

# HEPATITIS B VIRUS INFECTION AND ITS TRANSMISSION IN PRESCHOOL CHILDREN

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## ABSTRACT

*In the present study, 2.5% of 367 preschool children has HBsAg positivity. Of 11 mothers who were HBsAg positive during the third trimester of pregnancy, 4 had babies (36.4%) who developed HBsAg positivity by 2.5-3 months of age (vertical transmission). Two babies born of HBsAg negative mothers, with history of jaundice during first trimester, were HBsAg negative. All the relatives of HBsAg positive cases screened were negative for HBsAg.*

**Key words:** *Hepatitis B virus, Hepatitis B surface antigen, Transmission of HBV infection.*

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Hepatitis B (HBV) infection constitutes a major world-wide health problem, causing considerable morbidity and mortality and contributes significantly to health care costs. HBV infection contracted by the mother during pregnancy carries a high risk of transmission to the neonate. If acquired during infancy and early childhood, this infection selectively predisposes an individual to the development of chronic carrier state, and in later life, to chronic liver disease, including hepatocellular carcinoma(1-3).

It has been shown that risk of HBV infection is significantly higher in family contacts of HBsAg positive patients as compared to other groups, especially spouses, siblings and offsprings(4). This cross sectional study was undertaken to find out the incidence and modes of transmission of HBV infection among preschool children.

## Material and Methods

The study was conducted from May, 1988 to September, 1989 in the Department of Pediatrics, GSVM Medical College, Kanpur, with the help of Department of Gastroenterology, AIIMS, New Delhi, on a total 367 children upto the age of five years. Random blood samples were taken for HBsAg detection by the micro ELISA method(5). Samples were also taken from 13 mothers (2 in the first trimester and 11 in the third trimester) who had history of jaundice during the current pregnancy or in previous pregnancies during the last five years. These mothers were screened at the time of delivery and cord blood was also taken from HBsAg detection. Subsequently, babies were tested for HBsAg every month for six months after birth. Blood of all the

relatives of HBsAg positive cases were also taken from HBsAg detection. Only HBsAg detection was done as facilities for other serological tests were not available. Samples were sent to AIIMS for analysis. Data obtained was statistically analysed using  $\chi^2$  test.

## Results

Of a total of 367 children (211 boys and 156 girls), 9 were positive for HBsAg (2.5%). Of the 13 mothers with history of jaundice, 11 were positive for HBsAg during the third trimester. Of these 11 infants, 4 (36.4%) showed HBsAg positivity: one at 2.5 months of age and 3 at 3 months—none was symptomatic. Two mothers with jaundice in the first trimester were HBsAg negative at delivery; so were their babies. All relatives of HBsAg positive cases screened were negative for HBsAg.

## Discussion

Hepatitis B is an important cause of morbidity and mortality all over the world. The offspring of all HBsAg mothers (whether chronic carriers or acutely infected in the third trimester) are at risk(6,7). Most infants born of HBsAg positive women do not manifest clinical/biochemical/serological evidence of HBV infection until the age of 3-5 months. Transmission most likely occurs during birth; however, in rare instances viral transmission may occur *in utero* via transplacental leakage(8). Although HBsAg may be found in as many as 71% of samples of breast milk(9), there is no difference in perinatal transmission between breast-fed and artificially fed(10). The younger the age at which infection occurs, the more chronic is the HBV infection,

perhaps due to immaturity of immunologic mechanisms, resulting in inability to clear virus or to develop active immunity. Of 11 HBsAg positive mothers, 4 had babies (36.4%) who developed HBsAg positivity at the age of 2.5-3 months after monthly screening. Similar observations were made by Nayak *et al.*(11).

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## NOTES AND NEWS

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### SECOND ANNUAL HARYANA STATE IAP CONFERENCE

The Second Annual Haryana State IAP conference is scheduled to be held at Central Hall, NDRI, Karnal on *December 15, 1991* featuring free papers, panel discussion and sight seeing.

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