Hepatitis B

What is hepatitis B?

Hepatitis B is an infectious liver disease. It is caused by the hepatitis B virus (HBV). Infections of hepatitis B occur only if the virus is able to enter the blood stream and reach the liver. Once in the liver, the virus reproduces and releases large numbers of new viruses into the bloodstream.

To combat the disease, the body has several defenses. White blood cells, which protect the body from infections, attack and destroy the infected liver cells. The body also produces antibodies which circulate in the blood to destroy the virus and protect against future infections of hepatitis B. During the infection and recovery process, the liver may not function normally causing illness that affects the entire body.

For reasons that are not completely understood, 10 percent of people who develop hepatitis B become carriers of the disease. Their blood remains infected for months, years, sometimes for life. Seventy percent of carriers develop chronic persistent hepatitis B. Most do not appear to be ill. The remaining 30 percent of carriers experience continuous liver disease. This condition often progresses to cirrhosis and then, after 30 to 40 years, possibly to liver cancer. At present, there is no way of curing carriers. The risk of becoming a chronic carrier is related inversely with a person’s age when infected. For example, the risk of an infant becoming a carrier is 90-95% whereas the risk of an adult becoming a carrier is 3-10%.

There are other kinds of viral hepatitis such as hepatitis A, hepatitis C, hepatitis D (delta), and hepatitis E. These diseases and the viruses that cause them are not related to hepatitis B even though they also affect the liver.

How long does it take for hepatitis B to develop?

The incubation period (the time between initial contact with the virus and onset of the disease) for hepatitis B ranges from 60 to 150 days, with symptoms beginning on average 90 days from exposure.

HOW COMMON IS IT?

In 2006, the Regulators reported the incidence of HBV as 2.0 cases for every 100,000 or about 650 cases reported annually in Canada. In the year 2013, the incident rate was 0.5 per 100,000 (PHAC, published in 2016). Incidence of the disease varies from region to region but has been declining due to increasing use of the vaccine and universal immunization programs.

WHERE IS THE HEPATITIS B VIRUS FOUND AND HOW IS IT TRANSMITTED?

Blood is the major source of the hepatitis B virus in the workplace. It can also be found in other tissues and body fluids, but in much lower concentrations. The risk of transmission varies according to the specific source. The virus can survive outside the body for at least 7 days and still be able to cause infection.

Blood

Direct contact with infected blood can transmit the hepatitis B virus through:

- Punctures of the skin with blood-contaminated needles, lancets, scalpels, or other sharps.
- Direct contact with open sores of an infected person.
- Splashes to skin bearing minute scratches, abrasions, burns, or even minor rashes.
- Splashes to mucous membranes in the mouth, nose, or eyes.

To a lesser extent, indirect contact with blood-contaminated surfaces can also transmit the hepatitis B virus. The virus may be stable in dried blood for up to 7 days at 25°C. Hand contact with blood-contaminated surfaces such as laboratory benches, test tubes, or laboratory instruments may transfer the virus to skin or mucous membranes.

Saliva

Saliva of people with hepatitis B can contain the hepatitis B virus, but in very low concentrations compared with blood. Injections of infected saliva can transmit the virus, so bite injuries can also spread the disease. There are no reports of people getting hepatitis B from mouth contact with infected CPR manikins, sharing utensils, or mouthpieces of musical instruments.

Other Body Fluids and Tissues

Hepatitis B is found in semen and vaginal secretions. The virus can be transmitted during unprotected sexual intercourse, and from mother to infant during birth.

Synovial fluid (joint lubricant), amniotic fluid, cerebrospinal fluid, and peritoneal fluid (found in the abdominal cavity) can contain the hepatitis B virus, but the risk of transmission to workers is not known.

Feces, nasal secretions, sputum, sweat, tears, urine, and vomit have not been implicated in the spread of hepatitis B. Unless they are visibly contaminated with blood, the risk of contracting hepatitis B from these fluids in the workplace is very low.

Hepatitis B is not transmitted by casual contact. For example, hospital employees who have no contact with blood, blood products, or blood-contaminated fluids are at no greater risk than the general public. However, the virus can spread through intimate contact with carriers in a household setting, possibly because of frequent physical contact with small cuts or skin rashes. The virus can also spread through biting and possibly by the sharing of toothbrushes or razors. It is not spread through sneezing, coughing, hand holding, hugging, kissing, breastfeeding, sharing eating utensils, water or food.

WHAT OCCUPATIONS HAVE INCREASED RISK OF HEPATITIS B?

In general, occupational groups with increased risk include:

- Health-care workers repeatedly exposed to blood or blood products or those who are at risk of needlestick injury.
- Pathologists, laboratory personnel, or embalmers.

- Dentists, dental assistants, and dental hygienists.
- Certain staff members of institutions for the developmentally handicapped.
- Staff of institutions where workers may be exposed to aggressive, biting residents.
- Travellers to regions with intermediate or high rates of endemic HBV infection (where it is found among many people in that area) may also consider being vaccinated.

HOW DO YOU KNOW IF YOU HAVE HEPATITIS B?

Signs and symptoms can vary, in particular by the age of the individual. Many individuals may not show symptoms (be asymptomatic). When symptoms develop, they include fever, joint pain, abdominal pain, fatigue, lack of appetite, nausea, vomiting, dark urine, clay-coloured bowel movements, or jaundice.

Most infections are asymptomatic or mild. Occasionally, people with serious cases of hepatitis B require hospitalization. A very small proportion of these patients develop a critical form of the disease called “fulminant” hepatitis B. This condition results from a sudden breakdown of liver function.

WHAT LABORATORY TESTS ARE AVAILABLE FOR HEPATITIS B?

Tests are available to detect the types of antigens used to identify the hepatitis B virus. The tests determine if the virus is present in the body tissue or blood. The amount of each type of antigen present indicates how advanced the disease is and how infective the individual has become.

Other tests are available to detect the body’s reaction to the viral infection or the body’s reaction to vaccination against the virus. These tests work by measuring the number of antibodies present in the blood.

WHAT IS THE TREATMENT FOR HEPATITIS B?

Prevention is recommended by receiving a vaccine for HBV.

Receiving an injection of the hepatitis B immune globulin within 12 hours of coming in contact with the virus may help prevent the development of the disease.

At present, there is no specific treatment for patients with acute hepatitis B. Acute infection is usually short and will often resolve on its own. Your health care provider may recommend rest, and adequate nutrition and fluids to help your body fight the infection. Hospitalization may be required for patients who suffer from severe vomiting and who are unable to maintain adequate nutritional levels. It may also be required to prevent the development of complications.

While chronic infection cannot be cured, there are two standard treatments in Canada that may control the virus and prevent further damage to the liver.

- Antiviral medications can fight the virus and slow damage to the liver.
- Interferon which may be given for short periods and if effective, results in suppression of the virus.

Physicians may do regular monitoring for signs of liver disease progression. A liver transplant may be recommended if the liver is severely damaged.

HOW CAN THE SPREAD OF HEPATITIS B BE PREVENTED IN THE WORKPLACE?

The risk of hepatitis B can be significantly reduced by:

- Implementing infection control guidelines suitable for the specific workplace.
- Immunizing workers at risk.

Infection Control

Infection control precautions are the first line of defense to protect workers from hepatitis B and other blood-borne diseases. For this reason, the Public Health Agency of Canada recommends routine practices when there is a risk of exposure to blood or certain body fluids.

Immunization

Hepatitis B vaccines are available in Canada. They provide safe, reliable protection from hepatitis B when used either before or immediately after exposure to the virus. Tests show 90 to 95 percent of vaccinations of healthy people result in the development of resistance against hepatitis B.

Side effects are usually mild with soreness at the injection site being the most commonly reported. People with allergies to any hepatitis B vaccine ingredients should not receive the vaccine. Check with your health professional for more information.