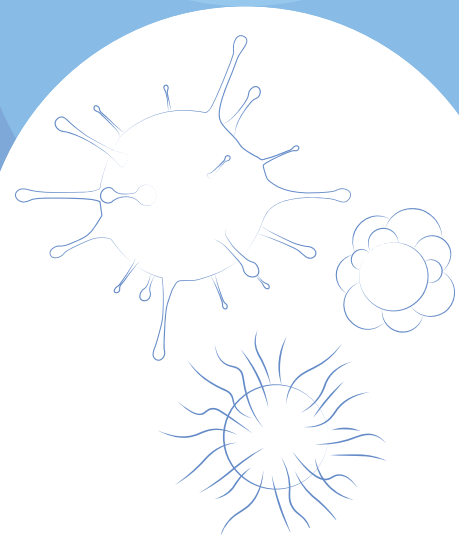




Viral Hepatitis

INFECTIOUS DISEASES

INFORMATION BROCHURE



Viral Hepatitis

INFECTIOUS DISEASES

Viral hepatitis is caused by the five hepatitis viruses A, B, C, D, and E, which only replicate in the liver. Inflammation of the liver can also be caused by other infectious agents (other viruses or bacteria). In these cases, however, it is a systemic infection that affects the whole body, with the liver being only one of the affected organs. This brochure only deals with viral hepatitis caused by hepatitis viruses A to E.

These viruses cause acute liver inflammation that can be asymptomatic but can also be fulminant or even fatal. In the case of hepatitis B, C, or D, the viruses can persist in the liver in some patients after the acute phase and cause chronic infection.

ACUTE VIRAL HEPATITIS

The various hepatitis viruses have different routes of infection, but the course of infection is similar for all viruses and cannot be reliably distinguished clinically. The range of possible clinical manifestations is very wide. In most cases, the infection is asymptomatic. In about 25% of patients, nonspecific flu-like symptoms, as well as fatigue, loss of appe-

tite, headache, and body aches, occur. Most often, an increase in liver enzymes (transaminases) in the blood indicates hepatitis. In a minority of affected individuals, jaundice may occur at this time. This is a yellowing of the skin and sclerae (white part of the eyes) due to bilirubin, a breakdown product of the blood pigment hemoglobin, no longer being excreted by the liver. The increased bilirubin can be detected in the blood. Jaundice is typically accompanied by itching. Serological testing (detection of antibodies in the blood) confirms the suspicion of viral hepatitis and identifies the causative virus. Acute viral hepatitis usually requires only symptomatic treatment, not targeted treatment against the causative virus. In most cases, the virus is eliminated from the liver and blood. The laboratory values (transaminases and bilirubin) also normalize. This occurs in the case of hepatitis A after about 1-2 months and in the case of hepatitis B after 3-4 months.

HEPATITIS A

The hepatitis A virus (HAV) is excreted in the stool during the acute phase of the disease. Infection occurs through contaminated food or water. In the past, infection with HAV was common at a young age. Almost all adults had antibodies against HAV and were thus protected against re-infection. Today, the

infection has become very rare in industrialized countries. It occurs almost exclusively in countries with uncertain food and water hygiene and is therefore a typical travel disease. Reliable protection is possible through vaccination (2 injections at least 6 months apart). The prognosis for HAV infection is very good, and almost always results in complete recovery. Severe or even fulminant courses are rare but possible, especially in older people and those with immunodeficiency or pre-existing liver disease.

HEPATITIS B

Hepatitis B virus (HBV) is transmitted through contact of mucous membranes and (non-intact) skin with infectious blood or bodily fluids. It is important to note that the virus can survive on surfaces for up to 7 days. In Europe, unprotected sexual intercourse and intravenous drug use are the most common modes of transmission. However, the virus can also be transmitted from mother to child during childbirth. In Switzerland, all adolescents are vaccinated against HBV before the age of 16, and vaccination is now recommended even in infancy. 2-3 injections are required for complete vaccination. Hepatitis B lasts longer than HAV, but also leads to complete recovery in most cases. In about 1% of patients, the virus is not eliminated, resulting in chronic hepatitis.

If infection with HBV occurs in newborns (vertical transmission from the mother), the viral infection can persist for a lifetime without causing disease symptoms. Nevertheless, such individuals are infectious and can transmit the virus.

HEPATITIS C

Hepatitis C Hepatitis C virus (HCV) is transmitted in the same ways as HBV. The peculiarities of HCV primarily lie in the fact that symptoms of the infection may not appear until 3-4 months (long incubation period), and patients can transmit the virus during the incubation period. Moreover, about 75-80% of patients with an acute HCV infection subsequently develop chronic hepatitis, with progressive liver fibrosis. A vaccine against HCV has not yet been developed.

HEPATITIS D

Hepatitis D virus (HDV) is a special virus in that infection can only occur as a secondary infection with an existing chronic HBV infection. Further discussion on HDV is omitted here.



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HEPATITIS E

Hepatitis E Four genotypes (types 1 - 4) are distinguished for the Hepatitis E virus (HEV), each having a different epidemiology. Types 1 and 2 of the HEV are primarily prevalent in Southeast Asia and are transmitted through contaminated water or food (fecal-oral route). In Europe, USA, and Australia, types 3 and 4 of the HEV are prevalent and are considered zoonoses, i.e., transmission occurs from animals to humans through consumption of inadequately cooked meat and animal excrements. The domestic pig is the most important virus reservoir, but the virus is also present in wild animals (wild boar, deer, rabbits). The HEV infection often proceeds asymptotically in healthy individuals. If acute hepatitis occurs, it is self-limiting and heals after 4 - 6 weeks. However, in pregnant women, it can lead to a fulminant disease course, potentially resulting in death (HEV type 1). Persons with severe immunodeficiency may not be able to eliminate the virus and develop chronic liver inflammation. Extrahepatic manifestations of the HEV infection frequently occur, affecting the kidneys, the nervous system, or the blood formation. A vaccine against HEV has not yet been developed.

LABORATORY EXAMINATION FOR SUSPECTED ACUTE HEPATITIS

In cases of suspected viral hepatitis, serological testing for hepatitis viruses A, B, C, and E must be performed. Testing for HDV is not necessary as this infection can only occur in the context of chronic hepatitis B. To make a diagnosis, antibodies against the various viruses are searched for, with the presence of IgM antibodies indicating acute infection and the presence of IgG antibodies without simultaneous IgM indicating past infection. Previous vaccination against hepatitis A and/or B also leads to the presence of IgG antibodies without IgM. In the case of HBV, the situation is more complicated, as various additional markers must be determined to assess the activity of the infection (e.g. HBs antigen). Anti-HBs antibodies and anti-HBc antibodies are detected after a past infection, and anti-HBs antibodies without anti-HBc antibodies are detected after vaccination. They indicate immunity.

CHRONIC VIRAL HEPATITIS

About 1% of patients develop chronic liver inflammation after acute hepatitis B, caused by persistent virus replication. In the case of hepatitis C, this number can be up to 80%. The result is increasing fibrosis of the liver, ultimately leading to cirrhosis or liver cancer. Chronic hepatitis is the most important cause of cirrhosis and liver cancer worldwide. To prevent this progression, antiviral therapy is necessary. However, non-infectious causes of chronic liver inflammation such as alcohol, advanced fatty liver, autoimmune diseases or metabolic disorders must also be excluded.

HEPATITIS B

In chronic hepatitis B, complete elimination of HBV from the liver can only be achieved in a small percentage of patients through antiviral therapy. The goal is therefore suppression of the virus, which usually needs to be continued for life. This is only worthwhile if the virus activity exceeds a certain level. Various laboratory tests help to assess the extent of this activity. The presence of HBs antigen and particularly HBe antigen are indicators of virus activity. In these cases, the amount of virus in the blood (viral load) must be determined by PCR testing. If this exceeds a certain threshold, therapy is necessary.

HEPATITIS C

Based solely on antibody detection, it is often not possible to assess the activity of hepatitis C (long incubation period, see above). However, detection of HCV through PCR testing confirms virus replication in the liver. Therapy for hepatitis C has made significant progress in recent years. Today, there are drugs that can reliably and completely eliminate HCV through antiviral treatment. The treatment typically lasts 8 to 12 weeks and is generally well tolerated. Therefore, chronic hepatitis C should practically always be treated.

HEPATITIS E

An asymptomatic or liver-restricted HEV infection does not require virus-specific therapy in immunocompetent patients. In the case of extrahepatic manifestations of HEV infection, treatment with ribavirin can be successful.

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