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Original Research Article

Fetomaternal outcome in pregnant patients with Hepatitis-E infection

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ABSTRACT

Background: Hepatitis E infection has been a major concern in pregnant women due to its fulminant nature in pregnancy compared to non-pregnant females and males. Hence the study was conducted for evaluating the maternal and perinatal outcome of pregnancy complicated by HEV infection.
Methods: A prospective observational cohort study was conducted in department of obstetrics and gynaecology Deen Dayal Upadhyay Hospital, New Delhi, from January 2020 to June 2020. Pregnant women of gestational age≥28weeks with jaundice and positive for IgM Anti-HEV were part of study (sample size 36).
Results: Hepatitis E virus infection adversely affects the maternal and fetal outcome with a maternal mortality of 11.1% noted in the study. Maternal complications observed were preterm labor (58.3%), PPROM (50.0%), PPH (47.2%), ICU admission (33.3%), fulminant hepatitis (11.1%), encephalopathy (11.1%). The common fetal complications noted were prematurity (47.2%), IUD (19.4%), NICU admission (47.2%).
Conclusions: The study shows that pregnant women with jaundice and acute viral hepatitis due to hepatitis E virus infection had a high mortality rate especially during third trimester and postpartum period. Also, they have poor obstetric and foetal outcome.

Keywords: Hepatitis E, Maternal mortality, Pregnancy

INTRODUCTION

Pregnancy and childbirth are major life events. In pregnancy there are always potentially high-risk situations that affect not only the mother but also the foetus. Viral hepatitis is the common cause of jaundice in pregnant women. Hepatitis E virus (HEV) is a hepatotropic infectious agent that usually causes a self-limiting acute hepatitis in healthy adults and chronic hepatitis in immunocompromised individuals.[1] Annually there are an estimated 20 million cases of HEV infections, 3.3 million symptomatic HEV cases and 70,000 deaths worldwide.

Hepatitis E virus is a single-stranded RNA virus of family Hepeviridae.[2] It causes large scale epidemics and sporadic cases of acute viral hepatitis in developing countries. It is transmitted via feco-oral route and is easily spread by water contaminated with human faecal matter.[3] Vertical transmission from mother to infant is also known to occur. HEV infection is mainly self-limiting with low case fatality rate (<0.1%), however in pregnant women it is more severe often leading to fulminant hepatic failure and death in up to 15% to 20% of cases.[4-6] The actual cause of high mortality in pregnant women is still not known. It may be due to an altered status of hormones and immunity.[7]

In India, hepatitis-E is the most common cause of fulminant hepatic failure in pregnant women, with higher percentage in third trimester and with high mortality ranging from 15% to 45%. The various maternal complications associated with HEV infection in pregnant women are preterm labour, obstetric haemorrhage, fulminant hepatitis, hepatic encephalopathy, renal failure, DIC, death. Fetal complications are prematurity, abortions, stillbirths, low birth weight, intrauterine death etc.

METHODS

Study place

A prospective observational study was conducted in the department of obstetrics and gynaecology, Deen Dayal Upadhyay Hospital, New Delhi.

Study duration

The study was conducted for a period of 6 months from January-2020 to June-2020.

Sample size

The size of the sample taken for study was 36 pregnant women.

Inclusion criteria

Pregnancy with gestational age ≥28 weeks. Recent onset of jaundice with serum bilirubin >2mg/dl. Serum IgM Anti-HEV positive.

Exclusion criteria

Haemolytic jaundice, drug induced jaundice, Chronic liver disease, other viral hepatitis, HELLP syndrome, intrahepatic cholestasis, history of jaundice since childhood.

Data collection

Data was collected using the pre structured proforma and clearance from institutional ethical committee was sought.

Statistical analysis

Recorded data was compiled and entered in a spread sheet (Microsoft excel) and then exported to data editor version SPSS Version 20.0 (SPSS Inc).

RESULTS

Maximum patients were in the age group of 21-25 years (44.4%). The mean age of patients in the study was found to be 25.28±3.47 years (Table 1). Most of the patients were primigravida (41.7%).

Table 1: Age wise distribution of patients.

Age group (in years)	Number	%
Up to 20	2	5.6
21-25	16	44.4
26-30	15	41.7
>30	3	8.3

In this study maximum patients belonged to third trimester; 58.3% were with gestational age 31-37 weeks, 36.1% patients were with gestational age 37 weeks and above and 5.6% patients were with gestational age between 28-30 weeks (Figure 1). All the study subjects presented with loss of appetite and yellowish discolouration of sclera/urine (100%), nausea was present in 94.4% patients, itching in 91.7%, pain abdomen in 58.3%, vomiting in 44.4% and fever in 22.2% patients.

Maternal complications noted in this study were: shock (2.8%), PROM (5.6%), renal failure (11.1%), encephalopathy (11.1%), fulminant hepatitis (11.1%), eclampsia (22.2%), DIC (25%), and PPH in 47.2% patients. ICU admission requirement was seen in 33.3% patients admitted during this time period (Table 2).

Table 2: Enumeration of maternal complications in patients.

Maternal complications	Number	%
Preterm labour	21	58.3
PPROM	18	50.0
PPH	17	47.2
DIC	9	25.0
Eclampsia	8	22.2
Encephalopathy	4	11.1
Fulminant hepatitis	4	11.1
Renal failure	4	11.1
Death	4	11.1
PROM	2	5.6
Shock	1	2.8

Among the study subjects 80.6% delivered vaginally and 19.4% delivered by caesarean section. Anaemia was present in 83.4% of patients, among them, 55.6% had mild anaemia and 16.8% had moderate anaemia.

Mean HB in the study subjects was found to be 10.11 gm/dl. Majority of patients had SGOT in the range of 101-500 U/l (47.1%) and 66.7% had SGPT in range of 101-500 U/l. Mean value of total serum bilirubin in the study subjects was found to be 9.13 mg/dl (Figure 2).

Table 3: Enumeration of neonatal outcome of patients.

Neonatal outcome	Number	%
Full term live birth	12	33.3
Preterm live birth	17	47.2
IUD	7	19.4
Low birth weight	17	47.2
Need of NICU admission	17	47.2
Early neonatal death	8	22.2
APGAR<7 at 1 minute	11	30.5
APGAR< 7 at 5 minutes	8	22.2
Perinatal death	15	41.7
Preterm vaginal delivery	22	61.1
Full term vaginal delivery	7	19.4

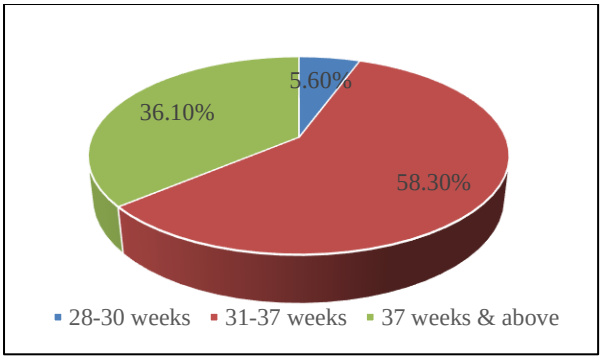

Figure 1: Distribution of patients as per gestational age.

The mean platelet count was around 1.47 lakh in our study with 25% patients having thrombocytopenia of less than 1 lakh, 30.6% had count between 1-1.5 lakh and 44.4% had normal platelet count. Coagulation profile was deranged in 30.6% patients in our study. prothrombin time ranged from 10-19 seconds and mean INR was 0.90±1. The enumeration of neonatal outcome in study is depicted in table 3, where majority of patients had preterm vaginal delivery (61.1%) and normal full term vaginal delivery was seen in 19.4%. Preterm live births accounted for 47.2% whereas, full term live births were 33.3%. Perinatal deaths were seen in 41.7% newborns and need of NICU admission in 47.2 % newborns.

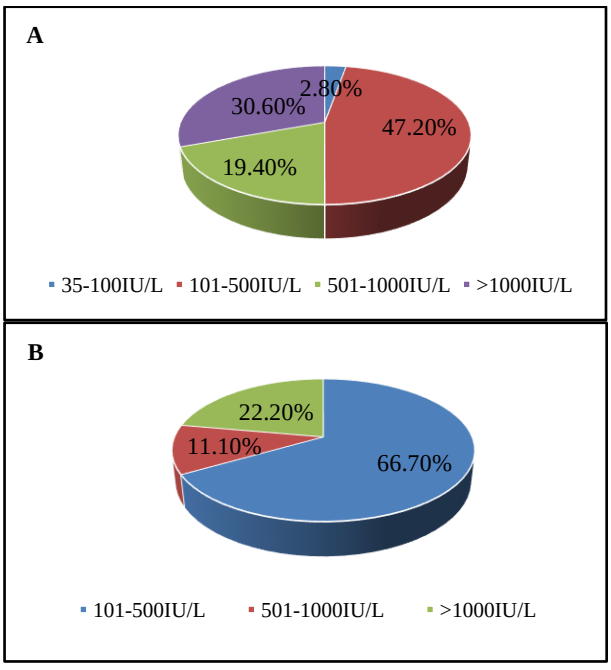

Figure 2 (A and B): SGOT and SGPT levels in patients.

DISCUSSION

Acute viral hepatitis is a systemic infection affecting the liver predominantly.it is a common cause of jaundice in pregnant women and pregnancy with jaundice is considered as high-risk pregnancy. This study was conducted to evaluate maternal and fetal morbidity and mortality encountered due to hepatitis-E infection in pregnancy. In present study mean age of the patients was 25.28±3.47 years which is consistent with studies done by Sultana R et al (2014)[8] and N Kumar et al.[9]

In our study maximum patients 41.7% were Primigravida, 25% were Para 1 and 8.3% were Para 2, 11.1% had previous one abortion, 11.1% had previous one abortion with one normal delivery and 2.8% had previous two abortions. Our observations are consistent with the other studies conducted by Sultana R et al8 and Shrestha P et al.[10] Mean gestational age was 31 weeks in Shrestha NS et al11 study and 31.2 weeks in study conducted by Yadav S et al, which is in accordance with our study (mean gestational age (32.40±3.4 weeks).[12]

Most common symptom noticed were loss of appetite (100%) and yellowish discoloration of sclera (100%) followed by nausea (94.4%) and itching (91.7%) which goes in accordance to the results as seen by MN khaskheli et al and Yasmeen T et al.[13,14] Patients in our study had icterus (100%) followed by pallor (66.2%), altered sensorium (11.1%) and petechiae in 2.7% of patients which is supported by literature from Jena SK et al and Shinde et al who had similar results in their study.[15,16]

Preterm labour and PROM were noted in 58.3% and 5.6% in our study respectively which is consistent with study conducted by Prasad GS et al, in our study 25 % patients had DIC which is consistent with the results obtained in studies by Yasmeen T et al, N Kumar et al and Jena SK et al.[15] 13.8% and 14.5% of patients had renal failure in studies done by Jena SK et al and Prasad GS et al respectively which being consistent with present study (11.1%). Hepatic encephalopathy was noted in 11.1% and maternal shock in 2.7% of patients in current study which being consistent with study by Jena SK et al in which 21 % had hepatic encephalopathy and 2.6 had maternal shock.[9,14,15,17,21]

In our study 11.1 % died during the study period which is consistent with results obtained in other studies as; 13.1% in Jena SK et al study, 10% in Singh et al study and 14% in Banait et al study.[15,18,19] About 47.2% neonates were admitted in NICU which is in accordance with result of the previous study carried by Prasad GS et al which is 40.4% in our study 22.22% of neonates died which is in accordance with studies of Yasmeen T et al and Sultana R et al, with 16.7% and 14% neonatal mortality respectively.[8,13,14]

CONCLUSION

The study shows that pregnant women with jaundice and acute viral hepatitis due to Hepatitis E virus infection had a high mortality rate, especially during third trimester and post-partum period. Also, they have poor obstetric and foetal outcome. In this study, we observed that the severity

of infection increases with duration of gestation, it is suggested that pregnant women should be periodically screened for clinical features of acute hepatitis during ante natal visits and should be investigated for hepatitis e in endemic areas. As the disease outcome is poor in pregnant women, an early diagnosis and prompt management is the key. Pregnant women with Hepatitis E should be closely monitored for foetal well-being and signs of foetal distress, as this disease also adversely affects the foetal outcome as rightly said prevention is better than cure there should be emphasis on sanitation, personal hygiene, hand washing, proper cooking of food, use of clean water, to prevent the pregnant females from acquiring infection during the antenatal visits especially in endemic areas.

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