

Maternal Outcome Pregnancy with Acute Hepatitis E Virus Infection

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ABSTRACT

Objective: To determine the maternal outcome in pregnant women with acute viral hepatitis caused by hepatitis E virus.

Study Design: Case series.

Duration of study: July 2012 to December 2012 from

Setting: Department of Obstetrics and Gynaecology Unit-I, Sir Ganga Ram Hospital, Lahore.

Material and Methods: A total of 100 cases fulfilling the inclusion/exclusion criterion were enrolled to determine the age distribution, gestational age, and the outcome in pregnant women with acute viral hepatitis caused by hepatitis E virus.

Result: During the period of study, majority of the patients between 26-30 years, i.e., 54% (n=54), means and SD was calculated as 28.43 ± 3.19 years, 48% (n=48) cases were between 37-40 years of age, frequency of maternal outcome in pregnant women with acute viral hepatitis caused by Hepatitis E virus revealed 47% (n=47) with development of fulminant hepatic failure and 16% (n=16) had maternal mortality.

Conclusion: The results of the study determined that adverse maternal outcome is higher among pregnant women with acute viral hepatitis E virus.

Key words: Hepatitis E virus, Pregnant women, maternal outcome, Fulminant hepatic failure, Mortality.

INTRODUCTION

Hepatitis E is a single standard RNA virus that causes large scale epidemics and sporadic cases of acute viral hepatitis in developing countries. 1 The course of most viral hepatitis infection (e.g. Hepatitis A, B, C, D) is unaffected by pregnancy, however a more severe course of viral hepatitis in pregnancy has been observed in patients with Hepatitis E. 2 Hepatitis E infection is more common and fatal in third trimester. 3 It appears that lowered CD4/CD8 cell ratio and a high level of steroid hormones that influence viral replication/expression during pregnancy appears to be the plausible reasons for severity of the disease. 4,6 Early preventive measures if taken, may decrease the maternal and perinatal mortality and morbidity of HEV infection. 3 HEV is responsible for acute viral hepatitis (AVH) in 60% of cases (pregnant female with HEV) and fulminant hepatic failure in 55% of cases. Pregnant women with acute viral hepatitis caused by HEV have higher maternal mortality than pregnant women with jaundice and AVH caused by other viral hepatitis. 1 In a study done in Pakistan maternal mortality rate due to HEV was 20% 4 so, mortality rate in pregnant women with acute liver failure

caused by HEV is high especially in patients presenting with high grades of encephalopathy. The objective of this study was to determine the burden of worst maternal outcome with HEV infection during pregnancy in Pakistan as very little data is currently available about this disease infecting pregnant women in our country. If early preventive measures are taken and proper management strategies are planned for HEV positive patient's maternal mortality and morbidity can be reduced.

MATERIAL AND METHOD

Study Design

A Case Series study was carried out in department of Obstetrics & Gynecology Unit I, Sir Ganga Ram Hospital, Lahore for 6 months.

Total of 100 patients were selected using non-probability purposive sampling method. Pregnant women 18-35 years old, of any gestational age with singleton pregnancy and acute hepatitis E was selected, while other cases of jaundice like HELLP, acute fatty liver of pregnancy, haemolytic jaundice and obstructive jaundice were excluded. Patient with diabetes and hypertensive disorders of pregnancy were also excluded. Patient with

diabetes and hypertensive disorders of pregnancy were also excluded from our study. Acute Hepatitis E was diagnosed with serum bilirubin $\geq 2\text{mg/dl}$ and serum alanine transferase level ≥ 2.5 times of upper normal limit and positive Hepatitis E virus (IgM) by enzyme linked immunosorbent assay (ELISA). Their gestational age and age distribution pattern were studied. They were given standard treatment as per protocol of the department. Patients were kept under observation during hospital stay. During this period they were observed in hospital for sign and symptoms of fulminant hepatic failure (i.e. oedema, ascites, coagulopathy, hypoglycemia, and encephalopathy) and maternal mortalities were noted. Maternal outcome was determined in terms of development of fulminant Hepatic failure and maternal mortality during hospital stay. Sample was calculated with 95% confidence level, 10.0% margin of error and taking expected percentage of least among both maternal mortality. 41% in pregnant women with acute viral hepatitis caused by hepatitis E virus infection.

RESULT

Age Distribution

Age distribution of the patients was done, where we recorded majority of the patients between 26-30 years i.e. 54% (n=54), 21%(n=21) were between 18-25 years and 25%(n=25) were between 31-35 years of age, mean and sd was calculated as 28.43 ± 3.19 years. (Table No. 1).

Gestational Age

Distribution of the subjects according gestational age was done in Table No. 2, where 18%(n=18) cases were between 28-32 weeks, 34%(n=34) were between 32-36 weeks and 48%(n=48) cases were between 37-40 years of age. (Table No. 2).

Frequency of Maternal Outcome

Frequency of maternal outcome in pregnant women with acute viral hepatitis caused by hepatitis E virus revealed 47%(n=47) with development of fulminant hepatic failure and 16%(n=16) had maternal mortality. (Table No. 3).

Table 1: Age Distribution of the Subjects (n=100)

Age (in years)	No. of Patients	%
18-25	21	21
26-30	54	54
31-35	25	25
Total	100	100
Mean and sd	28.43 ± 3.19	

Table 2: Gestational age Distribution of the Subjects (n=100)

Gestational Age (in weeks)	No. of patients	%
28-32	18	18
32-36	34	34
37-40	48	48
Total	100	100

Table 3: Frequency of Maternal outcome in pregnant women with acute viral Hepatitis caused by the Hepatitis virus (n=100)

Maternal outcome	No. of Patients	%
Development of Fulminant Hepatic Failure	47	47
Maternal Mortality	16	16

DISCUSSION

Hepatitis E virus is a single stranded RNA virus that causes large scale epidemics of acute viral hepatitis, particularly in developing countries.² The significance of this study is to determine the burden of worst maternal outcomes associated with Hepatitis E virus infection during pregnancy. Currently very little data is available about this disease infecting pregnant women in our country. Maternal mortality and morbidity may be reduced if early preventive measures are taken and proper management strategies are planned for Hepatitis E virus positive patients. During this study it was revealed that most of the patients were between 18-30 years of age, and hepatitis E was more prevalent among 32-40 weeks of gestation. 47% (n=47) hepatitis E positive has developed fulminant hepatic failure & 16% (n=16) had maternal mortality.

The findings of Clayson et al are in agreement regarding prevalence of this morbidity among young adults.⁹ Most of the cases in this study were recorded in their third trimester, similar to the findings of Shams et al¹⁰ who observed that HEV infection affected more women in their last trimester. Singh S and colleagues¹¹ are in view that HEV causes high mortality in pregnant women as compared to non HEV infected pregnant women and these findings are in accordance with the study. Fulminant hepatic failure occurs more frequently during pregnancy, resulting in high

mortality rate of 15 to 25 percent, primarily in women in third trimester. 12-14 pregnant women with jaundice and acute viral hepatitis caused by HEV infection appear to have worse obstetric & fetal outcomes compared to pregnant women with jaundice & acute viral hepatitis due to other causes. 15-16 The high mortality rate in pregnancy has been thought to be secondary to the associated hormonal (estrogen and progesterone) changes during pregnancy and consequent immunological changes. Further research in the immunology of HEV & pregnancy is required to conquer this disease in the near future.

CONCLUSION

The results of the study determined that adverse maternal outcome is higher among pregnant women with acute viral hepatitis caused by hepatitis E virus.

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