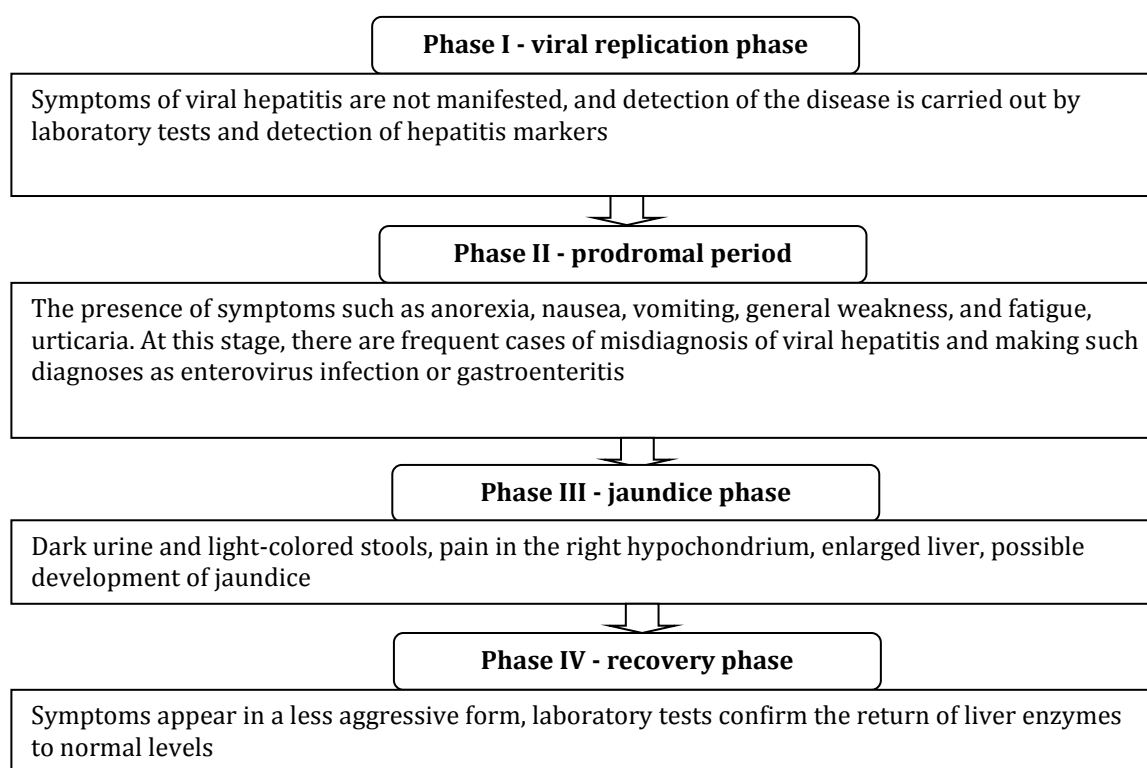


Figure 2: Main phases of acute and chronic viral hepatitis

The difference between chronic viral hepatitis and acute hepatitis is the mandatory treatment, as in most cases, chronic viral hepatitis leads to cirrhosis and liver cancer.

The clinical picture of viral hepatitis can be different in each patient and depends on the type of virus that causes the infection. Certain similar trends are still recorded in terms of symptoms of acute and chronic viral hepatitis. Moreover, there are identical features regarding the consequences of their impact on the human body. In particular,

it is worth noting that the course of acute and chronic viral hepatitis goes through four phases, the characteristics of which are depicted in [Figure 2](#).

It is worth noting that each phase of the disease is characterized by different symptoms. Meanwhile, the symptoms of acute and chronic viral hepatitis significantly depends on the type of hepatitis virus.

It should be noted that the symptoms of chronic viral hepatitis are accompanied by inflammatory

dystrophic-proliferative changes in the liver parenchyma. Clinical manifestations are dyspeptic, asthenovegetative, hemorrhagic syndromes, liver dysfunction, and persistent hepatosplenomegaly. The impact of viral hepatitis on the human body is too significant because this disease requires effective treatment. It includes diet, antiviral drugs, enzymes, eubiotics, and hepatoprotection, which are prescribed depending on the stage of the disease. In Figure 3, we consider it appropriate to reflect the main stages of viral hepatitis.

Clinical manifestations are dyspeptic, asthenovegetative, hemorrhagic syndromes, liver dysfunction, and persistent hepatosplenomegaly (Table 1).

The characterization of the main stages of viral hepatitis indicates its long-term course, which begins with the incubation period and transforms into the stage of acute hepatitis, followed by the stage of chronic hepatitis. Likewise, frequent cases of viral hepatitis are cirrhosis and liver cancer.

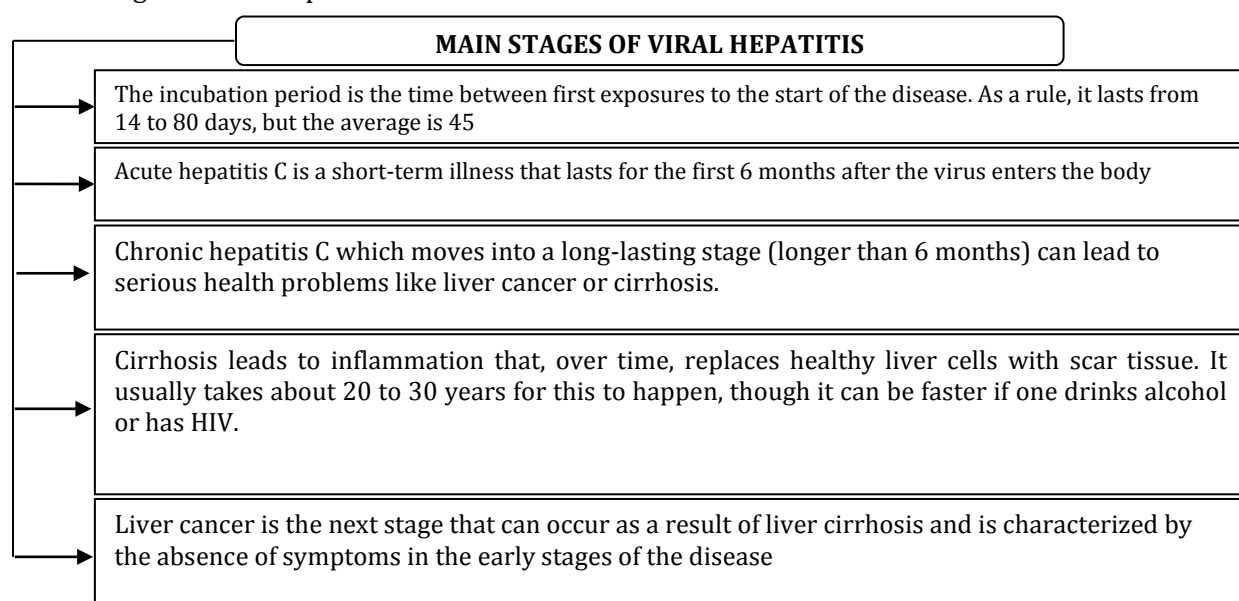


Figure 3: The main stages of viral hepatitis

Table 1: Main hepatitis viruses and mechanism of their impact on the human body

Hepatitis virus type	Genome	Infection transmission route	Mechanism of viral hepatitis development
Hepatitis A virus	RNA	Exposure to contaminated fecal matter or blood products	Immune-mediated liver damage
Hepatitis B virus	DNA	Through blood products and bodily fluids	Immune-mediated liver damage
Hepatitis C virus	RNA	Exposure to contaminated blood products	Immune-mediated liver damage
Hepatitis D virus	RNA	Through contaminated blood or sexual activity.	Direct cytopathogenicity and/or immune-mediated liver damage.
Hepatitis E virus	RNA	Fecal-oral, through undercooked meat	Immune-mediated liver damage

Author's development.

The problem of the spread of acute and chronic viral hepatitis is not new and is especially exacerbated in today's conditions. Taking into account the specifics of the disease course, its

various symptoms, and the consequences of its impact on the human body, the problem of finding effective methods of treatment of viral hepatitis is becoming more urgent. Having

studied a wide range of scientific literature in this area, it was found that viral hepatitis is difficult to treat, and its consequences have a destructive effect on the human body, provoking diseases such as cirrhosis and liver cancer.

The proposed measures will slightly reduce the spread of viral hepatitis and reduce the population of undiagnosed chronic patients with viral hepatitis, and, accordingly, cirrhosis and liver cancer.

The conducted studies of theoretical and applied principles of symptoms of acute and chronic viral hepatitis and the consequences of their impact have established a significant negative impact of viral hepatitis on the human body. It is manifested through the intensification of action of various pathogenic factors that damage liver hepatocytes, destabilizing their functions and causing severe symptoms. The results of the studies conducted in the selected sample revealed the highest rate of spread of viral hepatitis in most countries of the world, which exceeded the rate of spread of tuberculosis and AIDS, as well as a particularly severe course of the disease among young children. The main threats of the spread of acute and chronic viral hepatitis lie in their hidden nature and cause such serious consequences for the human body as fibrosis, cirrhosis, and liver cancer, accompanied by a high death toll.

Taking into account the outlined trends and disappointing forecasts for the fight against acute and chronic viral hepatitis, the need to develop a set of preventive measures is becoming more urgent. With their help, it is planned to reduce the rate of spread of this extremely dangerous disease. A prominent place among such measures belongs to immunization, compliance with all the requirements of personal hygiene, adherence to the basic rules of proper and safe nutrition, and drinking quality water. Moreover, the use of disposable medical devices for injections and other medical procedures, as well as the formation of high standards of sexual relations should be taken into consideration.

Conclusion

Thus, the results of the study of the theoretical and applied principles of the symptoms of acute and chronic viral hepatitis and the consequences of their impact on human body give reason to believe that these diseases are spreading extremely rapidly in society. They acquire new forms and have a significant negative impact on the human body, which is manifested in a decrease in liver function and the development of diseases such as fibrosis, cirrhosis, and liver cancer. Among the most common symptoms of acute and chronic viral hepatitis in modern conditions is nausea, vomiting, flu-like symptoms, fever, abdominal and joint pain, loss of appetite, decreased performance and fatigue, rash, diarrhea, darkening of urine; yellowing of the skin and eyes. It has been established that the process of development of acute and chronic viral hepatitis goes through four phases: virus replication, prodromal phase, jaundice phase, and recovery, each of which is characterized by specific symptoms. The stages of viral hepatitis begin with the incubation period, go through acute and chronic phases, and in some cases, transform into cirrhosis or liver cancer. To reduce the rate of spread of acute and chronic hepatitis, it is proposed to implement a set of preventive measures, which are in the plane of compulsory immunization, compliance with hygiene and healthy and safe nutrition, as well as sterile use of medical devices during procedures in medical institutions.

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Authors' Contributions

All authors contributed to data analysis, drafting, and revising of the article and agreed to be responsible for all the aspects of this work.

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