Hepatitis B Infection in Pregnancy-Experience at a Tertiary Care Centre of North India

Vani Malhotra, Parveen Malhotra*, Vandana Bhuriya, Isha Pahuja, Smiti Nanda, Meenakshi Chauhan and Neetu Sangwan

Department of Gynecology & Obstetrics and Medical Gastroenterology, PGIMS, Rohtak, Haryana, (124001)

Abstract: *Objectives:* To investigate the Seroprevalence of hepatitis B surface antigen in pregnant women and managing chronic HBV infection in pregnant women for preventing mother to child transmission.

Methods: Fifteen thousand pregnant women were evaluated using history, examination and test for serum HbsAg and who were found to be HbsAg positive underwent liver function tests, HbeAg and HBV DNA analysis by Polymerase Chain Reaction (PCR).

Results: out of fifteen thousand (15000) women, 52 women tested positive for HbsAg. Of these, 8(15.38%) presented with acute hepatitis and 44(84.6%) were asymptomatic carriers. The highest HbsAg positivity was seen in age group of 20-25 years and maximum women were multiparous (67.23%). Assessment of risk factors revealed history of tattooing in 22 women (42.3%). Out of 52 women, 12 patients tested positive for HbeAg and their DNA tires were more than one Lakh copies/ml. Forty six women(88.4%) delivered vaginally and rest 6(11.5%) underwent cesarean section which was mainly done for obstetric indications. All the babies born received immunoglobulin and first dose of HBV vaccine within 12 hours of birth.

Conclusion: Seroprevalence of HbsAg in antenatal women was found to be 0.34%.

Keywords: Hepatitis B, HbsAg, HBV DNA Quantitative, Pregnancy.

1. INTRODUCTION

Infection with hepatitis B virus is a serious health problem worldwide and a major cause of chronic hepatitis, cirrhosis and hepatocellular carcinoma (HCC). There are three possible routes of transmission of HBV from infected mothers to infants: transplacental transmission of HBV in uterus, natal transmission during delivery or postnatal transmission during care of infant or through breast milk (1-3). Over 50% of these carriers are believed to have acquired their infection vertically from their mothers, i.e. through mother-to-child transmission. Vertically acquired HBV infections frequently (90%) become chronic (4). Strategies to prevent mother to child transmission would go a long way in global control of HBV infection, and the associated mortality and morbidity. Thus chronic HBV infection during pregnancy is an important opportunity to interrupt perinatal transmission of HBV. This study investigated the Seroprevalence of hepatitis b surface antigen (HbsAg) among pregnant women.

2. METHODS

This study was carried out at Pt BDS PGIMS Rohtak for a period of one year. Women in any trimester of pregnancy with or without jaundice attending the antenatal clinic were included. Women who tested HbsAg positive were enrolled in the follow up study after an informed consent. Personal history, history of risk factors and obstetric history was obtained. At the time of admission for delivery again, a detailed history was taken and general, systematic and obstetrical examination was done. Data on mode of delivery, indication for cesarean section, weight and maturity of babies were recorded.

3. RESULTS

A total of 15000 women were screened for HbsAg out of which 52 were found to be seropositive. Seroprevalence of HbsAg was found to be 0.34(52/15000). The highest prevalence was observed in the age group of 20-25 years (50%) followed by the 25-30 year age group (34.5%). Maximum women (67.23%) were multiparous. Majority of women belonged to rural background (61.5%) and were having lower socio-economic status (53.8%).

Twenty two of the 52 HbsAg positive women had history of tattooing (42.3%), 12(23.07%) gave history of previous surgical procedures and 7(13.4%) had history of blood transfusion in previous pregnancies. No risk factor was elicited in 11 women (21.1%).

*Address correspondence to this author at the 128/19, Civil Hospital Road, Rohtak, Haryana, India (124001); E-mail- drparveenmalhotra@yahoo.com

E-ISSN: 2312-5411/17

Table 1: Comparison of Seroprevalence Rates of HbsAg and HbeAg among Pregnant Women in Different Populations

Author, Year	Number of Persons Screened	HbsAg Positive (%)	HbeAg Positive (%) of HbsAg Positive
Nayak *et al* (1987) (12)	8575	3.7	7.8
Panda *et al* (1991) (13)	8431	2.6	12.5
Gill *et al* (1985) (14)	2000	5.0	12.0
Dwivedi *et al* (2011) (15)	4000	0.9	57
Malhotra *et al* (2016) present study	15000	0.34	23.07

Information on HbsAg status of husband was available for 25(48.07%) out of 52 HbsAg positive women; of these, 5 husbands were positive, 20 husbands were negative and all the negative husband were advised HBV immunization. Husbands of the remaining 27(51.9%) HbsAg positive women declined HbsAg testing.

Eight women (15.38%) out of 52 had acute hepatitis and remaining 44(84.6%) women were asymptomatic chronic carriers.

Twelve (23.07%) women were HbeAg positive and their HBV DNA titers were more than one Lakh copies/ ml, so tablet lamivudine was started from late second trimester till delivery to reduce the transmission from mother to child.

Out of 52 women, forty six women (88.4%) delivered vaginally and rest 6(11.5%) underwent cesarean section which was mainly done for obstetric indications. Majority of the babies were term and having birth weight in the range of 2.5-3kg (51.9%). All the babies born received immunoglobulin and first dose of HBV vaccine within 12 hours of birth. All the babies received breast feeding.

4. DISCUSSION

HBV infection does not appear to influence fertility or conception per se, beyond the effects of cirrhosis or liver failure (5). A large study that compared 824 HbsAg positive mothers to 6281 HbsAg negative control mothers found no difference in rates of preterm delivery, birth weight, neonatal jaundice, congenital anomalies or perinatal mortality (6). Also, HBV infection during pregnancy does not appear to increase maternal or fetal mortality and morbidity. However, a recent study showed that HbsAg carrier mothers had a increased risk of gestational diabetes mellitus, ante partum hemorrhage, and threatened preterm labor (7). In the present study, Seroprevalence of HbsAg among pregnant women was found to be 0.34%.

The highest prevalence was observed in the age group 20-25 years (50%) followed by 25-30 year age group (34.6%). However other studies have reported an increase in seropositivity with increasing age of antenatal women. We also found a higher frequency of HbsAg positivity in multiparous women (67.23%). In a study by MacLean *et al,* (8), mean age and parity was 25.79 and 2.81 respectively. Tattooing was most significant risk factor for HBV infection in present study similar to reported by Dwivedi *et al*. HbeAg positivity rate among HbsAg positive women vary widely. HbeAg positivity in present study was 23.07%.

In the present study, no adverse pregnancy outcome was found in association with positive HbsAg status. Pasorek *et al,* in a retrospective comparison between maternal HbsAg positive cases and controls found no relationship between positive mothers and pregnancy outcomes (9). In contrast, Tse KY *et al,* reported an association of increased risk of gestational diabetes, ante partum hemorrhage and threatened preterm labor with HbsAg carrier state (10).

In the present study, forty six (88.4%) women delivered vaginally and rest 11.5% underwent cesarean section for obstetric indications. The results were similar to study by Lert-amorpong *et al,* with 82.9% normal delivery and 16.5% cesarean section (11). The present study results are almost comparable with previous studies which have been done as evidenced in Table **1**.

REFERENCES

[1] Zhang SL, Yue YF, Bai GQ, Shi L and Jiang H. Mechanism of intrauterine infection of hepatitis B virus. World J Gastroenterol 2004; 10: 437-8. https://doi.org/10.3748/wjg.v10.i3.437

[2] Beasley RP and Hwang LY. Postnatal infectivity of hepatitis surface antigen-carrier mothers. J Infect Dis 1983; 147: 185-190. https://doi.org/10.1093/infdis/147.2.185

[3] Yang X, Cui MX and LIU BG. Breast-feeding by mothers with positive serum hepatitis B virus test. Zhonghua Fu Chan Ke Za Zhi 1994; 29: 586-8.

[4] Lavanchy D. Worldwide epidemiology of HBV infection, disease burden, and vaccine prevention. J Clin Virol 2005; 34(Suppl 1): S1-3. https://doi.org/10.1016/S1386-6532(05)00384-7

[5] Tan J, Surti B and Saab S. Pregnancy and cirrhosis. Liver Transpl 2008; 14: 1081-91. https://doi.org/10.1002/lt.21572

[6] Wong S, Chan LY, Yu V and Ho L. Hepatitis B carrier and perinatal outcome in singleton pregnancy. Am J Perinatol 1999; 16: 485-8. https://doi.org/10.1055/s-1999-6802

[7] Tse KY, Ho LF and Lao T. The impact of maternal HbsAg carrier status on pregnancy outcomes: a case control study. J Hepatol 2005; 43: 771-5. https://doi.org/10.1016/j.jhep.2005.05.023

[8] MacLean B, Hess RF, Bonvillain E, *et al*. Seroprevalence of hepatitis B surface antigen among pregnant women attending the Hospital for Women & Children in Koutiala, Mali. S Afr Med J 2012; 102: 47-9.

[9] Pastorek JG, Miller JM and Summers PR. The effect of hepatitis B antigenemia on pregnancy outcome. AJOG 1988; 158: 486-9. https://doi.org/10.1016/0002-9378(88)90010-5

[10] Tse KY, Ho LF and Lao T. The impact of maternal HbsAg carrier status on pregnancy outcome. J Hepatol 2005; 43: 771-5. https://doi.org/10.1016/j.jhep.2005.05.023

[11] Lert-amornpong S, Caengow S and Chutaputti A. The association of pregnancy outcomes and HbsAg positive. Thai J Gastroenterol 2007; 8(3): 115-8.

[12] Nayak NC, Panda SK, Zuckerman AJ, *et al*. Dynamics and impact of perinatal transmission of hepatitis B virus in North India. J med Virol 1987; 21: 137-145. https://doi.org/10.1002/jmv.1890210205

[13] Panda SK, Ramesh R, Rao KV, *et al*. Comparative evaluation of the immunogenicity of yeast-derived(recombinant) and plasma-derived hepatitis B vaccine in infants. J Med Virol 1991; 35: 297-302. https://doi.org/10.1002/jmv.1890350416

[14] Gill HH, Majumdar PD, Dhunjiboy KR, *et al*. Prevalence of hepatitis B e antigen in pregnant women and patient with liver disease. J Assoc Physicians India 1985; 43:247-8.

[15] Dwivedi M, Misra SP, Misra V, *et al*. Seroprevalence of hepatitis B infection during pregnancy and risk of perinatal transmission. Indian J Gastroenterol 2011; 30(2): 66-71. https://doi.org/10.1007/s12664-011-0083-y

Received on 18-09-17 Accepted on 15-11-17 Published on 31-12-2017

DOI: http://dx.doi.org/10.12974/2312-5411.2017.04.5