HEPATITIS

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What is hepatitis?

Hepatitis is an inflammation of the liver. The condition can be self-limiting or can progress to fibrosis (scarring), cirrhosis or liver cancer. Hepatitis viruses are the most common cause of hepatitis in the world but other infections, toxic substances (e.g. alcohol, certain drugs), and autoimmune diseases can also cause hepatitis.

There are Five main hepatitis viruses, referred to as types A, B, C, D and E. These Five types are of greatest concern because of the burden of illness and death they cause and the potential for outbreaks and epidemic spread. In particular, types B and C lead to chronic disease in hundreds of millions of people and, together, are the most common cause of liver cirrhosis and cancer.

Hepatitis A and E are typically caused by ingestion of contaminated food or water. Hepatitis B, C and D usually occur as a result of parenteral contact with infected body fluids. Common modes of transmission for these viruses include receipt of contaminated blood or blood products, invasive medical procedures using contaminated equipment and for hepatitis B transmission from mother to baby at birth, from family member to child, and also by sexual contact.

Acute infection may occur with limited or no symptoms, or may include symptoms such as jaundice (yellowing of the skin and eyes), dark urine, extreme fatigue, nausea, vomiting and abdominal pain.

What are the different hepatitis viruses?

Scientists have identified five unique hepatitis viruses, identified by the letters A, B, C, D, and E. While all cause liver disease, they vary in important ways.

Hepatitis A virus (HAV)

Hepatitis A virus (HAV) is present in the faeces of infected persons and is most often transmitted through consumption of contaminated water or food. Certain sex practices can also spread HAV. Infections are in many cases mild, with most people making a full recovery and remaining immune from further HAV infections. However, HAV infections can also be severe and life threatening. Most people in areas of the world with poor sanitation have been infected with this virus. Safe and effective vaccines are available to prevent HAV.

Who is at risk?

Anyone who has not been vaccinated or previously infected can get infected with hepatitis A virus. In areas where the virus is widespread (high endemicity), most hepatitis A infections occur during early childhood. Risk factors include:

- poor sanitation;
- lack of safe water;
- living in a household with an infected person;
- being a sexual partner of someone with acute hepatitis A infection;
- use of recreational drugs;
- sex between men;
- travelling to areas of high endemicity without being immunized.

Diagnosis

Cases of hepatitis A are not clinically distinguishable from other types of acute viral hepatitis. Specific diagnosis is made by the detection of HAV-specific Immunoglobulin G (IgM) antibodies in the blood. Additional tests include reverse transcriptase polymerase chain reaction (RT-PCR) to detect the hepatitis A virus RNA and may require specialized laboratory facilities.

Treatment

There is no specific treatment for hepatitis

Hepatitis B virus (HBV)

Hepatitis B virus (HBV) is transmitted through exposure to infective blood, semen, and other body fluids. HBV can be transmitted from infected mothers to infants at the time of birth or from family member to infant in early childhood. Transmission may also occur through transfusions of HBV-contaminated blood and blood products, contaminated injections during medical procedures, and through injection drug use. HBV also poses a risk to healthcare workers who sustain accidental needle stick injuries while caring for infected-HBV patients. Safe and effective vaccines are available to prevent HBV.

Hepatitis B virus (HBV) The likelihood that infection becomes chronic depends on the age at which a person becomes infected. Children less than 6 years of age who become infected with the hepatitis B virus are the most likely to develop chronic infections.

In infants and children:

- 80–90% of infants infected during the first year of life develop chronic infections; and
- 30–50% of children infected before the age of 6 years develop chronic infections.

In adults:

- less than 5% of otherwise healthy persons who are infected as adults will develop chronic infections; and
- 20–30% of adults who are chronically infected will develop cirrhosis and/or liver cancer.

HBV-HIV coinfection

About 1% of persons living with HBV infection (2.7 million people) are also infected with HIV. Conversely, the global prevalence of HBV infection in HIV-infected persons is 7.4%. Since 2015, WHO has recommended treatment for everyone diagnosed with HIV infection, regardless of the stage of disease. Tenofovir, which is included in the treatment combinations recommended as first-line therapy for HIV infection, is also active against HBV.

Diagnosis

It is not possible, on clinical grounds, to differentiate hepatitis B from hepatitis caused by other viral agents, hence, laboratory confirmation of the diagnosis is essential. A number of blood tests are available to diagnose and monitor people with hepatitis B. They can be used to distinguish acute and chronic infections.

Laboratory diagnosis of hepatitis B infection focuses on the detection of the hepatitis B surface antigen HBsAg. WHO recommends that all blood donations be tested for hepatitis B to ensure blood safety and avoid accidental transmission to people who receive blood products.

- Acute HBV infection is characterized by the presence of HBsAg and immunoglobulin M (IgM) antibody to the core antigen, HBcAg. During the initial phase of infection, patients are also seropositive for hepatitis B e antigen (HBeAg). HBeAg is usually a marker of high levels of replication of the virus. The presence of HBeAg indicates that the blood and body fluids of the infected individual are highly infectious.
- Chronic infection is characterized by the persistence of HBsAg for at least 6 months (with or without concurrent HBeAg). Persistence of HBsAg is the principal marker of risk for developing chronic liver disease and liver cancer (hepatocellular carcinoma) later in life.

Treatment

There is no specific treatment for *acute* hepatitis B. Therefore, care is aimed at maintaining comfort and adequate nutritional balance, including replacement of fluids lost from vomiting and diarrhoea. Most important is the avoidance of unnecessary medications. Acetaminophen/Paracetamol and medication against vomiting should not be given.

Chronic hepatitis B infection can be treated with medicines, including oral antiviral agents. Treatment can slow the progression of cirrhosis, reduce incidence of liver cancer and improve

long term survival. Only a proportion (estimates vary from 10% to 40% depending on setting and eligibility criteria) of people with chronic hepatitis B infection will require treatment.

WHO recommends the use of oral treatments - tenofovir or entecavir- as the most potent drugs to suppress hepatitis B virus. They rarely lead to drug resistance compared with other drugs, are simple to take (1 pill a day), and have few side effects, so require only limited monitoring.

Entecavir is off-patent. In 2017, all low- and middle-income countries could legally procure generic entecavir, but the costs and availability varied widely. Tenofovir is no longer protected by a patent anywhere in the world. The median price of WHO-prequalified generic tenofovir on the international market fell from US$ 208 per year to US$ 32 per year in 2016.

In most people, however, the treatment does not cure hepatitis B infection, but only suppresses the replication of the virus. Therefore, most people who start hepatitis B treatment must continue it for life.

There is still limited access to diagnosis and treatment of hepatitis B in many resource-constrained settings. In 2016, of the more than 250 million people living with HBV infection, 10.5% (27 million) were aware of their infection. Of those diagnosed, the global treatment coverage is 16.7% (4.5 million). Many people are diagnosed only when they already have advanced liver disease.

Among the long-term complications of HBV infections, cirrhosis and hepatocellular carcinoma cause a large disease burden. Liver cancer progresses rapidly, and since treatment options are limited, the outcome is generally poor.

Hepatitis C virus (HCV)

Hepatitis C virus (HCV) is mostly transmitted through exposure to infective blood. This may happen through transfusions of HCV-contaminated blood and blood products, contaminated injections during medical procedures, and through injection drug use. Sexual transmission is also possible, but is much less common. There is no vaccine for HCV.

Populations at increased risk of HCV infection include:

- People who inject drugs;
- People in prisons and other closed settings;
- People who use drugs through other routes of administration (non-injecting);
- Men who have sex with men (MSM);
- Recipients of infected blood products or invasive procedures in health-care facilities with inadequate infection control practices ;
- Children born to mothers infected with HCV;
- People with HIV infection;

- Prisoners or previously incarcerated persons; and
- People who have had tattoos or piercings.

In settings with high HCV antibody seroprevalence in the general population (defined as ≥2% or ≥5% HCV antibody seroprevalence), WHO recommends that all adults have access to and be offered HCV testing with linkage to prevention, care and treatment services.

About 2.3 million people (6.2%) of the estimated 3.7 million living with HIV globally have serological evidence of past or present HCV infection. Chronic liver disease represents a major cause of morbidity and mortality among persons living with HIV globally.

Treatment

A new infection with HCV does not always require treatment, as the immune response in some people will clear the infection. However, when HCV infection becomes chronic, treatment is necessary. The goal of hepatitis C treatment is cure.

Hepatitis D virus (HDV)

Hepatitis D virus (HDV) infections occur only in those who are infected with HBV. The dual infection of HDV and HBV can result in a more serious disease and worse outcome. Hepatitis B vaccines provide protection from HDV infection.

Who is at risk?

Chronic HBV carriers are at risk for infection with HDV.

People who are not immune to HBV (either by natural disease or immunization with the hepatitis B vaccine) are at risk of infection with HBV which puts them at risk of HDV infection.

Those who are more likely to have HBV and HDV co-infection include people who inject drugs, indigenous people and people with hepatitis C virus or HIV infection. The risk of co-infection also appears to be potentially higher in recipients of hemodialysis, men who have sex with men and commercial sex workers.

Migration from high HDV prevalence countries to lower prevalence areas might have an effect on the epidemiology of the host country.

Screening and diagnosis

HDV infection is diagnosed by high levels of Immunoglobulin G (IgG) and Immunoglobulin M (IgM) anti-HDV, and confirmed by detection of HDV RNA in serum.

However, HDV diagnostics are not widely available and there is no standardization for HDV RNA assays, which are used for monitoring response to antiviral therapy.

HBsAg is useful to monitor treatment response if quantitative HDV RNA is not available. Decreasing HBsAg levels often herald surface antigen loss and HDV clearance, although surface antigen loss is rare in treatment.

Treatment

Current guidelines generally recommend Pegylated interferon alpha for at least 48 weeks irrespective of on-treatment response patterns. The overall rate of sustained virological response is low, however, this treatment is an independent factor associated with a lower likelihood of disease progression.

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More efforts are needed to reduce the global burden of chronic hepatitis B and develop medicines that are safe and effective against hepatitis D and are affordable enough to be deployed on a large scale to those who are most in need.

Hepatitis E virus (HEV)

Hepatitis E virus (HEV) is mostly transmitted through consumption of contaminated water or food. HEV is a common cause of hepatitis outbreaks in developing parts of the world and is increasingly recognized as an important cause of disease in developed countries. Safe and effective vaccines to prevent HEV infection have been developed but are not widely available.

Diagnosis

Definitive diagnosis of hepatitis E infection is usually based on the detection of specific IgM antibodies to the virus in a person's blood; this is usually adequate in areas where disease is common. Rapid tests are available for field use.

Treatment

There is no specific treatment capable of altering the course of acute hepatitis E. As the disease is usually self-limiting, hospitalization is generally not required. Most important is the avoidance of unnecessary medications. Acetaminophen/Paracetamol and medication against vomiting should not be given.

Reference

https://www.who.int/news-room/q-a-detail/what-is-hepatitis