

LABORATORY DIAGNOSTICS OF HEPATITIS C VIRUS

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Annotation. The hepatitis C virus causes an anthroponotic infection with a parenteral transmission mechanism and predominant liver damage. It often occurs in the form of post-transfusion hepatitis with a predominance of anicteric forms and is prone to chronicity. Hepatitis C is called the “gentle killer” because of its ability to mask the true cause under the guise of many other diseases. The causative agent of the disease is the hepatitis C virus. The acute infectious form is asymptomatic in 70-90%, becoming chronic in 60-80%.

Globally, approximately 71 million people are chronically infected with hepatitis C virus and are at risk of developing cirrhosis and/or liver cancer. Every year, more than 350 thousand people die from hepatitis C-related liver disease. Every year, 3-4 million people become infected with the hepatitis C virus.

Today, 8 genotypes of the virus are known, divided into over 100 subtypes.

The source of infection is patients with active hepatitis C and latent patients who are carriers of the virus. HCV infection is an infection with a parenteral mechanism of infection - through infected blood and its components. Infection is possible during parenteral manipulations, including in medical institutions, including the provision of dental services, through injection equipment, during acupuncture, piercing, tattooing, and during the provision of a number of services in hairdressing salons. In 20% of cases, it is not possible to establish the mode of transmission of the virus.

Timely detection of infection, as well as control of the course of the disease, is carried out using highly effective laboratory diagnostic methods.

The most dangerous, from a source point of view, are patients with chronic hepatitis C.

Key words. Hepatitis C, genotype, anthroponosis, acupuncture, HCV, liver cirrhosis.

The purpose of the work is to determine modern highly effective laboratory diagnostic methods to establish the form of the infectious process and the prognosis of the disease.

Аннотация. Вирус гепатита С вызывает антропонозную инфекцию с парентеральным механизмом передачи и преимущественным поражением печени. Часто протекает в виде посттрансфузионного гепатита с преобладанием безжелтушных форм и склонен к хронизации. Гепатит С называют «ласковым убийцей» из-за способности маскировать истинную причину под видом множества других заболеваний. Возбудителем заболевания

является вирус гепатита С. Острая инфекционная форма в 70-90% протекает бессимптомно, переходя в хронический процесс в 60-80%.

В мире около 71 миллиона человек хронически инфицированы вирусом гепатита С и подвергаются риску развития цирроза печени и/или рака печени. Ежегодно более 350 тысяч человек умирают от связанных с гепатитом С болезней печени. Ежегодно 3-4 миллиона человек инфицируются вирусом гепатита С.

На сегодня известно 8 генотипов вируса, подразделяющихся на свыше 100 подтипов.

Источником инфекции являются больные с активным гепатитом С и латентные больные - носители вируса. HCV-инфекция является инфекцией с парентеральным механизмом заражения - через инфицированную кровь и её компоненты. Инфицирование возможно при парентеральных манипуляциях, в том числе в медицинских учреждениях, включая оказание стоматологических услуг, через инъекционное оборудование, при акупунктуре, пирсинге, нанесении татуировок, при оказании ряда услуг в парикмахерских. В 20% случаев не удаётся установить способ передачи вируса. Своевременное выявление инфекции, а также контроль течения заболевания осуществляется с помощью высокоэффективных методов лабораторной диагностики.

Наиболее опасны, с точки зрения источника больные с хроническим гепатитом С.

Ключевой слова. Гепатит С, генотип, антропоноз, акупунктуре, HCV, цирроз печени.

Materials and methods. 20 patients were examined using specific and nonspecific methods. To reliably determine hepatitis C, specific methods are used: molecular genetic and serological, nonspecific - biochemical blood test, ultrasound diagnostics of the liver, general blood test.

The molecular genetic method includes polymerase chain reaction (PCR) and genotyping. PCR detects a specific fragment of hepatitis C virus RNA in the patient's blood. Used to control viral load during therapy. Genotyping is carried out to determine the genotype of hepatitis C, which is necessary for the creation and correction of a specific antiviral treatment regimen.

Serological diagnosis is based on the detection of specific antibodies to the hepatitis C virus (Anti-HCV IgG, Anti-HCV IgM), through the study of paired sera in an enzyme-linked immunosorbent assay (ELISA). The detection of certain antibodies allows us to determine the form of the infectious process. Antibodies are detected in the patient's blood 3-4 weeks after infection.

Nonspecific methods have been known for a long time and many studies have been devoted to their reliability.

Results. When seeking medical help, based on subjective complaints of patients, a pathological process in the liver caused by the hepatitis C virus was suspected. A qualitative version of PCR revealed the hepatitis C virus in 20 patients. The quantitative version of PCR determined a low viral load in 8 patients (101 - 104 IU/ml), and a high one in 12 people (105 - 107 IU/ml).

When genotyping the hepatitis C virus (HCV), genotypes 1b (9 people), 1b+1a (4 people), 3 (4 people), 2 (3 people) were identified.

Serological diagnostics made it possible to differentiate the forms of the infectious process. The detection of Anti HCV IgG and Anti HCV IgM in 12 people indicates that in 8 patients no more than 6 months have passed since infection (acute phase of hepatitis C); in 4 people several years have passed since infection (latent phase of chronic hepatitis C). Anti-core-IgG, Anti-NS-IgG (8 people) indicate the latent phase of chronic hepatitis C or the recovery stage, in the case of taking medications.

A biochemical blood test determined an increase in ALT and AST in 12 patients by 8 or more times, which indicates an acute phase and exacerbation of chronic hepatitis C; in 8 patients a slight increase was detected - a chronic process.

Conclusions. During the study, among 20 patients, 12 people with a chronic process and 8 with acute and exacerbation of a chronic process were identified. Specific laboratory diagnostics are informative and effective in establishing the form of the infectious process and are necessary to create an adequate treatment regimen and monitor specific antiviral therapy.

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