ISSN: 2091-2749 (Print)
2091-2757 (Online)

Prevalence of hepatitis B in pregnant women and management of babies born to Hepatitis B positive mother: a criterion based clinical audit

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ABSTRACT

Introductions: This study aims at identifying the prevalence of Hepatitis B virus infection in pregnant women and adherence to the management of the newborns of these women as per the international guidelines.

Methods: This was a cross sectional study conducted at Patan Hospital from January 1, 2008 to December 30, 2014. Prevalence of HBsAg in pregnant women in Patan Hospital and management of babies born to these women, the immunization status, breast feeding status and follow up advice for the babies were studied. These data were analyzed to see whether we were following international guidelines for preventing mother to child transmission of hepatitis B infection.

Results: There were total of 58,917 deliveries and 59,438 births during the seven-year study period. During this period, total 148 cases of pregnant ladies with HBsAg positive status were recorded. The prevalence of HBsAg positive case was 0.25% or 1 in every 398 deliveries. Fifty-four babies (87%) received hepatitis B vaccine (HBV) and hepatitis B immunoglobulin (HBIG) within 12 hours of birth. Eight babies (22%) failed to receive HBV and HBIG within 12 hours of birth. Fifty-eight (96%) babies were breastfed after birth. Mother's HBsAg positive status was not the reason for formula feeding in any of the babies. Follow up HBsAg status was not advised in any of the babies.

Conclusions: Patan Hospital seems to be following most of the guidelines in the management of HBV infection in pregnant women, except for checking the HBsAg status of their babies at 9-18 months of age.

Keywords: chronic liver disease, HBsAg positive, hepatitis B vaccine, Hepatitis B immunoglobulin, mother to child transfer

INTRODUCTIONS

Newborn infants acquiring HBV infection by perinatal transmission have a greater than 95% chance of becoming chronic HBV carriers.[1] Therefore, it is very important to establish protocols in institutes to prevent mother to child transfer (MTCT) and decrease the burden of chronic HBV infection.

Neonates of all HBsAg positive mothers should receive immunoprophylaxis treatment with HBIG and HBV given within 12 hours of birth to decrease MTCT of hepatitis B virus infection.[2] This is 85 to 95 percent effective in reducing the infection from vertical transmission.[3] The guidelines also advise to have the HBsAg status of the babies checked at 9-18 months of age. [4]

The objectives of this study was to audit if the recommendation for preventing MTCT of hepatitis B and guidelines for babies born to HBsAg positive mothers were followed in Patan Hospital.

METHODS

This was a cross sectional study done from January 1, 2008 to December 30, 2014, at Patan Hospital. Delivery record files were checked to confirm that HBsAg status was recorded in all women. All HBsAg positive results of pregnant women recorded in the hospital laboratory record book were selected. The corresponding record files of these patients and their babies were retrieved from the record filing section. The mode of delivery and indication for cesarean sections were noted. The immunization status and breastfeeding status of the babies were also recorded from the baby's hospital record and drug cardex. These data were analyzed to see whether we were following international guidelines for preventing mother to child transmission of hepatitis B infection, which included administration of HBIG and HBV vaccine to the neonates of HBsAg-positive mother within 12 hours of delivery.

Women who delivered outside Patan Hospital and mother or baby's record file that were missing were excluded from this study.

The files were reviewed and the following answers were sought for:

1. Were all pregnant women screened for hepatitis B?
2. Was HBsAg positive status wrongly used as an indication for Cesarean section?
3. Did all babies born to HBsAg-positive women receive HBV and HBIG within 12 hours of birth?
4. Was HBsAg status wrongly used as a contraindication for breastfeeding?
5. Was HBsAg status checked at 9-18 months in all babies born to HBsAg-positive mothers?

RESULTS

There were total of 58,917 deliveries and 59,438 births during the seven-year study period. From the maternity record, it was seen that all the women were tested for HBsAg before delivery except for five women who had no antenatal checkups.

During this period, 148 cases of pregnant ladies with HBsAg positive status were recorded. The prevalence of HBsAg positive case was 0.25% or 1 in every 398 deliveries. Among these 148 cases, 80 (54.1%) cases were excluded from the study because their hospital records could not be traced. The reason behind not being able to find the hospital records among 45 was because they had temporary hospital numbers. In our hospital, those with temporary numbers are not filed in the hospital record section. Among all the pregnant ladies with HBsAg positive status, 68 (45.9%) hospital record files were successfully traced. Fifteen (22%) of these cases had delivery by cesarean section and none of them were for HBsAg status. Heptatitis B infection was not an indication for cesarean section in any of the cases. The indications were: breech (2), meconium (4), failed induction (3), previous cesarean with

unfavorable cervix (2), cephalopelvic disproportion (1) and non-progression of labor (3).

Six out of the remaining 68 cases were excluded from the study because four babies were not delivered in Patan Hospital and therefore, they did not have hospital record files and two in two cases baby's records were missing.

Finally, the total cases included in this study were 62. The average maternal age was 27 years. None of the cases were positive for HIV and VDRL which are also done routinely for all antenatal clients.

The genders of the babies born to these mothers, 35 (56.4%) were male and 27 (43.5%) were female. The average gestational age was 38 weeks (four were premature births). Fifty-four (87%) received HBV and HBIG within 12 hours of birth. Eight babies (22%) failed to receive HBV and HBIG within 12 hours of birth as per the hospital pediatric department guidelines. Fifty-eight (94%) babies were breastfed after birth. Two (3.2%) mothers did not breastfeed because the babies were on intravenous drip, and the other two mothers did not breast feed because they had cesarean delivery and felt too weak. Mother's HBsAg positive status was not the reason for formula feeding in any of the babies. None of the babies were advised to have their HBsAg status checked at 9-18 months of age.

DISCUSSIONS

In this hospital based retrospective study, the prevalence of HBsAg positive was 0.25%. This is similar to a US study, where the prevalence of chronic hepatitis B virus infection in pregnancy was 0.2 to 6%, with rates varying by race and ethnicity.[5]

In Nigeria the incidence of seroprevalence of HBsAg was 8.3%, much higher than ours.[6] The Centers for Disease Control (CDC) recommends that all pregnant women should be screened for the presence of HBsAg at the diagnosis of pregnancy.[7] This is also supported by U.S. Preventive Services Task Force, American Academy of Family Physicians, American College of Obstetricians and Gynecologists, the American Academy of Pediatrics, and the Centers for Disease Control and Prevention. Those pregnant women with unknown HBsAg status or with risk factors should be screened upon admission for delivery.[8]

Although it is recommended that all pregnant women should be tested for HBsAg status to prevent MTCT of Hepatitis B infection, this is not yet practiced in most developing nations like Nigeria, hence the high prevalence. In developed countries, the increased awareness, identification of mothers who are Hepatitis B surface antigen and adequate prophylaxis reduce the prevalence of HBV infection.[9] In a large population-based study from Florida involving nearly 1.7 million pregnant women, the prevalence of HBV was approximately 27 times higher among Asian-Americans and 5 times higher among African-Americans as compared with whites.[10]

This emphasizes the importance of screening of pregnant women for HBsAg status in our country. It was very reassuring to note that in Patan Hospital, we have been successful in screening all pregnant women for HBsAg status. Prevalence rate in this study is comparable to western countries; and this is probably because the antenatal population in our hospital is mostly not drug abusers and sexual workers; and most of their previous deliveries were done in hospital setup.

Pregnancy is not a contraindication for vaccination to hepatitis B virus.[11] Pregnant women who are not immune to hepatitis B virus should be vaccinated, because premature delivery may be increased if acute hepatitis B is acquired in the last trimester; and because MTCT occurs in over 60% of pregnancies associated with acute hepatitis B infection at or near term.[11] Offering HBV during pregnancy is not a routine practice in our hospital and this can be considered.

Current guidelines do not recommend elective cesarean delivery for mothers with chronic

HBV infection, since this does not reduce the risk of mother to child transmission of HBV. Therefore, elective cesarean section should not be used in HBsAg positive pregnant women to prevent MTCT of HBV.[12] It was reassuring to note that in our hospital, HBsAg positive status alone was not being practiced as an indication for elective cesarean delivery.

Multiple studies have shown breastfeeding to be safe for children with mothers with chronic HBV infection.[13] The American Academy of Pediatrics states that breastfeeding is not contraindicated in women who are HBsAg positive.[14] Although breast milk contains HBsAg, breast feeding does not increase the risk of MTCT of hepatitis B virus, especially if the baby receives HBV and HBIG within 12 hours of birth.[15] In Patan Hospital, we do not discourage breastfeeding in these mothers and this has been reflected in this audit.

HBIG and HBV can effectively prevent mother-to-child transmission of hepatitis B virus.[16] From this study, we can see that in Patan Hospital giving HBIG and HBV to babies born to HBsAg positive mother is a routine practice. Seven babies that missed this were because their mother's HBsAg status was not written in neonatal record sheet and one baby was discharged before mother's HbAg test result was available.

Unfortunately, this study shows that none of the babies were advised to have their HBsAg status tested at 9-18 months as the guidelines suggest.

The limitation of this study was that we were unable to trace the record files of those patients who did not have permanent hospital identity.

CONCLUSIONS

Patan Hospital seems to be following most of the guidelines such as screening all women for HBsAg antenatally, not making HBsAg positive an indication for cesarean section, giving HBIG and HBV vaccines to babies before 12 hours after birth and breastfeeding them. But we are not checking the HBsAg status of the babies at 9-18 months of age as suggested by the guidelines. Therefore, this can be introduced in our practice.

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