



The Vaccinator

A NEWSLETTER OF THE VACCINE PREVENTABLE DISEASE PROGRAM
AT COLUMBUS PUBLIC HEALTH --THIRD QUARTER, 2014

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Hepatitis B “is the most prevalent chronic infectious disease in the world, a common cause of morbidity and mortality worldwide, and a major health problem in the United States ...One mode of transmission of HBV is perinatal transmission.”

— NY state PHBPP program manual

“Transmission of hepatitis B virus (HBV) from mother to infant during the perinatal period represents one of the most efficient modes of HBV infection and often leads to severe long-term sequelae.”

-MMWR June 10, 1988

Perinatal Hepatitis B Prevention

Management of Hepatitis B in Pregnancy

For more than two decades, the Centers for Disease Control and Prevention (CDC) has recommended that all pregnant women be screened for the marker of active hepatitis B, the hepatitis B surface antigen (HBsAg).¹ According to a recent report from the Institute of Medicine (IOM), most obstetrical care providers do screen pregnant women for hepatitis B and advise that newborns of HBsAg-positive mothers receive both hepatitis B immune globulin (HBIG) and hepatitis B vaccine, within 12 hours of birth. However, “knowledge among obstetricians about hepatitis B is limited, and the IOM concluded in their report that *only one-half to two-thirds of obstetrical care providers offered hepatitis B information to patients or referred their HBsAg-positive pregnant patients to a specialist for management of chronic hepatitis B.*”²

The management of chronic hepatitis B during pregnancy remains a challenge and involves various aspects of maternal-fetal care. Despite the standard immunoprophylaxis, a significant portion of infants born to highly viremic mothers remain infected with hepatitis B virus.⁶

Important New Treatment Recommendations

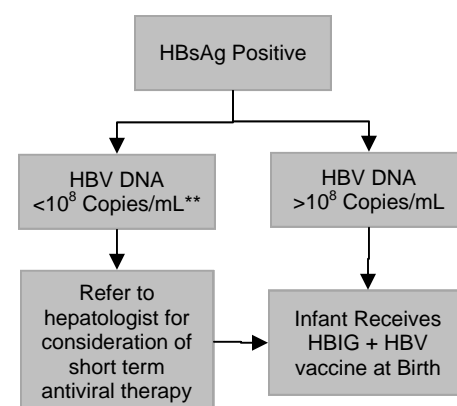
Dr. Su Wang (Medical Director, Center for Asian Health Chinese Health Initiative, Saint Barnabas Medical Center) was asked what her recommendation was for testing for the pregnant woman. She stated that many OB’s do run the HBeAg and HBV DNA tests to help them quickly identify the patients more at risk of transmitting HBV to their infants due to high viral load and HBeAg. These at-risk patients should be evaluated by a specialist for possible antiviral treatment.”⁵ There is growing evidence that treatment during the third trimester may reduce the risk of transmission by lowering maternal viremia prior to delivery.⁶ The use of an oral antiviral drug in the third trimester of pregnancy might be effective in preventing HBV transmission.²

Dr. Tram Tran (Associate Professor of Medicine, David Geffen School of Medicine at UCLA) states the best strategies to reduce mother to child transmission of hepatitis B are:

- 1) Treatment in the third trimester to reduce viral levels in the mother.
- 2) Getting hepatitis B vaccine and the hepatitis B immune globulin to the baby within 12 hours of birth.⁷

“Because of the unpredictable nature of HBV and the risk of serious complications of active disease, all persons found to be chronically (longer than 6 months) positive for HBsAg need lifetime follow-up with at least semiannual surveillance.”²

Management of HBV Infection During Pregnancy



**May consider treatment if previous child HBV positive
<https://www.aasld.org/education/Documents/Tran-Pregnancy%20and%20Hep%20B.pdf>

Case Study– Infant Infected

A 32 year old Chinese woman was tested for HBV due to pregnancy. She was tested for only the HBsAg by the OB physician. Seven months later, her son was born. Hepatitis B vaccine and HBIG were given to him within 3 hours of birth. The second dose of vaccine was given at 29 days and the third was given at 6 months of age. At 21 months of age, the child tested positive for HBsAg. A year after the child was born; the HBV DNA was tested on the mother. She had >170,000,000 IU/mL of HBV DNA. If she had been tested for HBV DNA prior to delivery and treated, could the perinatal transmission have been prevented?

What You Should Remember About Seroclearance of Chronic Hepatitis B

Hepatitis B surface antigen (HBsAg) seroclearance is a rare event in patients with chronic hepatitis B virus infection who acquire the disease early in life. Undetectable HBsAg in the serum is usually due to a decrease in viremia.³

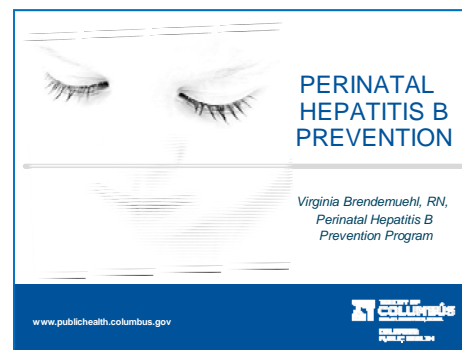
When a person is infected as a child, he has a very high probability of becoming a carrier of HBsAg and having high levels of HBV DNA. In many of these persons, over time their levels of HBV DNA decrease substantially, even to undetectable in some. Whereas the majority of carriers of HBV are HBsAg positive for life, some carriers are eventually cleared of HBsAg. As recommended for HBsAg carriers, these 'former carriers' who cleared HBsAg should be followed with periodic surveillance. These persons may be able to transmit HBV. This was evidenced by studies demonstrating rare transmission of HBV from persons who are HBsAg-negative but Hepatitis B core antibody-positive to HBV-seronegative person.⁴ However at low levels of HBsAg, the risk for perinatal transmission is low.⁵

Educational Opportunities

An informational presentation about Hepatitis B, how to interpret Hepatitis B tests, and follow up for the Perinatal Hepatitis B Prevention Program is available to you and your staff. This is a 1/2 hour Power Point presentation. Please call Virginia Brendemuehl at (614) 645-7597 or email at VABrendemuehl@columbus.gov for more information or to schedule a presentation.

Coming Soon

An independent study about Hepatitis B and Perinatal Hepatitis B Prevention. Nursing continuing education credits awarded after successful completion of the program. Watch for further information this fall.



Resources:

¹"A comprehensive immunization strategy to eliminate transmission of hepatitis B virus infection in the United States: recommendations of the Advisory Committee on Immunization Practices (ACIP) part 1: immunization of infants, children, and adolescents. Mast, EE, Margolis, HS, et al. *MMWR Recomm Rep*. 2006;54(RR-16):1-31.

²"Chronic Hepatitis B in Pregnancy, A Workshop Consensus Statement on Screening, Evaluation, and Management, Part 1&2" Apuzzio, Joseph MD, Block, Joan RN, BSN, et al. *The Female Patient*, Vol 37, April 2012: 22-34.

³"HBsAg Seroclearance in Chronic Hepatitis B in the Chinese: Virological, Histological, and Clinical Aspects" Yuen, Man-Fung, Wong, Danny, et al. *HEPATOLOGY*, Vol. 39, No. 6, 2004: p.1694

⁴"Chronic Carriers of Hepatitis B Virus Who Clear Hepatitis B Surface Antigen: Are They Really 'Off the Hook'?" *Hematology*, July 1998, p. 265-267, Vol. 28, No. 1.

⁵Transcript from "Webinar on December 19th: Hepatitis B and Reducing Perinatal Transmission -An Overview and Discussion of New Tools", Murphy, Trudy, MD, Wang, Su, MD, MPH, et al. December 19th, 2013 <http://www.whitehouse.gov/blog/2013/11/18/webinar-december-19th-hepatitis-b-and-reducing-perinatal-transmission-overview-and-d>

⁶"Antiviral Therapy for Chronic Hepatitis B in Pregnancy" Pan, Calvin MD, and Lee, Hannah MD. *Semin Liver Dis*. 2013;33(2):138-146 Found at: http://www.medscape.com/viewarticle/807416_print

⁷Transcript from podcast sponsored by Johns Hopkins University School of Medicine. "Hepatitis B & Pregnancy" Tran, Tram, MD March 27, 2012 <http://www.hopkinscme.edu/ofp/eViralHepatitisReview/newsletters/2012/0312-transcript.pdf>

"HBV Perinatal Transmission among Mothers with High Viral Loads" Wiseman E, Fraser MA, Holden S, et al. **Perinatal transmission of hepatitis B virus: an Australian experience.** *Med J Aust*. 2009; 190(9): 489-492.

Questions?

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