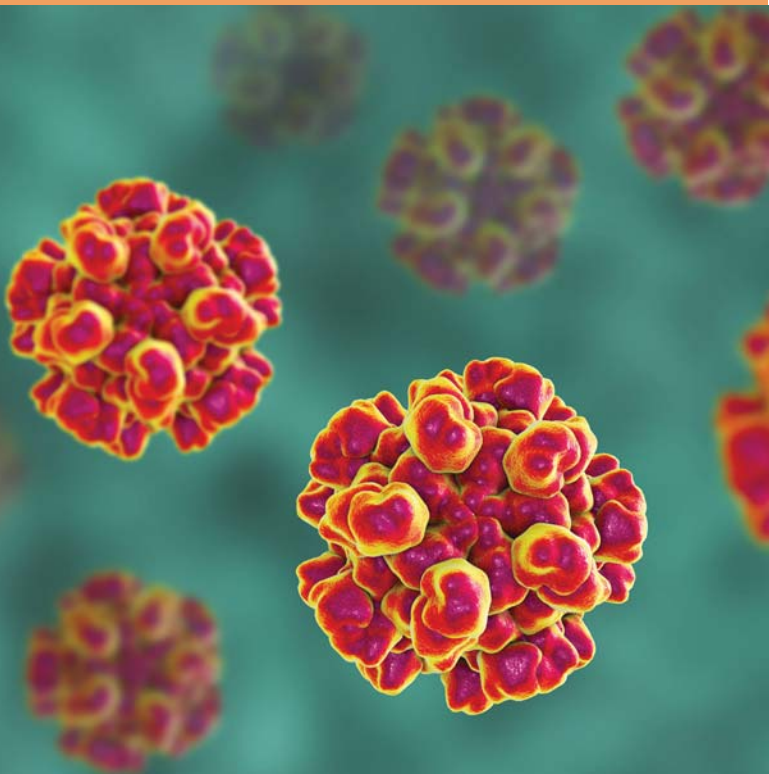


Hepatitis E

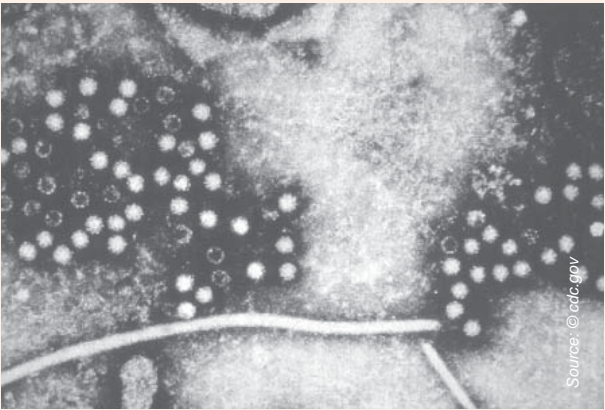
Information Leaflet



Deutsche Leberhilfe e.V.

What is hepatitis E?

The hepatitis E virus (HEV) is spread worldwide. The pathogen was long considered an infection from distant countries, so it was hardly ever tested for in Germany. Today we know: The hepatitis E virus has been endemic in Germany for some time and is even more widespread than the other hepatitis viruses A, B, C and D. According to estimates by the Robert Koch Institute, every sixth German may have already undergone infection.



Hepatitis E viruses under the electron microscope

Most hepatitis E infections go unnoticed and heal on their own without any consequences. Some patients develop typical hepatitis symptoms, such as jaundice. In some cases, however, hepatitis E can lead to complications.

The history of hepatitis E

The hepatitis E pathogen was discovered in 1983 by the Russian doctor Mikhail S. Balayan. Ten years previously, the hepatitis A virus had been identified by Feinstone and colleagues. Both pathogens can be transmitted through contaminated water, among other things. How long the hepatitis E virus has existed in Germany is unknown – it could be decades or perhaps even centuries. There have been

repeated outbreaks of jaundice in Europe. This is a possible symptom of hepatitis infection. Since the pathogens were not yet known back then, both hepatitis A and hepatitis E are conceivable causes.

Different hepatitis E viruses

Hepatitis E comes in different shapes and sizes in subgroups known as genotypes. In Europe, genotypes 3 and 4 are the most common. In Africa and Asia, genotypes 1 and 2 are more widespread. These virus types vary enormously and sometimes even vary in their contagiousness and the course of infection.

Genotypes 1 and 2 are particularly transmitted from contaminated water and can lead to major outbreaks. Genotypes 3 and 4 are more likely to be transmitted from animals to humans; these genotypes usually arise sporadically and can also become chronic in immunologically compromised persons. For pregnant women, genotypes 1, 2 and 4 are more dangerous than genotype 3, which is common in Germany.

Infection with hepatitis E

The hepatitis E virus is excreted in the stool and is often transmitted in a similar way to hepatitis A: through contaminated drinking and bathing water as well as bad food.

In Germany and Europe, raw meat from domestic pigs, wild boar and deer is the most common route of transmission (e.g. ground pork or steak tartare). Seafood is another potential source of infection. Field crops like strawberries or lettuce may also be contaminated if fertilized with animal faeces.

Until recently, blood products were not tested for hepatitis E, so infections arose here too. Since 2020, all blood donations in Germany have to be tested for hepatitis E on a mandatory basis, but



many blood donation services already introduced testing in autumn 2019.

Human-to-human transmission is not known to date. Sexual transmission is controversial, but theoretically conceivable if excrement enters the mouth.

Protection against hepatitis E

There is no vaccination against hepatitis E in this country. A vaccine has existed in China for several years, but is directed against genotypes 1 and 4, which are widespread in Asia. Whether the vaccine also protects against the hepatitis E viruses (genotype 3) prevalent in Europe is not yet known.

Those affected should not prepare food for others until the infection has healed. Toilets should be disinfected after use.

The virus can be killed (inactivated), by heating. In laboratory experiments, two minutes at 70°C and one minute at 80°C were sufficient for this. Whether this is also adequate for everyday food preparation remains to be seen.

Diagnosis of hepatitis E

Given the suspicion of hepatitis E infection, blood is tested for two antibodies:

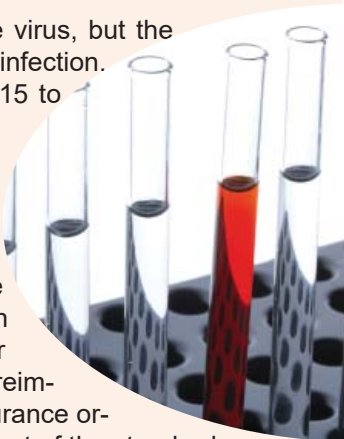
- **anti-HEV IgM**, which is more likely to occur in fresh infections, and
- **anti-HEV IgG**, which becomes positive later in the course and also remains positive after healing.

Antibodies are not part of the virus, but the the body's reactions to the infection.

They become positive about 15 to 64 days after infection.

In cases of doubt or clinical severity, testing for the genetic material of the hepatitis E virus can also be performed:

HEV RNA. This is measurable in the stool even earlier than in the blood. However, testing for HEV RNA is not yet regularly reimbursed by German health insurance organisations. This test is now part of the standard blood donation procedure.



The course of hepatitis E

Many people with hepatitis E do not notice the infection or hardly at all. The infection usually heals on its own within the first three months.

When symptoms occur, they are often only non-specific and similar to other acute hepatitis infections, such as fatigue and weakness, nausea, pressure sensation in the right upper abdomen. In some cases, jaundice may occur, causing the whites of the eyes or skin to turn yellow.

Once you get through hepatitis E, you are immune to reinfection through the antibodies. However, as the number of antibodies declines over the years, it is debatable whether this immunity lasts a lifetime.

Complications: rare, but still have to be taken seriously

In some cases, **neurological complications** may occur. These can be sensations such as tingling and numbness in the arms, shoulders and legs. In severe cases, severe pain, immobility and even paralysis may also occur, e.g. Guillain-Barré syndrome. These complications can improve, but this often happens slowly over months and not always completely. **Kidney or brain inflammation** can develop as a rare complication, or **autoimmune diseases** can surface for the first time.

Hepatitis E can sometimes also lead to **acute liver failure**. Persons already suffering severe liver dam-



age (e.g. cirrhosis) due to another disease are particularly at risk. Particular infections with HEV genotype 1 can be dangerous for pregnant women in the last trimester and cause liver failure. Genotype 1 may also be more dangerous for infants. Warning signs of acute liver failure are when, in addition to jaundice, brain disorders occur and those affected become confused, disoriented or unresponsive. Given sudden complications such as abdominal dropsy (ascites), which are otherwise only known in advanced cirrhosis, urgent hospital admission is also necessary.

In persons with immunodeficiency, hepatitis E infection can also be **chronic**. If HEV RNA is measurable for over three months, the infection is already

considered chronic. Organ transplant patients are especially at risk, but also patients undergoing chemotherapy or other therapies or diseases that suppress the immune system. Chronic hepatitis E is rare but serious: If left untreated, it can lead to complete scarring of the liver within five years, also known as cirrhosis.

Therapy of hepatitis E

In press reporting and on the Internet, it is often claimed that hepatitis E is untreatable - fortunately this is a misconception: Treatment of hepatitis E is certainly possible and usually successful, but only necessary in exceptional cases.

No drugs are officially approved for the treatment of hepatitis E. However, in chronic infections or severe acute courses of disease, **ribavirin** can be used to induce or accelerate healing. Ribavirin is in fact approved for infections with a different hepatitis virus (hepatitis C), but is often effective for hepatitis E as well. Of the chronic hepatitis E infections, 80 to 90% can be cured by this method. If ribavirin fails to work adequately, there are still no good alternatives.

It is not always necessary to administer more medications to cure chronic hepatitis E: If a patient takes immunosuppressants and develops chronic hepatitis E, it is sometimes sufficient for the treating doctors to carefully reduce the dose of immunosuppressants. The immune system can then often deal with a chronic hepatitis E infection on its own.

Where should I go?

As long as you don't have severe symptoms, it is often sufficient to take it easy and allow the infection to run its course – in the expectation that the immune system heals it on its own within a few weeks or months.

Avoid alcohol and other substances that stress the liver, allow yourself rest breaks and have the infection monitored by blood testing at your GP.

If your symptoms are severe, seek advice from a specialist gastroenterology/hepatology practice or hospital liver outpatient clinic. If there are neurological disorders, neurological specialists can also be consulted.

Immediate hospitalisation is only necessary in exceptional cases in which symptoms of acute liver failure, such as brain disorders or abdominal drop-sy, occur.

However, for most of those effected, hepatitis E is an infection that passes on its own without lasting consequences and does not require treatment.

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