



Original Article

Prevalence, Profile and Fetomaternal Outcome of Hepatitis B in Pregnancy

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Abstract

Background and Aim: Vertical and horizontal transmission in the perinatal period and early childhood are the major way of propagation of hepatitis B in India. Knowledge of hepatitis B not only gives measures to prevent perinatal transmission but also prevent the mother to suffer from chronic sufferings.

Material and Methods: All hepatitis B positive mothers are enrolled, the fetomaternal outcome were studied and compared with those of hepatitis B negative mother.

Observation: 170 cases came under our study out of 16570 deliveries, hence prevalence was 1.02%. maximum mothers were of 18 -30 age group, primipara and there is significant relation in term to preterm birth and low birth weight.

Conclusion: Universal screening of hepatitis B in pregnancy is mandatory and complete antibody profile should be done in case of positive mothers; that will help in proper management and prevention of fetomaternal transmission. Proper immunization and antiviral therapy are mainstay of treatment.

Introduction

Hepatitis B Virus infection is one of the commonest cause of liver disease in world. India falls into the intermediate endemicity areas as regards the prevalence of HBV infection which is 4% ¹. Vertical and horizontal transmission in the perinatal period and early childhood are the major way of propagation of this infection in India.

Knowledge of hepatitis B virus infection in pregnancy is important in view of

- (a) Preventing the mother to develop chronic liver disease and its late sequel.
- (b) Its effect on the labour
- (c) Perinatal transmission and, fetal jeopardy.²

Overall seroprevalence of Hepatitis B virus infection in pregnancy is not significantly different from the general population³. It causes acute hepatitis but also a spectrum of chronic liver diseases including chronic carrier stage, persistent hepatitis, chronic active hepatitis, cirrhosis of liver.⁴ Primary hepatocellular carcinoma and different immune complex disease. Hepatitis virus is found in blood and body fluid and is transmitted from person to person. The most common routes of infection includes blood transfusion, blood products where there is no screening of blood borne viruses, medical and dental interventions, Where instruments not properly sterilized, mother

to infant during childbirth, sexual transmission, sharing equipment for injecting drugs, sharing straws, notes etc. sharing razors, toothbrushes, other household articles, tattooing and body piercing using unsterile equipments.⁵ Hep. B is preventable with safe and effective vaccine that is available from 1982. Out of 2 billion people affected by Hep. B globally, more than 350 million have chronic infection⁶ Over 20 million peoples affected annually with this virus⁷

The initial non specific symptoms of hepatitis including fatigue malaise anorexia, nausea headache, myalgia, low grade fever may mimic with early signs of pregnancy. It may resolve without much liver damage or may damage significant liver cells to produce, Jaundice. Most resolve is 6 wks. Some of them may have violent course resulting in fulminant and hepatic failure including cerebral edema, coagulopathy, multiple organ failure and few of them persistent beyond 6 months to result in chronic hepatitis.

Acute hepatitis particularly in late pregnancy may induce premature labour (31.6%).⁸ There are possibilities of intrapartum and post partum hemorrhage fulminant hepatitis, hepatic encephalopathy, renal failure, DIC and death.^{9,10} Various fetal complication include intrauterine death, prematurity, and risk of vertically transmitting infection. Chronic viral hepatitis is asymptomatic until it damages much of liver cell to produce end stage liver disease. The main maternal risk is related to degree of portal hypertension and likelihood of esophageal variceal haemorrhage¹¹ onset of labour increases the intra abdominal pressure increases chances of variceal bleeding, hepatic and renal failure are other causes of Maternal mortality.¹²

Three types of antiviral drugs available Interferon-alpha, Adefovir Dipivoxil and lamivudine, out of which safety of Lamivudine was established, and is used in a dose of 100 mg daily. 10% of infant born to women with acute HBV infection during 1st trimester are HBs Ag positive at birth¹³ and 80-90% became positive without prophylactic therapy if acute maternal infection develops

during 3rd trimester of pregnancy.¹⁴

Variable rate of vertical transmission is due to placental hindrance. According to Okada 85% of neonatal HBV infection is caused by intrapartum exposure to infectious blood and vaginal secretions and remaining 15% by hematogenous transplacental viral spread. However Zhang predicted spread by placental route and during parturition by amniotic fluid and vaginal secretion.⁽¹⁶⁾ Okada et al showed that all babies all babies born to e antigen positive develop surface antigenemia but e antigen Negative escaped.

Which shows value of Hbe Ag in prediction of transmission of infection from mother to child. In the absent of appropriate prophylaxis 40% neonates of HBeAg negative mother and 90% neonates of HBeAg positive mother will develop HBV infection.¹⁴ Risk of vertical transmission pays its importance to screen all pregnant ladies for HBsAg. Which will help for not only identifying hidden case but also appropriate antiviral therapies will lead to prevent significant liver damage and associated functional insufficiency. Infant of potentially infectious mother are treated with both Human HBV Immunoglobulin (passive prophylaxis) and active immunoprophylaxis which will prevent chronic HBV in 85% cases, it is infective in care of hematogenous transplacental infection. (15%)

Administration of HBIG in a dose 200 IU in every week from 28th week of gestation reduces intrauterine infection to 16% against 32.7%.¹⁵ Lamivudine started from 28th wk reduces @100 mg/day reduces intratetale infection 16.3% against 32.7%. Tenofovir(300 mg) is also effective in treating pt with Hbe Ag positive. Caesarean section does not show any extra reduction in the incident of immunoprophylaxis failure in comparison to vaginal delivery¹⁶ Even though Breast milk of infected mother have HBVDNA with appropriate immunoprophylaxis including hep. B immunoglobulin and hep. B vaccine, breast feeding of infant of chronic HBV carriers poses no additional risk for transmission of hep. B virus.

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The present study was done to know the Prevalence of hep. B in pregnant women attending antenatal OPD and labour room, Their Clinical Profile, fetal and maternal outcome of HBV infected mother.

Material and Methods

The present study was carried out in the Department of Obstetrics and Gynaecology of Sriram Chandra Bhanja Medical College, Cuttack, from January 2015 to January 2017. It is an observational study for duration of 2 yrs. Source of data was patient coming to labour room of SBC Medical College. The hepatitis B card test was done and those came positive ELISA was done for confirmation. In this way 170 cases came into account. Detail History will be entered in the Performa. Routine Investigations (CBC,LFT, Serum urea creatinine sodium potassium, PT,APTT, INR, and hepatitis B serum markers (HBsAg, Quantitative ELISA, Hbe Ag, HBV DNA PCR) were done.¹⁸⁻²⁰ Pt will be followed up throughout ante partum intra partum and post partum phase for three months. Various complications during ante partum, intra partum and post partum period will be studied and maternal and fetal outcome will be evaluated.

Fallow up of Pt.

Pt will be followed up during whole course of pregnancy, delivery and puerperal phase. The fetus will be followed up for 1 yr after delivery.

Inclusion criteria

Any patient With HBsAg positive attending antenatal OPD or labour room of SCB MCH.

Exclusion Criteria

Any Patient refused to participate in study.
Any known malignancy, chronic liver disease (CHILD A,B,C),or autoimmune disease.
HIV (+) and HCV (+) cases.
Immuno compromised patient

Results

Table No 1 Showing prevalence of disease

Total deliveries	HbsAg positive	Prevalence
16570	170	1.02%

This table shows the total number of deliveries, the number of Hepatitis b positive mothers and the prevalence of Hepatitis B. The prevalence of Hepatitis B was 1.02%.

Table No 2 Prevalence of Hepatitis B in relation to maternal age)

Age group (Years)	No of deliveries	%	No of Hbs Ag mother	%	Prevalence
18-30	11124	67.2	141	82.9%	1.2%
31-40	4836	29.2	28	16.5%	0.58%
>40	610	3.6	1	0.6%	0.16%
Total	16570	100	170	100	1.02%

Chi sq=16.46; df=2; p<0.01

This table shows significantly higher numbers of HBs Ag mothers are between 18-30 age groups. There was a significant difference between the age groups with respect to their HBs Ag status with a p value of < 0.05

Table No 3 Prevalence in relation to parity

Gravida	No of deliveries	%	No of cases	Percentage	Prevalence
1	6380	38.5%	97	57%	1.52
2	5302	32.0%	48	27.72%	0.9
3	3563	21.5%	13	7.64%	0.36
>3	1325	8.0%	13	7.64%	0.96
Total	16570	100%	170	100%	1.02%

Chi sq=30.5; df=3; p<0.01

The above table shows 57% of Hepatitis B positive mothers are primipara. There was a significant difference between the parity with respect to their HBs Ag status with a p value of < 0.05

Table No-4 Prevalence of various risk factors of Hepatitis B mothers

Risk factors	No of cases	Percentage
Occupational	5	2.9%
High risk behavior	29	17%
Medical	13	7.6%
Surgical	56	12.9%
Obstetrical	33	32.9%
Family history	64	37.6%

Table no-5 Investigation parameter of HBs Ag positive mother)

Investigation parameter	No of cases	Percentage
HBe Ag	134	78.8%
HBV DNA (quantitative PCR)	134	78.8%
S.ALT	65	4.11%
Chi sq=4.3,df=1 p =0.038		

Out of 170 cases of Hepatitis B mothers 134 cases positive for both Hbe Ag and HBV DNA, in 65 cases S. Alt is raised. Thus, we could establish high statistical significance between HBs Ag positive pregnant women with HBe Ag and HBV DNA detection.

Table no-6 Mode of delivery of HBs Ag mother

Mode of delivery	Total cases	No of HBsAg mother	Prevalence
Vd	8474	104	1.2%
Lscs	8096	66	0.85%
Total	16570	170	1.02%
Chi sq=6.7; df=1; p<0.01			

Out of 170 cases 104 hepatitis B positive mothers 104 cases under .gone vd and 66 cases undergone lscs There was a significant difference between the mode of delivery with respect to their Hbs Ag status with a p value of < 0.05. Among the various causes fetal distress, non progress of labour are the most common causes of caesarean section.

Table no 7 Fetal outcome in terms of birth weight

Birth weight	Total no	No of baby born to hbs ag mother
<2500 gms	6295	79
>2500 gms	10275	91
Total	16570	170
Df=1, p value=0.02		

Out of 170 child born to Hbs Ag mothers 79 are L.B.W category There was significant difference between the birth weight of the babies born with respect to their Hbs Ag status with a p value of less than 0.05.

Table no-8 Fetal outcome in term of maturity

Maturity	Total no of cases	No of babies born to Hbs Ag mother
Term	11927	108
Preterm	4643	62
Total	16570	170
Chi sq=5.9; df=1; p=0.01		

Out of 170 fetus born to hepatitis B positive mothers 62 were preterm. There was significant difference between the maturity of the babies born

with respect to their Hbs Ag status with a p value of < 0.05.

Discussion

During the 21 month study from January 2015 to September 2016, a total of 16570 deliveries conducted in labour room of S.C.B medical college Cuttack. Of them 170 cases found positive for Hepatitis B. It should be appreciated that the seroprevalence of HBsAg of 1.02% as reported in the present study is regarded as being of low level of HBV infection as per the WHO classification of assessing severity of HBsAg infection in HBV endemic countries. WHO defines low prevalence to be <2%, moderate prevalence as 2-8%, and high prevalence as >8% HBsAg positivity.²¹ The variation may be attributed to difference in geographical location or in the detection process. Frequency of hepatitis B in relation to maternal age has been presented in the table. Maximum number (82.9%) of hepatitis B positive mothers belong to age group 18-30. when compared to normal deliveries the prevalence was also highest (1.2%) among 18-30 age group. This may be due to highest number of mother came to the institution belong to this age group. So the age group in my study was similar to, maximum studies cited above and the difference was significant as in studies by Sahai S et al²³. Prevalence of hepatitis B in relation to parity suggests maximum (57%) hepatitis B positive mothers are primipara, the prevalence being 1.2%. Our result was similar to study done by Wani S²⁴ who states that majority of the hepatitis B positive mother are primipara. There is significant difference among various parity group with a p value <0.05. Prevalence of hepatitis B in relation to Habituation suggests maximum (57%) hepatitis B positive mothers are of rural origin, the prevalence being 83.5%. our finding was similar to the study done by Mishra S et al²⁵ in which rural origin predominates. This may be due to unawareness regarding safe sexual practice, vaccination, and high risk behaviors just like tattooing. Various risk factors for hepatitis B were

explained in this table. Out of which 2.9% have occupational risk factors, 9% have high risk behavior like tattooing, 6% have medical risk factors like blood transfusion, 12.9% have surgical risk factors like operative procedures or dental extraction, 37.6% have family history of hepatitis B. My results were similar to study by Nadar S et al.²⁶

In present study the seroprevalence of HBe Ag was similar to most of studies mentioned above. Thus, we could establish high statistical significance between HBs Ag positive pregnant women with HBe Ag and HBV DNA detection.

The present study was similar to Jethwa DK et al²⁷ in relation to significance of various serum markers.

In present study the prevalence of vaginal deliveries is higher than caesarean section. As our institution is a tertiary care centre the prevalence of LSCS is almost equal or more but in regards to hepatitis B positive mother vaginal delivery is more as all cases came positive for screening for hepatitis B are referred here being a tertiary care hospital. In present study 39% cases LSCS is the mode of delivery compared to 19% in Safir A et al²⁸ and Anwar AL et al.²⁹

Conclusion

Urgent strategies are required to address the global health burden that chronic HBV infection imposes. It is imperative for nations to formulate and implement consistent population-based screening and universal vaccination programs. Although immunoprophylaxis has been extremely successful and is the mainstay of therapy, adjuvant use of antiviral therapy during pregnancy in order to reduce the risk of perinatal transmission. However, there is a clear need for close monitoring of pregnant women with hepatitis B infection (HBsAg +ve), both during and after pregnancy, and their infants for minimum 5 yrs. So the complication in pregnancy will decrease, maternal outcome will improve; the neonates will be saved from developing chronic hepatitis B in future. Service providers should also get

immunoprophylaxis and should use universal precaution measures.

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