

## Hepatitis B in Pregnancy

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### Abstract

Hepatitis B is a contagious liver disease caused by the Hepatitis B virus (HBV). Hepatitis B virus (HBV) is a Hepadnavirus belonging to a family of DNA viruses, the virus most threatening to the fetus and neonate. Hepatitis B infection is transmitted through sexual contact, contact with contaminated blood (for example, through shared needles and intravenous drugs), and from mother to child. This article discusses the risk factors, modes of transmission, signs and symptoms, prevention and treatment of hepatitis B in pregnant women

### Background

Hepatitis B is a major global health problem and the most serious type of viral hepatitis. Hepatitis B virus causes a life-threatening liver infection that often leads to chronic liver disease and puts people at high risk of death from cirrhosis of liver, ascites, portal hypertension, hemorrhage, and hepatocellular carcinoma (WHO 2008). Globally, about 2 billion people worldwide have been infected with the virus and it is estimated that more than 350 million individuals are chronically infected with the hepatitis B virus (HBV). Over 50% of the world's 350 million carriers of CHB acquire the infection perinatally or in early childhood (WHO 2008). Hepatitis B is easily transmitted through unprotected sex, from blood transfusions, by sharing needles, syringes, razorblades or toothbrushes that are contaminated. Hepatitis B is not spread through food, water, or casual contact  
Chronic Hepatitis B in pregnancy is a prevalent

and important problem with unique challenges. Hepatitis B is one of the most highly transmitted forms of hepatitis from mother to child around the world. Because this virus is highly contagious, and the risk that the newborn infant will develop hepatitis B is 10 to 20% if the mother is positive for the hepatitis B surface antigen HBsAg, and as high as 90 percent if she is also positive for the HbeAg. Usually, the disease is passed on during delivery with exposure to the blood and a fluid during the birth process (WHO, 2008).

If a pregnant woman tests positive during her prenatal visits for hepatitis B, she will receive hepatitis B immune globulin, and be told to completely abstain from alcohol. When her infant is born, the newborn will receive hepatitis B immune globulin at birth, and should be vaccinated with a hepatitis B vaccine at one week, one month, and six months after birth. This reduces the risk that the infant will become infected with hepatitis B to a range of zero to three percent, and is one reason why the Center for Disease Control and Prevention (CDC) has recommended that all newborn infants be vaccinated for hepatitis B (CDC, 2006). While hepatitis B is not curable, there is a vaccine to prevent the disease which is routinely given to children. Hepatitis B vaccine has been available since 1982 with 95% effective in preventing HBV infection and its chronic consequences (WHO 2008).

### Hepatitis B Risk Factors

Anyone can get hepatitis B usually through sexual activity. The following factors are considered to place a woman at risk for Hepatitis

B infection (CDC, 1991):

- History of STDs, especially HIV
- History of unprotected sex
- History of multiple sexual partners
- History of multiple blood transfusions
- History of acute or chronic liver disease
- Men who have sex with men (MSM)
- Healthcare workers exposed to blood
- Hemophiliacs (people affected by a hereditary bleeding disorder)
- Intravenous (IV) drug users and sharing needles

### **Modes of transmission**

Hepatitis B is spread mainly by exposure to infected blood or body secretions. In infected individuals, the virus can be found in the blood, semen, vaginal discharge and saliva. Sexual contact is the most common means of transmission. The hepatitis B virus is 50 to 100 times more infectious than HIV. HBV can survive outside the body for at least 7 days. During that time the virus can still cause infection if it enters the body of a person who is not infected. Common modes of transmission are:

- Unprotected sexual contact with an infected person, especially among persons with multiple sex partners or men who have sex with men (MSM)
- Vertical transmission from infected mothers to their babies child
- Contact with contaminated needles, especially unsafe injection practices.
- Other items such as tattooing and body piercing instruments
- Through sharing toothbrushes and razors contaminated with infected fluid/blood
- Through blood transfusions
- Occupational exposure through accidental needle stick

The 3-part hepatitis B blood panel includes the following:

### **1. Hepatitis B Surface Antigen (HBsAg):**

The “surface antigen” is part of the hepatitis B virus that is found in the blood of someone who is infected. If this test is positive, the hepatitis B virus is present.

### **2. Hepatitis B Surface Antibody (HBsAb or anti-HBs):**

The “surface antibody” is formed in response to the hepatitis B virus. Your body can make this antibody if you have been vaccinated, or if you have recovered from a hepatitis B infection. If this test is positive, then your immune system has successfully developed a protective antibody against the hepatitis B virus. This will provide long-term protection against future hepatitis B infection.

### **3. Hepatitis B Core Antibody (HBcAb or anti-HBc):**

This antibody does not provide any protection or immunity against the hepatitis B virus. A positive test indicates that a person may have been exposed to the hepatitis B virus. This test is often used by blood banks to screen blood donations. However, all three test results are needed to make a diagnosis.

### **Signs and Symptoms of Acute Hepatitis B**

Acute infection with hepatitis B is associated with actual viral hepatitis- an illness that begins with general ill-health, loss of appetite, nausea, vomiting, body ache, abdominal pain, dark urine and then progresses to development of jaundice. The illness lasts for a few weeks and then gradually improves in most affected people. A few people may have more severe liver disease (fulminant hepatic failure), and may die as a result. The infection may be entirely asymptomatic and may go unrecognized (Wikipedia, 2012).

### **Signs and Symptoms of chronic hepatitis B**

HBV infection lasting longer than six months is said to be chronic hepatitis. Chronic infection hepatitis B virus either may be asymptomatic or may be associated with a chronic inflammation of the liver (chronic hepatitis), leading to cirrhosis over a period of several years. Even when no symptoms are present; hepatitis B is highly contagious and can be transmitted to others. When symptoms do appear, approximately 15%-25% of people with chronic hepatitis B develop serious liver problems, including liver damage, cirrhosis, liver failure and liver cancer.

### **How does hepatitis affect pregnancy?**

When pregnant woman is infected with hepatitis B virus, there is a chance she may infect her fetus. Whether the baby will get the virus depends on when infection occurs. If infection occurs early in pregnancy, the chances are less than 10% that the baby will get the virus. If infection occurs late in pregnancy, there is up to a 90% chance the baby will be infected. Hepatitis may be severe in babies. It can threaten their lives. Even babies who appear well be at risk of serious health problems. Infected newborns have a high risk (up to 90%) of becoming carriers. They too pass the virus to others. When they become adults, these carriers have a 25% of dying from cirrhosis or liver cancer. HBV infection does not appear to cause birth defects, but there appears to be a higher incidence of:

- Premature baby
- Low birth weight (Safir 2010, Tse 2005) infants
- Gestational diabetes mellitus
- Antepartum hemorrhage

### **Diagnosis of Hepatitis B:**

The diagnosis of HBV relies on serological tests. Hepatitis B is diagnosed by detecting one of the

viral antigens - called hepatitis B surface antigen (HBsAg) in the blood. Later in the acute disease, (HBsAg) may no longer be present, in which case a test for antibodies to a different antigen-hepatitis B core antigen is used. If HBsAg can be detected in the blood for longer than six months, chronic hepatitis B is diagnosed. A number of tests can be done to know how well or poorly, the liver is working. They include blood clotting tests and tests for enzymes that are found in abnormally high amounts when any form of hepatitis is present.

### **Prevention**

Vaccination is the best prevention against spreading the hepatitis B virus. All infants should receive the hepatitis B virus vaccine: this is the mainstay of hepatitis B prevention. All children and adolescents younger than 18 years old and not previously vaccinated should receive the vaccine. Babies and children can be exposed to HBV from an infected dad, sibling, or other family member living in the same household. This can occur through contact with infected blood and bodily fluids. So anyone living in a household with an infected family member should be vaccinated. The best way to prevent any form of viral hepatitis B to avoid contact with blood and body fluids of infected person and use of condoms during sex. Another way to prevent infection is to get the hepatitis B virus vaccine. The vaccine is safe for use during pregnancy.

Every pregnant woman should be tested for HBsAg at her first prenatal visit. Infants born to infected mothers should receive HBIG and hepatitis B vaccine at birth. This is 85% to 95% effective in eliminating the risk of hepatitis B in the infant. People in high risk groups should also be vaccinated as persons with high-risk sexual behavior; partners and household contacts of HBV infected persons, injecting drug users, persons who frequently require blood or blood products, those at occupational risk of HBV infection, including health care

workers and International travelers to countries with high rates of HBV (Wikipedia, 2012).<sup>11</sup>

### Treatment

There is no specific treatment for acute hepatitis B infection. Care is aimed at maintaining comfort and adequate nutritional balance, including replacement of fluids that are lost from vomiting and diarrhea. Be sure to get plenty of rest, drink lots of fluids, eat a healthy diet, and avoid alcohol, sedatives and painkillers. Chronic hepatitis B can be treated with drugs, including interferon and anti-viral agents (as, lamivudine, adefovir, tenofovir, telbivudine and entecavir ) which can help some patients to fight the virus and slow its ability to damage the liver. Thus, the medications do not cure the disease, but they can prevent or delay complications and symptoms. If the liver has been severely damaged, a liver transplant may be an option. Liver transplantation is considered when the liver no longer functions adequately.

### Conclusion

Hepatitis B (HBV) is the serious viral infection of the liver, and can lead to premature death from liver damage, cirrhosis and liver cancer. HBV can be transmitted sexually, parenterally or vertically from mother to foetus. Hepatitis B should be closely managed before and during pregnancy to reduce the potential risks to the baby. If women are tested early in their pregnancy and treated with neonatal vaccination, the risk to their babies is significantly reduced. The hepatitis B vaccine is the most effective protection against hepatitis B infection and related health complications. All children should receive the vaccine. In addition, adults at high risk for hepatitis B should be vaccinated. And unvaccinated people who are exposed to hepatitis B should be evaluated by a physician to determine if they need specific immune globulin (HBIG).

### References

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