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Original Research Article

Obstetric and neonatal outcomes among pregnancies with hepatitis E infection

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ABSTRACT

Background: Maternal mortality is an important health indicator. Hepatitis E is a common viral infection affecting pregnant women. The maternal morbidity and mortality relating to this infection is not extensively reported and deserves to be studied.
Methods: A retrospective study was conducted in a tertiary care referral centre and the obstetric and neonatal outcomes among patients with hepatitis E infection were studied for duration of 1 year.
Results: Among 24 patients, there were 7 mortalities. Majorities were primigravidae and presented during third trimester. A sizeable number required blood transfusions and ICU stay. 7 were stillbirths and majorities were low birth weight babies.
Conclusions: Hepatitis E causes significant maternal and neonatal morbidity.

Keywords: DIC, Hepatitis E, Jaundice, Maternal mortality, Viral hepatitis

INTRODUCTION

Hepatitis E was previously known as "non-A, non-B enterically transmitted" hepatits virus. The virus is transmitted enterically and is predominant in the Asian subcontinent and Africa. In many of these geographic areas, HEV appears to be the most common cause of acute onset of jaundice. The hepatitis E virus is a positive sense RNA and the existences of 5 different genotypes have been described. During the latter part of incubation period, the virus is excreted in the stools and hence spreads primarily by enteric mode of spread. Young populations that are immune to Hepatitis A appear to be more susceptible to hepatitis E infection. Acute infection elicits immune response and both IgM and IgG against the viral antigens can be detected quite early in the course of infection.[1]

The Integrated disease surveillance programme in India reported a 2 year data which showed around 8 lakh cases of hepatitis outbreaks. Of these, approximately 10.4% tested positive for hepatitis E. 48% of the outbreak clusters were due to hepatitis E. The burden of hepatitis E is exemplified by this report.[2]

In a recently published study from urban India, the morbidity patterns of maternal hepatits E infection appear to be much more significant than the other viral hepatitis infections.[3]

The description of the obstetric and neonatal outcomes among such pregnancies formed the basis of this study.

Aims and objectives of the study were to describe the obstetric and neonatal outcomes among pregnancies complicated by hepatitis E infection.

METHODS

This was a retrospective observational study conducted in a tertiary care referral institution in urban India. Over duration of 1 year, all obstetric patients (antenatal and postnatal) with hepatitis E infection were included in the study. The case records of the patients were studied, and various parameters relating to the medical, obstetric and neonatal outcomes were noted. The parameters studied included age, parity index, gestational age, mode of delivery, indication (if any instrumental of operative delivery), and requirement of ICU admission, haematological, hepatic and coagulation parameters of the mother, neonatal details and any other co-existing morbidity. Simple statistical calculations such as percentages were computed and the results compared with reported prevalence rates in the existing literature.

RESULTS

A total of 24 pregnant patients with hepatitis E were identified.

Age

The mean age in the study group was 25.6 years.

Parity index

As show in Table 1, majority were primigravidae.

Table 1: Distribution of parity index.

Parity index	Number of patients
Primigravida	13 (54.16%)
Gravida 2	3 (12.5%)
Gravida 3 or above	8 (33.3%)

Gestational age

As shown in Table 2, majority presented in the third trimester of pregnancy, and none presented in the first trimester.

Table 2: Distribution of gestation age.

Gestational age at diagnosis	Number
First trimester	None
Second trimester	5 (20.8%)
Third trimester	19 (79.16%)
>36 weeks	7 (29.16%)
<36 weeks	12 (50%)

Mode of presentation

All the patients presented with acute onset of jaundice. 15 patients (62.5%) presented in a morbid state, necessitating admission to the intensive care unit.

Medical management

It was noted that all the patients were provided standard management and care which involved monitoring of haematological parameters, anti-encephalopathy measures, antibiotics and symptomatic management based on specific clinical findings and abnormalities in investigation parameters. All patients included in the study had IgM Anti-hepatitis E positive status. Hepatic function abnormalities such as raised liver enzymes and raised bilirubin value were seen in all patients. The average bilirubin value at admission was 9.09mg/dl. As shown in Table 3, encephalopathy was seen in 29% of the patients, coagulopathy was seen in 45% and renal failure occurred in 20%. Blood transfusion was required in 25% of patients, and 45% required transfusion of blood products such as fresh frozen plasma, platelets and cryoprecipitate.

Table 3: Associated medical complications.

Medical complications	Number
Encephalopathy	7 (29.1%)
Coagulopathy	11 (45.8%)
Renal failure	5 (20.8%)
Need for blood transfusion	6 (25%)
Need for blood product transfusion	11 (45.8%)

Obstetric outcomes

As shown in the Table 4, although a conservative management was followed and 70% had spontaneous labour onset and progress. 16% required induction of labour for progressive derangement of liver functions. Despite poor maternal status, one patient required LSCS due to bleeding placenta previa. One patient each had been diagnosed earlier with gestational diabetes mellitus, preeclampsia and morbid obesity.

Table 4: Mode of delivery details.

Mode of delivery	Number
Spontaneous	17 (70.8%)
Induced	4 (16.6%)
Died undelivered	2 (8.3%)
LSCS	1 (4.1%)

Neonatal outcomes

As shown in Tables 5 and 6, 2 patients had been brought in postpartum status and 2 patients died undelivered. 1 patient aborted at around 18 weeks of gestation. Among those delivered, 5 were fresh still births and 2 were macerated still births. Only 6 babies were transferred to the mother. The rest needed NICU care. The main reason for NICU transfer was low birth weight. The majority (70%) of the babies were in the weight group of 1 to 2.5kilograms.

Table 5: Fetal outcome details.

Fetal outcomes	Numbers
Abortus	1
FSB	5
MSB	2
Not transferred to NICU	6
Transferred to NICU	6
Died undelivered	2
Delivered outside (neonate not brought)	2

Table 6: Birth weight distribution.

Weight at delivery	
Less than 1kg	3 (15%)
1 to 2.5kg	14 (70%)
More than 2.5kg	3 (15%)
Total	20

Among those who recovered, the average stay of patients in the hospital ranged 7-13 days, with an average of 9 days.

Maternal deaths

There were a total of 7 maternal deaths in the study group. The duration between admission and death ranged from 1 day to 5 days, with an average of 3 days.

The common factors leading to the death were DIC, hepatic encephalopathy and renal failure.

DISCUSSION

The mean age of our patients was 25.6 year. This is quite similar to the study conducted by Shinde et al where the mean age of the pregnant patients was 24.1 years.[4]

Majority (79%) of our patients were diagnosed of the hepatitis during the third trimester. This is quite similar to the findings of Begum et al, who found that hepatitis E is more common and more fatal in the third trimester. The average gestational age in our group of patients was 31.2 weeks.[5] This is similar to the findings described by Sultana et al, who described an average gestational age of 32 weeks.[6]

This high number of preterm deliveries is also in congruence with the study reported by Singla et al wherein the proportion of preterm deliveries was 76%.[3]

The majority (54.1%) of the patients were primigravidae. This is comparable to the results reported by Sultana et al, wherein 40% of the patients were primigravidae.

A conservative approach was followed for the management of the pregnancies. Only 16% underwent induction of labour. This is in agreement with the approach followed by Singla et al, wherein also the rate of induction was small, at 25%.[3]

Majority (63%) of the babies were in the range of birthweight 1 to 2.5kg; and average birth weight of neonate was 1.6kg. Perinatal mortality was 33%, which was accounted for by 5 fresh still births and 2 macerated still births. This perinatal mortality rate is comparable to the 26% reported by Sultana et al. These values are consistent with unfavourable fetal prognosis, which has also been suggested by a review by El Sayed et al.[7]

The important observation from the study is that all babies that delivered live survived. This finding has been supported in a review by Jin H et al, which concluded that upon pooled data analysis, intrauterine fetal mortality was statistically higher than neonatal mortality.[8]

In our study, out of 24 patients, there were 7 maternal deaths. In the study by Singla et al, among all the viral hepatitis, hepatitis E was the only causative agent. The contribution of hepatitis E to maternal mortality continues to be high, as evidenced by other studies also.[9]

CONCLUSION

In conclusion, the morbidity caused by hepatitis E infection among the pregnant population continues to be high. Due to fulminant course among infected individuals (as described in this study), prevention of the occurrence of infection Measures to prevent feco-oral transmission of the virus need to be emphasized by health authorities.

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