



HEPATITIS B VIRUS INFECTION AMONG PREGNANT WOMEN ATTENDING A TERTIARY CARE HOSPITAL IN KUMAON REGION OF UTTARAKHAND.

Obstetrics & Gynaecology

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ABSTRACT

Background: Hepatitis B virus (HBV) infection remains an important worldwide cause of chronic liver disease, which may lead to the development of cirrhosis. Prevalence of Hepatitis B in pregnant women worldwide is 02.5 to 1.5% whereas in India it is 0.2 to 7.7%.

Method : This prospective study was conducted between January, 2018 to September, 2019 total 100 patient included in the study.

Result : Total 7650 Pregnant patient was screened and 100 came out to the Hepatitis B virus (HBV) positive. It was observed that HBV most common in 21 to 25 Age group (55.0%) and it was more common in Multigravida (61%) and more common in women who studied upto Class 10 (34%) and more common in Urban population. Pre term labour was found to be the most common complication (17%). In Neonatal out come 41% was low birth weight. Maternal mortality was 1% and neonatal mortality was 7%.

Conclusion : Pregnant women who are HBsAg positive are mostly asymptomatic. Universal screening of antenatal cases and immunization with hepatitis B vaccine of the community is definitely going to reduce the disease prevalence in future.

KEYWORDS

Prevalence, Maternal mortality, hepatitis B virus.

INTRODUCTION :

Hepatitis B virus (HBV) is a leading cause of death globally, with chronic infection commonly causing cirrhosis and hepatocellular carcinoma¹. Mother to-child transmission (MTCT) of HBV is an important mode of viral propagation. To prevent mother to child transmission, HBV screening is part of routine prenatal care in the India, and infants born to hepatitis B surface antigen (HBsAg)-positive mothers are given HBV immune globulin and vaccination a part of standard protocol. Apart from mother to child transmission, other important adverse pregnancy outcomes associated with HBV infection, such as increased risk of^{2,3}, miscarriage, preterm delivery (PTD), Gestational Diabetes and antepartum or postpartum hemorrhage^{2,3,4}. The epidemiology of HBV infection differs between the different countries. In Asia, mother-to-child and blood borne HBV transmission predominate⁵. Various studies have shown a very wide difference in the clinical course and outcome in pregnancy.⁶ Hence this study is conducted to study the prevalence of hepatitis in pregnancy, the clinical course and maternal fetal outcome.

AIM AND OBJECTIVES

The Aim and Objectives of present study was to study the prevalence of hepatitis-B in pregnancy and maternal and neonatal outcome.

MATERIAL AND METHODS :

This was a hospital based prospective observational study conducted among pregnant women who attended Ante Natal Clinic (ANC) for routine antenatal checkup between January 2018 and September, 2019. The study population was all consecutive pregnant women who attended ANC for check-up during the study period. Serum HBsAg test was done in each Pregnant woman by (ELISA) test kit. Of the 7,650 women screened, 100 were found to be positive, for HBsAg. Inclusion criteria All antenatal women who were counselled and tested positive for HBV and are willing to continue pregnancy. Exclusion criteria Antenatal women who were tested negative for HBV, those who were tested positive but willing for Medical Termination of Pregnancy, those who tested positive but had associated medical comorbidities and non consenting. The purpose of the study was explained to the subjects, and they were asked to participate voluntarily in the study.

Information on socio demographic and other pertinent data was collected. All HBsAg positive mothers were referred to physician and followed by testing their liver function in hospital laboratory. All the women who were tested positive for hepatitis B were advised to get HBeAg, HBV DNA viral load investigations. Supportive care and treatment as per Standardized guidelines given to all pregnant women. Each patient was thoroughly examined during antepartum, intrapartum and immediate postpartum period. All the new-borns of

the affected individuals were given active and passive immunization and were followed to check for transmission.

OBSERVATIONS

The total number of pregnant women screened 7650 over a period of 18 months.

The prevalence of Hepatitis - B among pregnant woman was 1.3%. The Mean $\pm$ SD age of the subjects in our study was 25.4 $\pm$ 4.0 years (Range: 20 - 38 years) and Median (IQR) age was 25 years (22 - 27) years. The minimum age of the subject is 20 and maximum age is 38 years. Majority of the subjects 55 (55.0%) belonged to the age group 21 - 25 years followed by 27 (27.0%) subjects of age group 26-30 years. (Table No. 1). Majority of subjects have studied till high school (34.0%) and Intermediate (11.0%). Graduate or Post graduate were 15%. 26.0% Subjects were illiterate (Table No. 1). Out of 100 hepatitis-B patients, 73 (73.0%) patients were from urban area and remaining 27 (27.0%) patients were from rural area (Table No. 1).

In the present study, with the increase in the parity there was an increase in the seropositivity (multigravidae-61%) vs (primigravidae-39%). Majority of the hepatitis-B positive women attending the hospital were unbooked (63%), (Table No. 2).

Among the known risk factors for hepatitis - B, 26 (26%) women had history of illicit injection by unauthorized doctors with glass syringe, 20 (20.0%) women had history of major surgery, 16 (16.0%) women had history of home delivery, 13 (13.0%) women underwent dilatation & evacuation, 13 (13%) had a probable sexual route of transmission as partner was affected, 8 (8.0%) women received blood transfusion any time prior to the pregnancy and 4 (4.0%) had tattoo (Table No. 3).

In present study, preterm labour was found to be the most common complication 17 (17.0%) among the hepatitis - B women, followed by intra uterine growth restriction - 12 (12.0%), anemia - 11 (11.0%), meconium stained liquor - 10 (10.0%), oligohydramnios - 9 (9.0%), PROM - 8 (8.0%), PIH - 6 (6.0%), IUFD - 5 (5.0%), APH - 2 (2.0%) and 1 (1.0%) women had GDM, ICP and PPH each. (Table No. 4).

Out of 100 hepatitis - B women, 61 (61.0%) delivered by vaginal route and 39 (39.0%) by caesarean section. All the caesarean section were done for obstetrical indications (12 previous LSCS with scar tenderness, 6 previous LSCS with poor bishop's score, 7 for breech presentation, 10 meconium stained liquor, 2 severe oligohydramnios, 2 ante partum haemorrhage)

In neonatal outcome, 41 (41.0%) neonates born to hepatitis - B mothers had low birth weight. NICU stay was required for 21 (21.0%) neonates.

Low birth weight, preterm labor and meconium aspiration syndrome were the common causes for NICU admission. Meconium aspiration syndrome was recognized in 14 (14.0%). 9 (9.0%) births achieved a 5 min Apgar score <7 and 8 (8.0%) neonates were premature at birth (Table No. 5).

In present study, neonatal mortality was observed in 7 (7.0%) neonates whereas one maternal mortality (cause- post partum hemorrhage) was noted (Figure No. 1).

Table 1. Demographic Profile

Age (Years)	Number of Subjects (n=100)	Percent (%)
≤ 20	8	8.0%
21 – 25	55	55.0%
26 – 30	27	27.0%
31 – 35	7	7.0%
> 35	3	3.0%
Education	Number of Subjects (n=100)	Percent (%)
Illiterate	26	26.0%
Up to 5 th standard	14	14.0%
Up to class 10	34	34.0%
Up to class 12	11	11.0%
Graduate and above	15	15.0%
Geographical Region	Number of Subjects (n=100)	Percent (%)
Rural	27	27.0%
Urban	73	73.0%

Table No. 2:

Parity	Number of Subjects (n=100)	Percent (%)
Primigravida	39	39.0%
Multigravida	61	61.0%
Booked/ Unbooked	Number of Subjects (n=100)	Percent (%)
Booked	37	37.0%
Unbooked	63	63.0%

Table No. 3: Distribution of risk factor among hepatitis - B patients

Risk Factors	Number of Subjects (n=100)	Percent (%)
Major Surgery	20	20.0%
Home Delivery	16	16.0%
Previous Dilation & Evacuation	13	13.0%
Tattoo	4	4.0%
Blood Transfusion	8	8.0%
Injection with Glass Syringe	26	26%
Sexual Route(Partner affected)	13	13%

Table No. 4: Maternal Outcome

Maternal Outcome	Number of Subjects (n=100)	Percent (%)
Preterm Labour	17	17.0%
Intra uterine growth restriction (IUGR)	12	12.0%
Anemia	11	11.0%
Meconium stained liquor (MSL)	10	10.0%
Oligohydramnios	9	9.0%
Premature rupture of membranes (PROM)	8	8.0%
Pregnancy induced haemorrhage (PIH)	6	6.0%
Intra Uterine Fetal Demise(IUFD)	5	5.0%
Ante partum haemorrhage (APH)	2	2.0%
Gestational diabetes mellitus (GDM)	1	1.0%
Intra hepatic cholestasis of pregnancy (ICP)	1	1.0%
Post partum haemorrhage (PPH)	1	1.0%

Table No. 5: Neonatal Outcome

Neonatal Outcome	Number of Subjects (n=100)	Percent (%)
LBW	41	41.0%
NICU Admission	21	21.0%

Meconium Aspiration Syndrome	14	14.0%
Apgar Score<7 (5min)	9	9.0%
Prematurity	8	8.0%

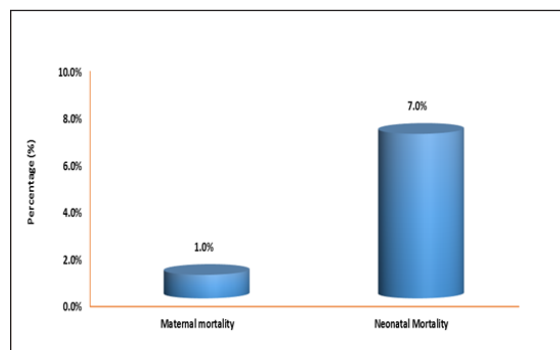


Figure No. 1: Mortality

DISCUSSION:

In the present study the prevalence of HBsAg among pregnant women in the tertiary care centre was found to be 1.3%. This is comparable to the seroprevalence of 0.9% reported by Dwivedi M et al^[7], 0.61% reported by Parveen S et al^[8], 0.82% reported by Chatterjee Set al^[9], and 1.1% reported by Pandey et al^[10].

Antenatal screening for hepatitis B is a routine practice in almost all the tertiary care centre. In our screening 37% were booked in our institute while 63% were unbooked cases respectively.

Our study is fairly comparable with the other studies : Rajshree et al^[11], Sunita Mishra et al 2017^[12] found 84.6% were booked while 15.38% were unbooked cases. This difference may be because ours being a tertiary centre, majority of the patients are being referred from the neighbouring Primary health care level, secondary care level or district hospitals, who were presenting the first time in our hospital at the time of delivery. In our study, the Mean $\pm$ SD age of the subjects was 25.4 $\pm$ 4.0 years and Median (IQR) age was 25 years (22 - 27) years. The minimum age of the subject is 20 and maximum age is 38 years. Majority of the subjects 55.0% belonged to the age group 21 - 25 years followed by 27.0% subjects of age group 26-30 years.

We also found significantly higher frequency of HbsAg positivity in multi gravidae (69%) when compared to primigravidae(39%). The prevalence rates increased with increase in parity. Dwivedi et al^[7] found the prevalence rate was 0.15% in primigravida, 0.78% in 2nd gravida and 2.10% in 3rd gravida women. Rest of the 1.76% females had more than 3 parity. Rajshree et al 2017^[11] found that the majority of 51% (24) cases were second gravida while 38.3% (18) cases were primigravida. In our study, on the basis of literacy, majority of subjects have studied till high school (34.0%) and intermediate (11.0%). Graduates and post graduates were 15%. 26.0% subjects never received any formal education. B. Ephraim Richard et al., in 2015 also found that the mothers whose level of education was primary and below were at increased risk in the prevalence of viral hepatitis infection^[13]. In our study, vaginal delivery was the most common route of delivery, 61% delivered by vaginal route and 39% by caesarean section. All the caesarean section were done for obstetrical indications (12 previous LSCS with scar tenderness, 6 previous LSCS with poor bishop's score, 7 for breech presentation, 10 meconium stained liquor, 2 severe oligohydramnios, 2 ante partum haemorrhage). Raaj A et al in their study also found that on the basis of delivery modes 123 out of the 160 positive women 76.87% delivered vaginally (vaginal delivery-VD) and 23.12% mothers underwent lower segment caesarean section (LSCS), all for obstetrical indications. Higher rate of vertical transmission was observed among infants in the LSCS group (54.1%) compared with vaginal delivery group (19.5%)^[14].

In the distribution of subjects on the basis of geographical region in our study, out of 100 hepatitis-B patients, 73.0% patients were from urban area and remaining 27.0% patients were from rural area. In the study of Mate Siakwa et al., 61% of the respondents were from the rural set up whereas the rest from Urban^[15].

In our study preterm labour was the most common complication 17.0%

among the hepatitis-B women. This was followed by intra uterine growth restriction 12.0%, anemia 11.0%, meconium stained liquor 10%, oligohydramnios 9.0%, premature rupture of membranes 8.0%, pregnancy induced hypertension 6.0%, intra uterine fetal death 5.0%, ante partum haemorrhage 2.0% and 1.0% women had gestational diabetes mellitus, intra- hepatic cholestasis of pregnancy and post partum haemorrhage each. In the study of Mate Siakwa et al., majority of the mothers had one child (77%), did not have history of premature rupture of membranes, PROM (73%), did not have PIH (75%), and did not have history of foul smelling liquor (85%), no history of previous abortion or history of UTI/STI (79%)^[15]. This study observed that babies born to mothers with chronic hepatitis B infection have higher risk for preterm birth, low birth weight. In present study, neonatal mortality was observed in 7.0% neonates and one maternal mortality (cause-post partum haemorrhage) was noted.

CONCLUSION:

Our study demonstrated that poor perinatal outcome and a significantly higher risk of vertical transmission rate was observed in infants delivered by pregnant women in our region when compared with the other population. This study reflects the clinical reality of pregnant women and indicates that HBV carrier status confers a substantial increased risk for poor maternal and perinatal outcome. History of sharing hypodermic needles, tattooing and body piercing, past surgery and home delivery by dai were associated with increased risk of HBV infection. Pregnant women who are HBs Ag positive are mostly asymptomatic. Screening of all pregnant women for HBsAg irrespective of risk factors will definitely help to know the correct prevalence and reduce the transmission of hepatitis B infection. Universal screening of antenatal cases and immunization with hepatitis B vaccine of the community is definitely going to reduce the disease prevalence in future. Careful surveillance of high-risk pregnancy is warranted.

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