

## What is Hepatitis E?

Hepatitis E is an infection of the liver caused by the hepatitis E virus (HEV), which can cause inflammation in the liver (hepatitis). People who develop HEV infection often have no symptoms and are unaware of the infection. In most cases, HEV is cleared from the blood within a few weeks and there are no lasting complications.

In rare cases (less than 1%), severe infection can cause poor liver function and lead to jaundice (yellowing of the skin and eyes). Severe hepatitis E is more common in people who already have another liver disease.

It is very important to diagnose HEV in people who have a suppressed immune system, such as transplant recipients. In these individuals, HEV infection may not be cleared by the immune system. This may result in persistent (or chronic) hepatitis E infection, which can cause scarring of the liver (fibrosis).

Hepatitis E is now the commonest cause of acute viral hepatitis in the UK. It has become much commoner over the last decade and there are thought to be more than 100,000 infections in the UK each year, although most are not diagnosed. Approximately 1 in 100 people who have had organ transplants (such as liver, kidney, lungs and hearts) have undiagnosed but persistent hepatitis E infection.

## How is Hepatitis E transmitted?

There are different genetic types of HEV, known as genotypes.

Genotypes 1 and 2 HEV are the main cause of hepatitis E in Asia, Africa and South America. They are transmitted by eating or drinking food or water that has been contaminated by human sewage. There are frequent outbreaks of hepatitis E in developing countries and these infections can be fatal in malnourished individuals or pregnant women. These genotypes do not cause persistent infection.

Genotype 3 HEV is the main cause of hepatitis E in the UK and other developed countries. This type of hepatitis E also infects some animals without causing disease, particularly pigs and some game animals. Genotype 3 HEV is mainly transmitted by eating undercooked meat, particularly

processed pork products such as sausages. The recent increase in hepatitis E in the UK is believed to be associated with eating processed pork products. Infection with this type 3 of hepatitis E can cause persistent infection in immunosuppressed individuals.

HEV can also be transmitted through the transfusion of blood products. However, this risk is low, as blood products are screened for HEV infection in the UK.

Person-to-person transmission of the genotype 3 virus is very rare, but people with hepatitis E should always wash their hands after using the toilet to reduce risk of transmission to others.

## How do I know I have been infected with hepatitis E?

Less than one in a hundred of people with hepatitis E develop symptoms, so most people don't know they have been infected. Symptoms of infection may include are tiredness, jaundice, fever, aching joints, vomiting, abdominal pain, dark urine, and pale stools. Very rarely, HEV can affect the function of nerves in the body (neuropathy), which can cause pain in the arms or legs.

## Persistent hepatitis E infection

Persistent infection does not occur with genotypes 1 and 2 HEV (the viruses mainly present in developing countries), even in people who are immunosuppressed. However, genotype 3 HEV can cause persistent or chronic infection in individuals with a suppressed immune system, such as transplant recipients or those taking immunosuppressant medication.

Persistent hepatitis E is diagnosed if the viral infection lasts for more than 3 months. Patients usually don't have any symptoms, so it can be hard to diagnose.

Hepatitis E usually causes raised liver enzymes, so infection is often suspected after the finding of abnormal blood tests, even if a patient feels well. Testing requires a specific blood test for the virus - the HEV RNA test. In immunosuppressed individuals with unexplained raised liver enzymes, it is important to specifically test for hepatitis E or infection can

go undetected. Late detection can lead to ongoing hepatitis (inflammation of the liver), which can progress to fibrosis (scarring of the liver) or even cirrhosis (severe scarring of the liver)

## Is treatment usually needed for acute hepatitis E?

In people with a normal immune system, hepatitis E clears itself within a few weeks and there is no need for specific treatment.

## Is treatment needed for HEV in transplant recipients and other immunosuppressed individuals?

In about half of transplant recipients diagnosed with hepatitis E, the infection clears within a few weeks without treatment. If HEV remains detectable in the blood or stool for more than three months, then changes to treatment may be needed. Transplant recipients might have their immunosuppressant medication reduced or changed to try and help clear the virus.

If HEV is not cleared after a reduction in immunosuppressant medication (or it is not possible to change the immunosuppressant medication) then treatment with an antiviral medication called Ribavirin may be needed. Ribavirin tablets are given twice daily for three to six months and permanently clear the virus in more than 90% of cases. Rarely, patients need longer treatment with Ribavirin or other antiviral medications.

The level of virus in the blood and stool is regularly measured during treatment to determine how long the treatment is required. Treatment requires close monitoring and is usually delivered by a specialist in viral hepatitis.

## How can HEV be avoided?

The main source of hepatitis E in the UK and other European countries is through eating inadequately cooked meat, particularly pork (especially sausages), game meat, and shellfish. Therefore, ensuring meat is thoroughly cooked i.e. "well done" is important to help reduce your risk of infection.

HEV is quite a hardy virus and can survive if cooked at less than 80°C for 2 minutes, so meat must be cooked above this temperature to ensure the virus, if present, is killed. Particular care should be taken when cooking sausages on a barbeque as meat may appear cooked on the outside, but the inside may not be properly cooked. You should always wash your hands after touching raw meat.

In order to reduce your risk of acquiring hepatitis E and other infections when abroad, the following measures are important:

- Always wash your hands thoroughly after using the bathroom and before preparing or eating food
- Drink bottled or boiled water where possible
- Avoid undercooked meats or shellfish

#### Key messages:

1. Hepatitis E is an infection of the liver that can cause liver damage
2. Persistent (long lasting) hepatitis E infection can occur in individuals who have had a transplant, take immunosuppressant drugs, or have a suppressed immune system
3. Hepatitis E is mainly transmitted by eating undercooked meat, particularly processed pork products like sausages
4. Ensuring meat is thoroughly cooked i.e. “well done” is important to reduce the risk of hepatitis E infection
5. Transplant recipients or immunosuppressed individuals who have unexplained raised liver enzymes should be tested for hepatitis E
6. Persistent hepatitis E infection can be cured with antiviral treatment

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