



VIRAL HEPATITIS

Viral hepatitis is a systemic, viral infection in which necrosis and inflammation of liver cells produce a characteristic cluster of clinical, biochemical, and cellular changes.

Hepatitis A virus (HAV)

Hepatitis A, formerly called **infectious hepatitis**, is caused by an **RNA virus of the Enterovirus family**. Fewer than 25% of children have antibodies to HAV. This form of hepatitis is transmitted primarily through **the fecal–oral route**, by the **ingestion of food or liquids** infected by the virus. The virus has been found in the stool of infected patients before the onset of symptoms and during the first few days of illness.

Typically, a child or a young adult acquires the infection at school through **poor hygiene, hand-to-mouth contact, or close contact during play**. The virus is carried home, where haphazard sanitary habits spread it through the family. An infected food handler can spread the disease, and people can contract it by consuming water or shellfish from sewage-contaminated waters.

Clinical Manifestations

Many patients are anicteric (without jaundice) and symptomless. When symptoms appear, they resemble those of a mild, flulike upper respiratory tract infection, with low grade fever. Anorexia, an early symptom, is often severe. It is thought to result from release of a toxin by the damaged liver or from failure



of the damaged liver cells to detoxify an abnormal product. Later, jaundice and dark urine may become apparent. Indigestion is present in varying degrees, marked by vague epigastric distress, nausea, heartburn, and flatulence. The patient may also develop a strong aversion to the taste of cigarettes or the presence of cigarette smoke and other strong odors. These symptoms tend to clear as soon as the jaundice reaches its peak, perhaps 10 days after its initial appearance. Symptoms may be mild in children; in adults, they may be more severe and the course of the disease prolonged.

Assessment and Diagnostic Findings

The liver and spleen are often moderately enlarged for a few days after onset; other than jaundice, there are few other physical signs. Hepatitis A antigen may be found in the stool 7 to 10 days before illness and for 2 to 3 weeks after symptoms appear. HAV antibodies are detectable in the serum, but usually not until symptoms appear. Analysis of subclasses of immunoglobulins can help determine whether the antibody represents acute or past infection.

Prevention

Encourage proper community and home sanitation.

- Encourage conscientious individual hygiene.
- Instruct patients regarding safe practices for preparing and dispensing food.



- Support effective health supervision of schools, dormitories, extended care facilities, barracks, and camps.
- Promote community health education programs.
- Facilitate mandatory reporting of viral hepatitis to local health departments.
- Recommend vaccination for all children 1 year of age and older.
- Recommend vaccination for travelers to developing countries, illegal drug users (injection and noninjection drug users), men who have sex with men, and people with chronic liver disease, and recipients (eg, hemophiliacs) of pooled plasma products.
- Promote vaccination to interrupt community-wide outbreaks.

Hepatitis B

Unlike HAV, the hepatitis B virus (HBV) is transmitted **primarily through blood** (percutaneous and permucosal routes). HBV can be found in blood, saliva, semen, and vaginal secretions and can be transmitted through mucous membranes and breaks in the skin. HBV is also transferred from carrier mothers to their infants, especially in areas with a high incidence (eg, Southeast Asia). The infection usually is not transmitted via the umbilical vein but from the mother at the time



of birth and during close contact afterward. HBV has a long incubation period. It replicates in the liver and remains in the serum for relatively long periods, allowing transmission of the virus. Screening of blood donors has greatly reduced the occurrence of hepatitis B after blood transfusion. Most people (more than 90%) who contract HBV infection develop antibodies and recover spontaneously in 6 months. The mortality rate from hepatitis B has been reported to be as high as 10%. Another 10% of patients who have hepatitis B progress to a carrier state or develop chronic hepatitis with persistent HBV infection and hepatocellular

Risks factors for hepatitis B

Frequent exposure to blood, blood products, or other body fluids

- Health care workers
- Hemodialysis
- Male homosexual and bisexual activity
- IV/injection drug use
- Close contact with carrier of HBV
- Travel to or residence in area with uncertain sanitary conditions
- Multiple sexual partners
- Recent history of sexually transmitted disease



- Receipt of blood or blood products (eg, clotting factor concentrate).

Clinically, the disease closely resembles hepatitis A, but the incubation period is much longer (1 to 6 months). Signs and symptoms of hepatitis B may be insidious and variable. Fever and respiratory symptoms are rare; some patients have arthralgias and rashes. The patient may have loss of appetite, dyspepsia, abdominal pain, generalized aching, malaise, and weakness. Jaundice may or may not be evident. If jaundice occurs, light-colored stools and dark urine accompany it. The liver may be tender and enlarged to 12 to 14 cm vertically. The spleen is enlarged and palpable in a few patients; the posterior cervical lymph nodes may also be enlarged.

Assessment and Diagnostic Findings

HBsAg appears in the circulation in 80% to 90% of infected patients 1 to 10 weeks after exposure to HBV and 2 to 8 weeks before the onset of symptoms or an increase in transferase levels.

Clinically, the disease closely resembles hepatitis A, but the incubation period is much longer (1 to 6 months). Signs and symptoms of hepatitis B may be insidious and variable. Fever and respiratory symptoms are rare; some patients have arthralgias and rashes. The patient may have loss of appetite, dyspepsia, abdominal pain, generalized aching, malaise, and weakness. Jaundice may or may not be evident. If



jaundice occurs, light-colored stools and dark urine accompany it. The liver may be tender and enlarged to 12 to 14 cm vertically. The spleen is enlarged and palpable in a few patients; the posterior cervical lymph nodes may also be enlarged. Subclinical episodes also occur frequently.

Hepatitis C Virus (HCV)

HCV usually leads to chronic hepatitis which usually remains asymptomatic for decades. Patients with hepatitis C are susceptible to severe hepatitis either hepatitis A or B, so all persons with hepatitis C should be immunized against hepatitis A and hepatitis B. Chronic hepatitis C is a major cause of liver cirrhosis and hepatocellular carcinoma. It is a common medical reason for liver transplantation due to its severe complications. Most chronic carriers of hepatitis C are unaware of their infection status.

Hepatitis C Screening

The most common test for hepatitis C virus (HCV) detects antibodies to HCV in the blood, but the results are not clear cut and should be interpreted carefully. A “positive” HCV antibody test could mean the person is a chronic carrier of HCV (75-85%), has been infected but has resolved infection (15-25 %), or is one of the few recently (acutely) infected.

• HCV & HIV



Following HCV infection, it usually takes at least 6–8 weeks for the body to develop enough antibodies to be measured in a screening test, but it can take longer. For example, people who have suppressed immune systems (e.g., people who have HIV infection) may not test positive for 15 weeks–6 months after exposure to the virus. An infection that has been present for less than 6 months may not be detected with an antibody test. However, an infection that has been present for 6 months is almost always detectable with an antibody test.

- **What is a positive HCV antibody test means?**

A positive HCV antibody test means the person was infected with the virus; it does not always mean the person is still infected. Up to 25% of people infected with HCV successfully clear the virus from their systems within 6 months after being infected, but the antibody remains present in the screening test.

- **HCV & Rapid test strip?**

Most antibody testing requires a blood sample that is sent to a laboratory for processing. The test still requires a blood sample, but it involves the use of a “test strip” that provides results in approximately 20 minutes. However, the rapid test is not sufficient to make a final diagnosis of HCV infection. If the rapid test is positive, more traditional and sophisticated tests will be necessary to confirm the diagnosis.



• Qualitative & quantitative RNA test ?

People who have a positive result on an HCV antibody screening test should receive additional tests to get more information. The most common follow up test is a qualitative HCV RNA (ribonucleic acid) test. RNA is the genetic material of the virus, and the qualitative test determines whether the virus is present. A quantitative RNA test—or quantitative viral load test measures how much of the virus is present. Because of the difficulty in interpreting an HCV antibody screening test, some medical care providers ask for a follow up test before reporting the results of the antibody test to their patients. If HCV RNA is present for at least 6 months, the HCV infection is considered chronic.