A Seroprevalence Survey of Hepatitis B Markers among Haitians in a Southwest Florida Farming Community

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Abstract: We determined the seroprevalence of hepatitis B virus markers among 123 Haitian mothers and children in a southwest Florida farming community. Fifty-five per cent of mothers had one or more markers including two who were HBsAg positive. Only seven (10 per cent) children had markers; none were HBsAg positive. Pregnant Haitian women should be screened for HBsAg and infants born to those who are positive should receive immunoprophylaxis. Medical, dental, and laboratory workers caring for Haitian patients should also receive hepatitis B vaccine. (Am J Public Health 1985; 75:1094–1095.)

Introduction

In the United States, the incidence of hepatitis B virus (HBV) infection is less than 10 per 100,000 person years. Incidence is highest among the 20 to 39 year age group, and about twice as many men are affected as women. Chronic carrier rates in the US are low. In contrast, hepatitis B is endemic in many developing countries and the rate of chronic carriage may be as high as 20 per cent. In Asia, HBV transmission is primarily from chronic carrier mothers to their infants. In Africa transmission is predominantly from sibling to sibling, and the incidence is highest among children five to 10 years of age.

Presently, little is known about the prevalence or patterns of HBV transmission among Caribbean populations. Studies of blood donors show that the prevalence of one or more HBV markers in 1980 was 11 per cent in Puerto Rico, 13 per cent in Barbados, and 83 per cent in the Dominican Republic.

In 1981, the Centers for Disease Control (CDC) participated in the medical evaluation of 122 well Haitians (107 male and 15 female) who recently entered the United States. Eighty-four per cent had one or more HBV markers indicating previous infection. In addition, 14 per cent (all asymptomatic males) were hepatitis B surface antigen (HBsAg) positive, and were probably chronic carriers.

In 1982, CDC participated in a prospective screening study to identify HBV markers among Haitian women attending a prenatal clinic in Immokalee, Florida, a small, migrant farm-worker community in the southwestern part of the state. During a 12-month period, 77 pregnant women were screened; 62 per cent were positive for one or more HBV markers, and 7 per cent were HBsAg positive. These results prompted us to conduct a seroprevalence survey to better understand the risks of HBV transmission in Immokalee’s Haitian community.

Methods

The population of Immokalee (1980 census) is 13,723. According to a 1983 Collier County Health Department census, approximately 30 per cent of Immokalee’s population is of Haitian origin. Using information from this survey, we identified a 20-block area in which more than 80 per cent of the Haitian population lived. All households in this area were visited multiple times to maximize the number of study participants. After obtaining informed consent, a venous blood specimen was collected in April (one month prior to the annual migration of Immokalee farm workers) from all mothers and children 10 years of age or less. None of the study participants had received either hepatitis B vaccine or hepatitis B immune globulin (HBIG).

Blood specimens were tested by radioimmunoassay (Abbott Laboratories, Chicago) for: HBsAg, antibody to hepatitis B core antigen (anti-HBc), and antibody to hepatitis B surface antigen (anti-HBs). Specimens found positive for HBsAg were also tested for hepatitis B ‘e’ antigen (HBeAg). Study participants were considered antibody positive if they had anti-HBc, or anti-HBs with an S/N ratio of greater than or equal to 10 (the S/N ratio is derived by dividing the sample counts per minute by the mean of the negative controls, according to the manufacturer’s specifications).

Results

Blood specimens were obtained from 123 Haitians in 58 households. The results of the serologic testing are summarized in Table 1.

Twenty-eight (55 per cent) of 51 Haitian mothers had one or more HBV markers. Two (4 per cent) asymptomatic mothers were HBsAg positive; both were HBeAg negative. The children of these two women (ages one and three years) were negative for all HBV markers. Four (57 per cent) of seven infants less than six months of age and their mothers were antibody positive; none were HBsAg positive. Only three (6 per cent) of 54 children one to four years of age were antibody positive; none were HBsAg positive. The mother of one of these children was negative for all HBV markers; the mothers of the other two were unavailable for testing.

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TABLE 1—Seroprevalence of Hepatitis B Markers among 123 Haitian Mothers and Children, Immokalee, Florida, 1984

<table>
<thead>
<tr>
<th>Age Group</th>
<th>No.</th>
<th>HBeAg (%)</th>
<th>Antibody Positive (%)</th>
<th>Any HBV Marker (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;6 mos</td>
<td>7</td>
<td>0</td>
<td>4 (57)</td>
<td>4 (57)</td>
</tr>
<tr>
<td>6-11 mos</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1-4 yrs</td>
<td>54</td>
<td>0</td>
<td>3 (6)</td>
<td>3 (6)</td>
</tr>
<tr>
<td>5-10 yrs</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mothers</td>
<td>51</td>
<td>2 (4)</td>
<td>26 (51)</td>
<td>28 (55)</td>
</tr>
</tbody>
</table>

*anti-HBc, anti-HBs greater than or equal to 10 S/N, or both.

Discussion

This survey showed that a large proportion of Haitian women in Immokalee have been previously infected with HBV, and a small percentage are probably chronic HBsAg carriers. Of the seven HBsAg positive Haitian women identified in Immokalee to date (two in the seroprevalence survey and five in the prenatal screening program), only one was HBeAg positive. The infants of the two HBsAg positive women identified in the prevalence survey were negative for all HBV markers; a finding consistent with previous studies showing that the risk of perinatal transmission for infants born to HBeAg negative women is low.11,12 The infants born to the HBsAg positive women identified in the prenatal screening program received immunoprophylaxis with hepatitis B vaccine and HBIG,13 or were lost to follow up.

The antibody positive infants under the age of six months probably had passively acquired maternal antibody; all were born to HBsAg negative, anti-HBc and anti-HBs positive women. These infants' sera were not tested for class-specific antibody.

The small proportion of children one to four years of age with HBV markers suggests that the risk for sib-to-sib transmission in this age group is low. In most African countries where HBV is endemic, the incidence of horizontal transmission peaks in the more socially active five to 10-year age group.5-8 Since most Haitians in Immokalee arrived in the US within the last five years, few children are presently in this high-risk age group; therefore, it is difficult to assess the risk of horizontal transmission in this population.

Although the results of this small study must be interpreted cautiously, it seems likely that the risk of perinatal transmission among Haitians in Immokalee is lower than that found among many Asian populations. Still, a small percentage of the women tested were probably chronic HBsAg carriers, and at least one identified during prenatal screening was also HBeAg positive. Given that perinatally acquired hepatitis B results in serious health consequences and that the disease is now largely preventable, we feel justified in recommending HBsAg screening for all pregnant Haitian women and immunoprophylaxis for infants born to those who are positive.13 In addition, medical, dental and laboratory personnel caring for Haitians should receive hepatitis B vaccine.14

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REFERENCES