Sero-prevalence of Hepatitis B surface antigen among pregnant women attending antenatal clinic in a teaching hospital

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ABSTRACT

Pregnant women infected with Hepatitis B virus represent a major reservoir of the virus in the community. So the retrospective study was carried out to observe the frequency of Hepatitis B among the pregnant women of Ranga Reddy District. The study was carried out from January 2011 to December 2011. It was a retrospective study based on review of records of pregnant women before 38 weeks of gestation who attended the antenatal clinic of Obstetrics/Gynaecology Unit, Bhaskar Medical College and Hospital, R.R.Dst. Hepatitis B surface Antigen (HBsAg) was determined as a serological marker for the viral infection among pregnant women. Patients were screened for Hepatitis B by Immuno Chromatographic Technique (ICT) device designed for qualitative detection of HBsAg in serum. Those found positive on screening test were confirmed by ELISA. Total number of patients screened was 809. The overall prevalence of sero-positive HBsAg among pregnant women was 0.61%. Viral hepatitis during pregnancy is associated with a high risk of maternal complications, has a high rate of vertical transmission causing fetal and neonatal hepatitis and has been reported as a leading cause of maternal mortality Therefore, every pregnant woman undergoing delivery and/or any other surgical procedure must be screened for Hepatitis B.

Keywords: Screening, Hepatitis B, HBsAg, Pregnancy.

INTRODUCTION

Hepatitis B virus (HBV) infection is a major global health problem [1-3], especially in Asia, Africa, southern Europe and Latin America [4]. About 2 billion people are infected with HBV worldwide [2,4,5]. Over 20 millions people are infected annually with this virus globally and there are 350 - 400 millions chronic carrier of Hepatitis B virus (HBV).[6]

Infection with hepatitis B virus (HBV) is a serious public health problem worldwide and leads to a wide spectrum of clinical presentations, ranging from asymptomatic carrier state to acute self-limiting infection or fulminant hepatic failure, chronic hepatitis with progression to cirrhosis, and hepatocellular carcinoma (HCC) [2]. The hepatitis B surface antigen (HBsAg) in serum is the first seromarker to indicate active HBV infection, either acute or chronic.[7]

Transmission of HBV from carrier mothers to their babies can occur during the perinatal period, and appears to be the most important factor in determining the prevalence of infection in high endemicity areas, particularly in China and Southeast Asia.[8] Before HBV vaccine was integrated into the routine immunization program, the proportion of babies that became HBV carriers was about 10% to 30% for mothers who were HBsAg positive but HBeAg negative. However, the frequency of perinatal infection was higher, i.e. 70% to 90%, when the mother was also HBeAg positive.[9,10]. There are three possible routes of transmission of HBV from infected mothers to infants:
transplacental transmission of HBV in utero, natal transmission during delivery or postnatal transmission during care of infant or through breast milk [11-13]. Passive immunoprophylaxis with hepatitis B immunoglobulin (HBIG) and active immunoprophylaxis with hepatitis B vaccine in the infants of HBV carriers: gives high levels of protection against vertical transmission. However, 10% of the offspring of HBV carriers are chronic hepatitis B sufferers in their early life. Even though these carriers received routine neonatal immunoprophylaxis, it is because they were infected in uterus.[14] As a result of this, maternal screening is necessary for the treatment of newborns, since passive and active immunization are so important in the endemic areas. And in addition viral hepatitis during pregnancy is associated with a high risk of maternal complications, has a high rate of vertical transmission causing fetal and neonatal hepatitis and has been reported as a leading cause of maternal mortality [15-18].

India has intermediate endemicity of HBV infection, with population prevalence rate of around 4% [19]. Vertical and horizontal transmission in the perinatal period and early childhood are the major routes of propagation of this infection in India.[8] Keeping in view the dreadful complication of hepatitis, its high infectivity and the pregnant women being a vulnerable group, are likely to be more predisposed to these infections, this study was done to know the seroprevalence of hepatitis B surface antigen (HBsAg) among pregnant women.

MATERIALS AND METHODS

It was a retrospective study based on review of records of pregnant women before 38 weeks of gestation - who attended the antenatal clinic of Obstetrics/Gynaecology Unit, Bhaskar Medical College and Hospital, R.R.Dst. Hepatitis B surface Antigen (HBsAg) was determined as a serological marker for the viral infection among pregnant women. The study was carried out from January 2011 to December 2011 at Bhaskar medical college and general hospital A total of eight hundred and nine pregnant women were included in the study. All pregnant women with age range of 14–49 years were screened for Hepatitis B. Rapid Immuno Chromatographic Techniques (ICT), for qualitative detection of surface antigen of Hepatitis B was used to screen the pregnant women. Those found positive on screening tools were confirmed by ELISA(Erba diagnostics Mannheim, Germany).

RESULTS AND DISCUSSION

During the study period, 809 pregnant women with a age group of 14 to 49 years who attended the antenatal clinic were included. HBsAg was detected in 5 out of 809 (0.61%) pregnant women. The highest prevalence was among the women aged 21 years. (3 out of 5).

The present study shows that the sero-prevalence of HBsAg was 0.61%, which is comparable to the sero-prevalence 0.9% reported by Manisha Dwivedi and colleagues[8] and 0.82% by S Chatterjee et al [20] and a seroprevalence of 1.1% reported by Pande et al.[21] Nandan et al has shown the national prevalence amongst antenatal women for Hep. B 1.65%. [22] Lodha et al. (2001) in their review article on hepatitis B epidemiology have suggested the true prevalence rate in India as 1-2%. [23] There is a wide variation in the prevalence in different regions of our country, and the highest prevalence has been reported by Prakash et al in North India (9.5%)[24] and by Chaudary among the aborigines of Andaman as well as from Arunachal Pradesh,[25] The prevalence of hepatitis B varies from country to country. The prevalence of sero-positive HBsAg among pregnant women in Saudi Arabia was 1.6%[26], and 1.47% in Southeastern Turkey[27] and 1.37% in Pakistan [28] and 6.67% prevalence was reported in Nigeria.[29] The prevalence of HBV carrier state during pregnancy in India in this study was low compared to previous reports.

CONCLUSION

In order to prevent perinatal transmission and spread of the infection within the larger community pregnant mothers should receive prenatal screening for hepatitis B. Neonates who are infected by hepatitis B will have an almost 90% risk of developing chronic hepatitis B surface antigen (HBsAg) carriage and chronic liver disease. Infants may spread the disease to siblings and others. Neonatal immunization with HBIG and HBV vaccine interrupts vertical transmission.

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