HEPATITIS B POST VACCINE SEROLOGICAL TESTING: The Final Step in Preventing Transmission of Hepatitis B from Infected Mothers to Their Infants

Post vaccine serological (PVS) testing of infants born to hepatitis B surface antigen (HBsAg) positive women is the final step in preventing hepatitis B transmission, but is often neglected. PVS testing is necessary to determine if the child is protected or susceptible to hepatitis B. Ten percent of infants born to HBsAg positive women that fail to receive appropriate prophylaxis at birth become infected. Ninety percent of these infants will become chronically infected and have an increased risk of cirrhosis and hepatocellular carcinoma (CDC, 2007).

Interpretation of Results

All infants of HBsAg positive mothers should be tested for both HBsAg (CPT code 87340) and antibody to hepatitis B surface antigen (Anti-HBs) (CPT code 86706) 3-12 months after administration of the final dose of hepatitis B vaccine (HBV) to determine the child’s response to the vaccination series. If the HBsAg is positive, a HBsAg confirmatory neutralization test test with reflex to confirmation (CPT code 87341) is required. The testing method should allow determination of a protective level of Anti-HBs, i.e., > 10 mIU/ml. To avoid detection of the Anti-HBs from HBIG administered during infancy, PVS testing should not occur before the age of 9 months.

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<td>Anti-HBs HBsAg</td>
<td>Positive</td>
<td>Immune due to vaccination</td>
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<td>Anti-HBs HBsAg</td>
<td>Negative</td>
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Susceptible/Nonresponder

Children that fail to respond to the first series of HBV should complete a second 3-dose vaccine series on the usual 0,1,6 month schedule or the accelerated schedule at 0,1,4 months, then retest the HBsAg and Anti-HBs 1-2 months after the last dose to ensure that the infant is protected. Although fewer than 5% of persons receiving 6 or more doses of HBV will fail to develop Anti-HBs, do not assume that your patient will develop Anti-HBs.

Recommendations

- Do not accept positive HBsAg results without a confirmatory assay in accordance with the FDA requirements for the specific testing assay. Many unconfirmed HBsAg positive results are false positives.
- Obtain a history of the mother’s HBsAg status.
- Inquire about PVS testing for any child with documented HBIG at birth on their immunization record.
- Coordinate PVS testing with well child exams or other blood tests (e.g. lead).

Summary

Prevention of hepatitis B infection costs much less than treating the physiological and psychological complications of chronic hepatitis B. The cost of 1 dose of HBV ranges from $9.50 to $23.20 (CDC, 2008). Medi-Cal reimburses $11.87 for the Anti-HBs test and $11.42 for HBsAg tests (Department of Health Services, 2008). The annual cost of antiviral therapy for chronic hepatitis B ranges from $2,482 - $18,480.00 (Hepatitis B Foundation, 2006). PVS testing is the final step to ensure prophylaxis has been effective.

The Los Angeles County Perinatal Hepatitis B Prevention Program is available to aid the public in reducing the number of perinatal hepatitis B infections. Please call (213) 351-7400 or visit http://lapublichealth.org/ip/perinatalhepb/index.htm for more information.

References


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