SNS COLLEGE OF ALLIED HEALTH SCIENCES

SNS Kalvi Nagar, Coimbatore - 35

Affiliated to Dr MGR Medical University, Chennai

DEPARTMENT: ALLIED HEALTH SCIENCES

COURSE NAME: PAEDIATRIC

Topic: HEPATITIS B

CASE SCENARIO

Neonatal hepatitis B virus

- Neonatal hepatitis B virus infection is usually acquired during delivery. It is usually asymptomatic but can cause chronic subclinical disease in later childhood or adulthood. Symptomatic infection causes jaundice, lethargy, failure to thrive, abdominal distention, and clay-colored stools. Diagnosis is by serology. Rarely, severe illness may cause acute liver failure requiring liver transplantation. Less severe illness is treated supportively. Active and passive immunization help prevent vertical transmission.

Etiology of Neonatal HBV Infection

- HBV infection occurs during delivery from an infected mother. The risk of transmission is 70 to 90% from women seropositive for hepatitis B surface antigen (HBsAg) and hepatitis B e antigen (HBeAg— Serology) at the time of delivery. Women without the e antigen or with anti-HBe transmit the infection only 5 to 20% of the time.
- Mother–infant HBV transmission results primarily from maternofetal microtransfusions during labor or contact with infectious secretions in the birth canal. Transplacental transmission is identified in < 2% of infections. Postpartum transmission occurs rarely through exposure to infectious maternal blood, saliva, stool, urine, or breast milk. Up to 90% of infants infected perinatally will develop chronic infection, and perinatally acquired HBV infection may be an important viral reservoir in certain communities

Symptoms and Signs of Neonatal HBV Infection

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- Most neonates with HBV infection are asymptomatic but develop chronic, subclinical infection characterized by persistent HBsAg antigenemia and variably elevated transaminase activity. Many neonates born to women with acute hepatitis B during pregnancy are of low birth weight, regardless of whether they are infected.
- Infrequently, infected neonates develop acute, symptomatic hepatitis B, which is usually mild and self-limited. They develop jaundice, lethargy, failure to thrive, abdominal distention, and clay-colored stools. Occasionally, severe infection with hepatomegaly, ascites, and hyperbilirubinemia (primarily conjugated bilirubin) occurs. Rarely, the disease is fulminant and even fatal. Fulminant disease occurs more often in neonates whose mothers are chronic carriers of hepatitis B.

Dioagnosis

Diagnosis of Neonatal HBV Infection

- Serologic testing
- Diagnosis of neonatal HBV infection is by serologic testing, including measurement of HBsAg, HBeAg, antibody to hepatitis B e antigen (anti-HBe), and quantitation of HBV DNA in blood. Other initial tests include complete blood count (CBC) with platelets, alanine aminotransferase (ALT) and alpha-fetoprotein levels, and liver ultrasonography.
- Family history of liver cancer or liver disease is noted because of the long-term risk of hepatocellular carcinoma. If testing suggests HBV infection, consultation with a pediatric hepatologist is recommended.

Treatment of Neonatal HBV Infection

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- Supportive care
- Symptomatic care and adequate nutrition are needed. Neither corticosteroids nor hepatitis B immune globulin (HBIG) is helpful for acute infection. No therapy decreases the likelihood of developing chronic, subclinical hepatitis once infection is acquired.
- All children with chronic HBV infection should be immunized with hepatitis A vaccine. Children with chronic HBV infection may benefit from antiviral drugs (eg, interferon alfa, lamivudine, adefovir) but these should be used only in consultation with a pediatric hepatologist.

Prognosis for Neonatal HBV Infection

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- Long-term prognosis is not predictable, although chronic HBV infection early in life increases the risk of subsequent liver disease including chronic hepatitis, cirrhosis, end-stage liver disease, and hepatocellular carcinoma.

Prevention of Neonatal HBV Infection

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- Pregnant women should be tested for HBsAg during an early prenatal visit. Failing that, they should be tested when admitted for delivery. Some women who are HBsAg-positive are treated with lamivudine or telbivudine during the 3rd trimester, which may prevent perinatal transmission of HBV.
- **Neonates whose mothers are HBsAg-positive** should be given 1 dose of HBIG 0.5 mL IM within 12 hours of birth. Recombinant HBV vaccine should be given IM in a series of 3 doses, as is recommended for all infants in the US. (NOTE: Doses vary among proprietary vaccines.) The first dose is given concurrently with HBIG but at a different site. The 2nd dose is given at 1 to 2 months, and the 3rd dose is given 6 to 18 months after the first. If the infant weighs < 2 kg, the first dose of vaccine may be less effective. Subsequent vaccine doses are given at age 30 days (or when discharged from the hospital), and then 2 other doses are given at 1 to 2 months and 6 months after the 30-day dose.
- **Neonates whose mothers have unknown HBsAg status** at the time of delivery should also receive their first dose of vaccine within 12 hours of birth. For infants < 2 kg, the first dose is given concurrently with HBIG (0.5 mL IM) at a different site. For infants ≥ 2 kg and whose mothers can be tested for HBsAg and in whom follow up is ensured, HBIG (0.5 mL IM) can be delayed up to 7 days pending a positive maternal test for HBsAg. Testing for HBsAg and anti-HBs at 9 to 15 months is recommended for all infants born to HBsAg-positive mothers.

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- **Neonates whose mothers are known HBsAg–negative** should receive their first dose of vaccine within 24 hours of birth if they are medically stable and weigh ≥ 2 kg. For infants < 2 kg, administer 1 dose at age 1 month or before hospital discharge.
- Separating a neonate from its HBsAg-positive mother is not recommended, and breastfeeding does not seem to increase the risk of postpartum HBV transmission, particularly if HBIG and HBV vaccine have been given. However, if a mother has cracked nipples, abscesses, or other breast pathology, breastfeeding could potentially transmit HBV.

THANK YOU

References:

The text book of paediatric author santhosh kumar