

PERINATAL INFECTIONS

PART II

SYSTEMIC VIRAL INFECTIONS

SYSTEMIC BACTERIAL INFECTIONS

SYSTEMIC PARASITIC INFECTIONS

BOOK ONE, MODULE 6

OUTPATIENT PERINATAL EDUCATION PROGRAM

OBJECTIVES

After completing this module, you should be able to:

1. Determine which systemic maternal infections are likely to cause intrauterine infection and what may be the effects upon the fetus.
2. List the systemic maternal infections which can and should be treated during pregnancy.
3. Identify the social implications and epidemiological concerns of maternal infections such as HIV, hepatitis B, syphilis and tuberculosis.
4. Educate women, both preconceptionally and during pregnancy, about the risks, to themselves and their offspring, posed by various perinatal pathogens.

The following is an EXCERPT from this module.

NOTE: If you are interested in seeing the rest of this module or the entire book, go to “Ordering Information” to order a set of books.

Hepatitis B

1. The disease in adults

Most individuals infected with hepatitis B acquire acute hepatitis, characterized by fever, jaundice, elevated liver enzymes, and hepatomegaly. They usually recover in several weeks to months. Hepatitis B antibody appears in the bloodstream, and the antigen disappears. A few will progress to chronic active hepatitis and some will become lifelong asymptomatic carriers. Hepatitis B is a significant cause of cirrhosis and hepatocellular carcinoma later in life due to chronic infection.

There are three distinct antigens on the hepatitis B virus: a surface antigen (HB_sAg) a core antigen (HB_cAg), and an e antigen (HB_eAg). Screening tests primarily look for the presence of surface antigen or antibody in the bloodstream.

2. Mode of transmission

The disease can be spread by contact with blood or body fluids of an infected person. This includes transmission by sexual contact.

Between mother and fetus the disease can be transmitted by contact with maternal blood and body fluids at delivery or postnatally. Rarely, it may be transmitted transplacentally. The mother is contagious to her infant if she has the antigen in her bloodstream, even if she is an asymptomatic carrier.

There is a danger that mothers infected with hepatitis B will go unrecognized because they have an asymptomatic infection, they have been infected too recently to have developed antibodies, or they are unidentified asymptomatic carriers as a result of an old infection.

Risks to the Fetus

- there is approximately a 50% risk of transmission at birth if mother is surface antigen (HB_sAg) positive. This is even higher if the mother is also e antigen (HB_eAg) positive.
Usually, infection of the neonate causes an asymptomatic chronic infection. Initially the infant appears healthy and thriving but 85-90% of infected infants will become chronic carriers and at least 25% of these carriers will eventually die from hepatocellular carcinoma or cirrhosis of the liver.

Hepatitis B

Hepatitis B

Hepatitis B
Plan of care

Rarely, the infected infant develops severe, fulminant hepatitis, which is often fatal.

- risk of prematurity

PLAN OF CARE

for Hepatitis B

- ◆ *routinely screen pregnant women for hepatitis B surface antigen and antibody. If positive, also screen for HIV.*
- ◆ **If mother is antigen positive:**
 - *wash all blood and body fluids off baby*
 - *health personnel should observe universal precautions*
 - *give hepatitis B immunoglobulin (HBIG) to the neonate to prevent infection (within 12 hours or as soon as possible).*
 - *Give hepatitis B vaccine (HBV) at the same time the HBIG is given. Use a separate syringe and a different site. Second and third doses should be given at 1 month and 6 months of age.*
 - *Follow up at 9 months of age to determine if infant has been effectively immunized. If baby has no antigen in his blood but does have antibody, then he is not infected and has been adequately immunized. If he is not adequately immunized he should receive a fourth dose of vaccine. If he is infected (antigen positive), further immunization is unnecessary, and he should be followed long term to determine if he becomes a chronic carrier (defined as being antigen-positive for more than six months).*
- ◆ **If mother's HB_sAg status is not known at delivery**
 - *give vaccine to the baby in immediate newborn period.*
 - *screen mother at delivery and if positive give HBIG within one week or as soon as results are known.*
 - *second and third doses of vaccine should be given at 1 and 6 months of age, regardless of mother's results.*
- ◆ *It is now recommended that all infants be routinely immunized against hepatitis B during infancy. The schedule for HB_sAg negative mothers is shown in Table 1.*

Breastfeeding

- ◆ *Breastfeeding is safe. There have been no documented cases of transmission through breastmilk and the HBIG and vaccine should be protective for the infant.*

Table 1
Hepatitis B Vaccine Schedule

<u>Hepatitis B vaccine</u>	<u>Age of infant</u>
Dose 1	Birth (in hospital) or within 1-2 months
Dose 2	1-2 months , or at least 1 month following the first dose
Dose 3	6-18 months, or at least 2 months following the second dose and 4 months following the first dose.

Taken from: American Academy of Pediatrics, 2000 Red Book: Report of the Committee on Infectious Diseases. 24th Ed, Elk Grove Village, IL

Counseling Women with Hepatitis B or C

- ◆ *Instruct woman to avoid substances such as alcohol, certain medications (esp. prolonged use), and illicit drugs which are hepatotoxic since chronic disease has already compromised liver function.*
- ◆ *Recommend vaccine for Hepatitis B*
- ◆ *Explain how to reduce the risk of spreading the disease:*
 - *Do not sharing toothbrushes or razors*
 - *Reduce the number of sexual partners*
 - *Use condoms, but risk is low for a steady partner*
 - *Do not donate organs, tissues, blood or blood products*

Hepatitis B vaccine

Hepatitis C

1. The disease in adults and older children

The initial infection with hepatitis C is usually mild. Many children are completely asymptomatic. Jaundice is present in only 25% of cases. A high percentage (60-70%) will go on to have chronic infection, which may also be asymptomatic. Approximately 20% of those with chronic infection will acquire liver cirrhosis. They are also at risk for hepatocellular carcinoma.

2. Mode of Transmission

Spread of infection is primarily by contact with blood or blood products of infected persons. Thus IV drug users are at high risk. Intranasal cocaine users are also at risk because of epistaxis and shared equipment. Hemophiliacs and others who receive large amounts of donor blood products are at risk: the currently estimated risk of infection from the general blood supply is 0.1% or less. The disease can be spread sexually although this is uncommon. There is also a 5% risk of maternal fetal transmission during pregnancy.

Risks to the Mother

Hepatitis C

- Chronic hepatitis
- Cirrhosis of the liver
- Hepatocellular carcinoma

Risks to the Fetus

- 5% risk of acquiring the infection
- Infants who acquire the infection perinatally have a high risk of chronic infection

Hepatitis C
Plan of care

for Plan of Care

Hepatitis C (HCV)

- ◆ *Screen women for hepatitis C only if they are at high risk or have had an exposure. Antibody screening is the widely available method. Eighty percent will be antibody positive within 5-6 weeks after infection. Some will seroconvert as early as 4 weeks after infection.*
- ◆ *There is no preventive treatment for women who have had an exposure. Immunoglobulin is not effective and not recommended, and there is no vaccine.*
- ◆ *Immunize HCV infected women against Hepatitis B and A. These vaccines can be given during pregnancy.*
- ◆ *The only effective treatment for chronic infection is interferon- and this is effective in only 20% of cases. However interferon is contraindicated in pregnancy.*

Diagnosis and Care of the Neonate

- ◆ *Perform antibody testing after 12 months of age on all neonates born to HCV positive mothers. (Most passively acquired maternal antibodies are gone by 12 mos of age.)*
- ◆ *Polymerase Chain Reaction (PCR) testing is becoming commercially available and can be performed at 1-2 months of age for earlier diagnosis of infants.*
- ◆ *Infected infants should be followed for development of chronic infection, including periodic liver function tests.*

Breastfeeding

- ◆ *Although some experts advise against breastfeeding, it is not contraindicated according to US Public Health Service guidelines and the Center for Disease Control (CDC). Transmission through breastmilk is theoretically possible but there have been no documented cases.*

Practice Questions

Please answer the following practice questions. If you have difficulty with the questions, you may review the last sections.

B5. How is hepatitis B most likely to be transmitted to the infant?

B6. Which of the following is the most common presentation of hepatitis B infection in the infant?

- A. asymptomatic chronic infection with elevated liver enzymes appearing in early childhood
- B. severe hepatitis at birth

B7. What interventions are appropriate at delivery for the infant delivered to a mother with hepatitis B ?

B8. TRUE FALSE It is recommended that all infants be routinely immunized against hepatitis B during infancy.

Check your answers with the list that follows. Correct answers and review the appropriate section in the module.

Practice
questions
part B

Answers

- B5. Contact with blood and body fluids at delivery
- B6. A. asymptomatic chronic infection
- B7. wash all blood and body fluids off baby
observe universal precautions
give HBIG as soon as possible (within 12 hours)
give HBV within 12 hours
- B8. TRUE