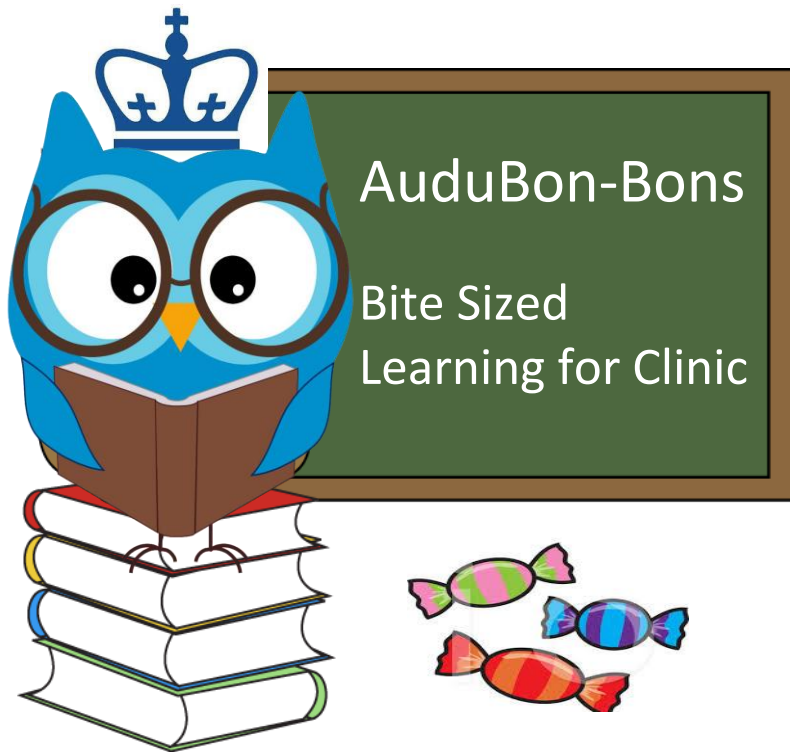


HEPATITIS B IN PREGNANCY

Week 90

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Reading Assignment:
ACOG Practice Bulletin #86
Viral Hepatitis in Pregnancy



LEARNING OBJECTIVES



- To be able to diagnose HBV in pregnant women
- To know how to decrease the risk of vertical transmission of HBV
- To counsel women with chronic HBV on breastfeeding



CASE VIGNETTE

- Ms. Violet, a 31yo G1P0 woman at 10 weeks gestation presents to establish prenatal care. She has chronic hepatitis B and wants to optimize her health in her pregnancy.



FOCUSED HISTORY

What elements of the patient's history are most relevant?

- **PMH:** Chronic hepatitis B acquired through sexual contact 10 years ago. She denies any sequelae of hepatitis. She had seen a hepatologist in the past, but had lost her insurance coverage.
- **PSH:** Denies
- **POBH:** G1P0
- **PGYNH:** Regular menses Q28 days lasting 5 days. Denies history of STIs or abnormal paps. Up to date on pap. Has mutually monogamous male partner. Denies history of fibroids or cysts.
- **MEDS:** PNV
- **ALL:** NKDA
- **FH:** CAD
- **SH:** Works in a hair salon. Lives with husband. Denies IPV. Denies etoh, tobacco or drug use. Accepts blood products.



PERTINENT PHYSICAL EXAM FINDINGS

What elements of the patient's physical exam are most relevant?

- VS WNL
- Gen: NAD
- Skin/HEENT: **No evidence of jaundice**
- Abd: Appropriately gravid, **no hepatosplenomegaly**, ND, NT
- PE: Normal appearing external genitalia, vagina, cervix, no CMT, no uterine or adnexal tenderness or masses
- Ext: WWP, no edema
- Bedside ultrasound: Singleton IUP c/w 10 weeks gestation, FHR 150s bpm

HEPATITIS B VIRUS

What are the three principal antigens of HBV?

- Small DNA virus
- Has three principal antigens
 - HBsAg = Hepatitis B surface antigen
 - HBcAg = Hepatitis B core antigen
 - HBeAg = Hepatitis B e antigen **INDICATES AN EXTREMELY HIGH VIRAL INOCULUM AND ACTIVE VIRUS REPLICATION**



HEPATITIS B VIRUS

How is HBV transmitted?

- Vertical transmission, parenteral and sexual contact

What is the sequelae of HBV?

- Of adult patients who become infected 85-90% experience complete resolution of physical findings and develop protective levels of the antibody
- The other 10-15% of patients become chronically infected
 - Continue to have detectable serum levels of HBsAg but are asymptomatic and have no biochemical evidence of hepatic dysfunction
 - In 15-30% of patients with chronic infection viral replication continues and manifests as persistence of the e antigen and active viral DNA synthesis
 - Risk of subsequent development of chronic or persistent hepatitis and cirrhosis
 - 4000-5000 patients die annually of complications of chronic liver disease
- 1% mortality of acute HBV infection



HBV DIAGNOSIS

Interpret these serologic findings:

- HBsAg Negative/Anti-HBc Negative/Anti-HBs Negative
 - **Negative and susceptible**
- HBsAg Negative/Anti-HBc Positive/Anti-HBs Positive
 - **Immune due to natural infection**
- HBsAg Negative/Anti-HBc Negative/Anti-HBs Positive
 - **Immune due to vaccination**
- HbsAg Positive/Anti-HBc Positive/ IgM anti-HBc Positive/Anti-HBs Negative
 - **Acutely infected**
- HBsAg Positive/Anti-HBc Positive/IgM anti-HBc Negative/Anti-HBs Negative
 - **Chronically infected**



PREVENTING VERTICAL TRANSMISSION

What is the risk of vertical transmission for chronic HBV?

- **Perinatal transmission of infection represents the single largest cause of chronically infected individuals worldwide**
- Routine prenatal screening of all pregnant women with HBsAg is recommended
- 10-20% of women who are seropositive for HBsAg alone will transmit the virus to neonates in the absence of intervention
- 90% of women who are seropositive for both HBsAg and HBeAg will transmit the virus to neonates in the absence of intervention



PREVENTING VERTICAL TRANSMISSION

What is the risk of vertical transmission for acute HBV?

- When occurs in the first trimester: 10% risk
- **When occurs in the third trimester: 80-90% risk**



PREVENTING VERTICAL TRANSMISSION

How can we reduce the risk of vertical transmission?

- Trend maternal serum HBV DNA level
 - Risk of vertical transmission is rare when $<10^5$ to 10^6 IU/mL
 - Per MFM, refer patient if HBV DNA level $> 10^5$ to 10^6 IU/mL, significant increase in HBV DNA level, new diagnosis, or patient desires additional education
- Universal active immunization of all infants born in the US
- Infants of women who are HBsAg positive or whose status is unknown should receive both HBIG and Hepatitis B vaccine within 12 hours after birth given simultaneously at different sites IM
 - It should be followed by two more injections of hepatitis B vaccine in the first 6 months of life
 - Remember: Neonatal immunoprophylaxis will not prevent HBV infection in newborns who are already infected in utero



BREASTFEEDING

Is breastfeeding contraindicated?

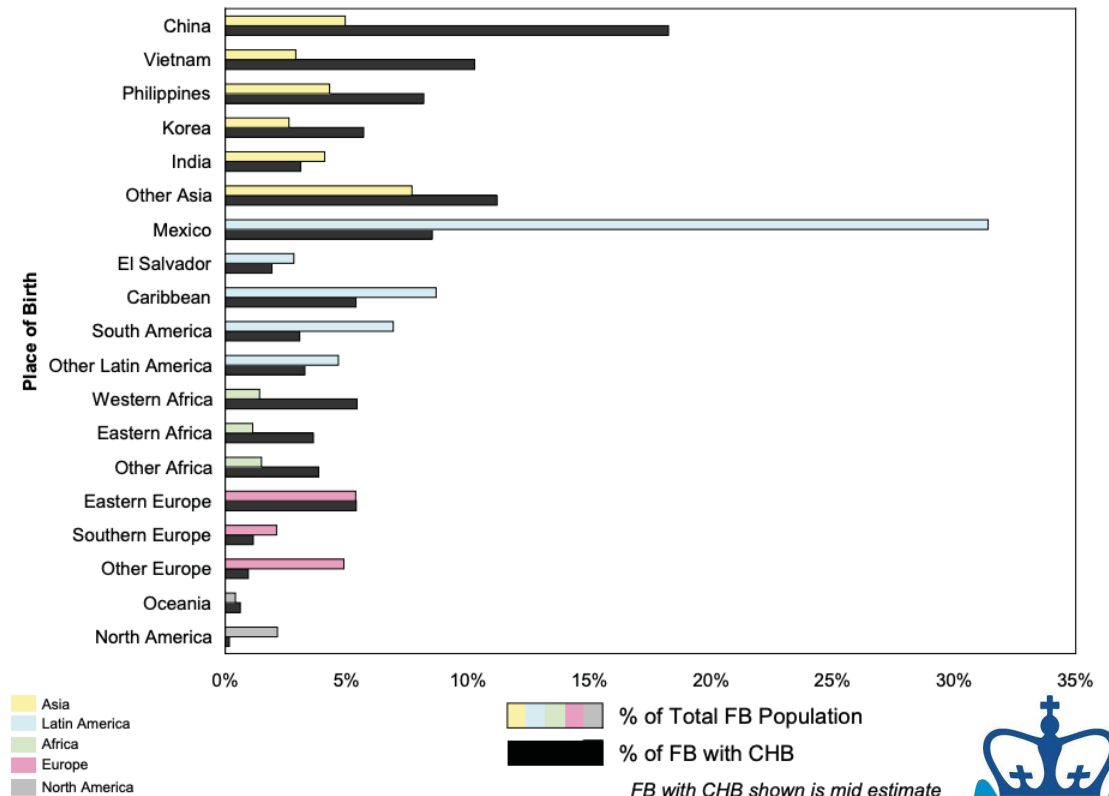
- Breastfeeding is not contraindicated in women chronically infected with HBV if the infant received HBIG and the hepatitis B vaccine
- No data on HBeAg positive mothers



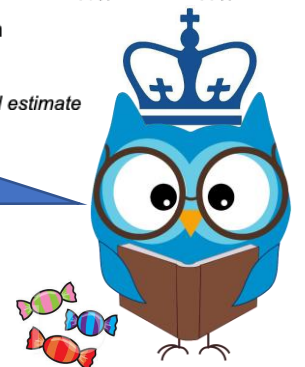
SOCIAL DETERMINANTS OF HEALTH

Prevalence of Chronic Hepatitis B (CHB) in the U.S. varies by Place of Birth

- The number of foreign born with CHB in the U.S. ranges from 850,000 to 2,240,000 persons
- Over half (58%) are from Asia, where CHB is hyperendemic (i.e., >8% of the population)
- 11% are from Africa, where CHB is also hyperendemic (i.e., >8% of the population)
- 7% are from Central America, which has lower CHB rates (i.e., 0.4–2.5%) but more immigrants in the U.S.



This a a good reminder to get a thorough social history to ensure you don't miss any risk factors for your patients.



EPIC .PHRASE

.BBonChronicHBV

Description: Chronic HBV in Pregnancy Counseling

We discussed the risks of chronic hepatitis B infection in pregnancy, including the risks of vertical transmission of between 10-20%. The patient understands we will be trending HBV DNA level and LFTs; and that she will be referred to Perinatal Clinic if: HBV DNA level $> 10^5$ to 10^6 IU/mL, significant increase in HBV DNA level, new diagnosis, or patient desires additional education. She consents to hepatitis B vaccine for her infant postpartum as well as HBIG. She understands she can breastfeed her infant safely if she desires.



CODING AND BILLING

- **ICD-10 Codes**

- 098.4

- Viral hepatitis complicating pregnancy, childbirth and the puerperium



EVIDENCE

Hepatitis B Prevention. ACOG Practice Advisory. American College of Obstetricians and Gynecologists. May 2020.

Kim, W. Ray. Epidemiology of Hepatitis B in the United States. Hepatology. 2000 May; 49 (5 Suppl): S28-S34

Lee et al. Hepatitis B and Pregnancy. UpToDate. Last updated May 2019. Accessed June 2020.

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