

FREQUENCY OF ACUTE VIRAL HEPATITIS “E” IN PREGNANT WOMEN PRESENTING TO GYNAE UNITS OF A TERTIARY CARE HOSPITAL PESHAWAR

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ABSTRACT

Objective: To determine the frequency of hepatitis E virus in pregnant women with acute hepatitis presenting to gynae & Obs units of LRH, Peshawar.

Methodology: This descriptive study was done in Department of Gynae and Obstetris, PGMI/LRH, Peshawar on 500 pregnant women either multi or primi gravida with yellow discoloration of the sclerae of the eyes and raised Alanine aminotransferase (ALT) > 100 IU/L on laboratory tests were selected by convenience (non-probability) sampling to determine the frequency of hepatitis E virus in these pregnant women. Those patients found to be acute presentations of non-viral chronic liver disease, concomitant other liver diseases for example liver abscess, hydatid or any other cysts etc. pregnant women with hemolytic anemia, women with acute fatty liver of pregnancy were excluded from the study.

Results: Majority of pregnant women 294 (58.8%) was in the age range of > 30 years.

Laboratory investigations revealed that in majority 427 (85.4%) pregnant women, alanine aminotransferase (ALT) was elevated and serum bilirubin was also raised in majority 430 (86%) patients. Frequency of Hepatitis E (HE-IgM) was detected in 47.6% pregnant women and cases were having other viruses.

Conclusions: Acute viral hepatitis especially HEV exposure may have a much greater effect on pregnancy and neonatal outcomes than HAV. So routine viral hepatitis screening in pregnant women may need to be reconsidered at first antenatal visit.

Key Words: Frequency-acute viral hepatitis, Hepatitis E (HE-IgM), antenatal-diagnosis, screening-pregnant women.

INTRODUCTION

Acute viral hepatitis is the most common cause of jaundice in pregnancy. The course of most viral hepatitis infections (e.g. hepatitis A, B, C and D) are unaffected by pregnancy, however, a more severe course of viral hepatitis in pregnancy has been observed in patients with hepatitis E. Notwithstanding, opinions differ over the maternal and fetal outcome of pregnancy associated with viral hepatitis. Most women with hepatitis will have a normal pregnancy, but the physical process of pregnancy may cause some problems on a woman's liver. About 6% of women with hepatitis can develop gallstones (or 'cholelithiasis') during their pregnancy.¹⁻³

Viral hepatitis during pregnancy is associated with high risk of maternal complications, has a high rate of vertical transmission causing fetal and neonatal hepatitis and it has been reported as a leading cause

of maternal mortality.⁴

In a study done in Sudan, out of 16 pregnant women with features of acute viral hepatitis, the etiology of acute viral hepatitis was hepatitis E virus in eight women (50%). Among the complications there were four (25%) maternal deaths and three (18.7%) intrauterine fetal deaths. Three of these maternal deaths were due to hepatitis E virus.⁵

A study from Bangladesh reported that acute viral hepatitis E in the third trimester of pregnancy and HEV-induced fulminant hepatic failure was associated with 80% of mortality despite the best possible care. In this clinical context, acute viral hepatitis E is the leading cause of wide spectrum of liver disease ranging from severe acute viral hepatitis, fulminant hepatic failure, to decompensation of liver in cirrhotics in Bangladesh.⁶

Pregnant women with jaundice and acute viral hepatitis caused by HEV infection had a higher maternal mortality rate and worse obstetric and fetal outcomes than did pregnant women with jaundice and acute viral hepatitis caused by other types of hepatitis.⁷

The rationale for doing this study was that acute viral hepatitis E in pregnancy is most common but overlooked disease in our setup. Large number of woman are hospitalized for same purpose which on one hand take toll of precious lives and on the other hand exhaust the limited resources of hospitals. By

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doing this study we were able to know the regional trend of acute viral hepatitis E during pregnancy and define the factors leading to the disease. Furthermore it guided us how to control these factors and thus to prevent disease occurrence. It would help physicians to take appropriate steps for early management and prevention of acute viral hepatitis E in pregnant ladies in order to avoid adverse clinical outcome to both the mother and fetus.

METHODOLOGY

This descriptive study was done in Department of Obs & Gynae, Postgraduate Medical Institute, Lady Reading Hospital, Peshawar for one year from January to December 2013. A total of 500 pregnant women either multi or primi gravida with yellow discoloration of the sclerae of the eyes and raised Alanine aminotransferase (ALT) > 100 IU/L on laboratory tests were selected for the study. Those patients found to be acute presentations of non-viral chronic liver disease, concomitant other liver diseases for example liver abscess, hydatid or any other cysts etc. pregnant women with hemolytic anemia, women with acute fatty liver of pregnancy were excluded from the study.

After getting approval from the hospital ethical committee to conduct the study, data was collected of all those pregnant women with clinically suspected acute hepatitis (and were confirmed by ALT/SGPT and bilirubin levels) presenting to out-patient department (OPD) and accident and emergency department of this institute. They were admitted in Gynae Department of Postgraduate Medical Institute, Lady Reading Hospital, Peshawar for further evaluation. An informed consent was taken from patients who fulfill the eligibility. Then detail history about the onset and progress of her symptoms was taken and same was sent to laboratory for confirmation of Hepatitis E. Laboratory investigations including ALT (SGPT), serum bilirubin levels, HEV-IgM were done in all the patients. After confirmation of Hepatitis E in these patients from laboratory reports, they were registered with hepatology clinic at OPD. Frequency of HEV was calculated among the total cases of viral hepatitis included in the study. All information was entered into a proforma especially designed for this purpose. All laboratory investigations were done in hospital laboratory.

All the categorical variables like laboratory tests findings of HEV-IgM were analyzed for percentages and frequencies. Mean $\pm$ standard deviation was calculated for quantitative variables like age. The results were presented through tables. Data was stored and analyzed by statistical program SPSS version 12.

RESULTS

This study was performed on 500 pregnant women with clinically suspected acute hepatitis (and were confirmed by ALT/SGPT and bilirubin levels) pre-

senting to out-patient department (OPD) and accident and emergency department of this institute. They were admitted in Gynae wards for further investigations as per inclusion criteria. Out of 500, majority 294 (58.8%) were in the age range of > 30 years and 206 (41.2%) were in the age range of below 30 years. Minimum age in this study was 17 years and maximum was 50 years, with a mean age of 32.0249 ± 8.3773 years (Table 1).

Laboratory investigations revealed that in majority 427 (85.4%) pregnant women, alanine aminotransferase (ALT) was elevated and serum bilirubin was also raised in majority 430 (86%) patients (Table 2).

Investigations of viral profile showed that frequency of Hepatitis E (HEV-IgM) was detected in 238 (47.6%) pregnant women while remaining having other viral infections (Table 3).

DISCUSSION

Viral hepatitis during pregnancy is associated with high risk of maternal complications. It has a high risk of vertical transmission, and it has been reported as the leading cause of maternal death.^{8,9} The hepatitis E virus (HEV) causes high mortality in women infected by the virus during pregnancy (between 10% and 25%).^{10,11}

HEV infection in pregnant women is more common and fatal in the third trimester. The prevalence of HEV infection in second and third trimesters of pregnancy (19.4% and 18.4%) was found to be much higher than in the first trimester (8.8%). The fatality rate in pregnant women with fulminant hepatic failure has also been re-

Table 1: Age-wise distribution of patients (n=500)

Demographic Data	No. of cases	Percentage
Age:		
< 30 years	206	41.20%
> 30 years	294	58.80%
Total	500	100%

Table 2: Laboratory report of Alanine Aminotransferase (ALT) and serum Bilirubin in patients (n=500)

Laboratory report	Frequency	Percentage
Elevated ALT levels	427	85.4%
Elevated serum bilirubin levels	430	86%

Table 3: Frequency of Hepatitis E virus in patients (n=500)

Viruses	Frequency	Percentage
Hepatitis E virus	238	47.6%
Other Viruses	262	52.4%
Total	500	100%

ported to be very high, i.e. 22.2% with maximum severity reported in the third trimester (44.4%).^{12,13} Prevalence of HEV IgG was found to be 0.6-2 and 12.6% in pregnant women in Spain and Turkey, respectively.^{14,15,16}

In an Indian study, out of the 300 asymptomatic pregnant women studied, 101 (33.67%) tested positive for anti-HEV IgG antibodies. When anti-HEV antibody seroprevalence was compared to age, an increasing trend was observed but the result was not significant.¹⁷

Our study's findings also showed a higher prevalence of anti-HEV IgG (47.6%) in pregnant women than other studies in which a frequency of (2-13%) was reported.¹⁴⁻¹⁶ An Indian study¹⁷ showed that pregnant women are susceptible to HEV infection in early pregnancy and the probability of exposure to HEV during pregnancy was higher in urban (slum areas) than rural population. The prevalence of anti-HEV IgG was significantly higher in urban population because people using drinking water source other than tap water such as wells, and ponds. Interestingly, increasing age was not associated with increased prevalence of anti-HEV IgG antibodies. Socio-economic status appeared to be the risk factor for anti-HEV IgG in pregnant women. Health measures such as improvement of education in personal and public hygiene are known to be effective measures for controlling the spread of HEV infection. Early preventive measures if taken may decrease the maternal and perinatal mortality and morbidity of HEV infection.

However a study from Egypt in 2428 pregnant women of which 44% were primigravida, highlighted that 85% of women had anti-HEV IgG antibodies without prior history of clinical hepatitis or jaundice.¹⁸ Thus, the disappearance of antibodies may not entirely explain the low prevalence in pregnant women in north India. There is a clear discrepancy in the prevalence and mortality based on the geographic location as the mortality rate due to HEV infection in pregnancy is very low in Egypt. This difference in the seroprevalence could also be due to the presence of a less virulent circulating strain of HEV in Egypt which produces asymptomatic disease or the presence of cross-reacting antibodies to an HEV-like virus which is not associated with clinical disease and may explain the high seroprevalence.¹⁸ Also, if the other hypothesis that pregnant woman may not be able to mount an immune response holds true, the high seroprevalence in Egypt cannot be explained.

HEV is the cause of severe clinical FHF in pregnant women and is associated with high mortality, particularly in the third trimester.¹⁹ Jaiswal and others²⁰ reported a high rate of infection with HEV (57.5%) causing acute hepatitis in pregnant women in India. Patra and others²¹ also reported a great difference in mortality rate between pregnant and non-pregnant women suffering acute hepatitis E. FHF was present in 55% of pregnant women in contrast to 2% of non-pregnant women. This difference was not observed when the infecting agent

was hepatitis B virus. Likewise, Jilani et al,²² also from India, have confirmed the different evolution of hepatitis E in pregnant and non-pregnant women, reporting a higher maternal and fetal mortality rate in pregnant women (65.8%; 25/38) than in non-pregnant women (23.5%; 4/15).

In an Indian study HEV infection alone was responsible for 47.4% of the cases of viral hepatitis in pregnant females in the third trimester. This is corroborative with the fact that HEV infection accounts for 50-70% of all patients with sporadic viral hepatitis in India.²³ In pregnant females in third trimester with viral hepatitis, the prevalence of HEV infection is reportedly between 40-57%.²⁴

Differences in results of various studies could be due to the reason of varied sample sizes and selection of patients in respective studies. Higher prevalence of anti-HEV IgG in our study population was due to belonging of these patients to low socioeconomic and backward rural areas where people using drinking water sources other than tap water such as wells, ponds, streams, raining water coming from hills and water running around the fields.

CONCLUSIONS

It is concluded on the basis of the results of the study that frequency of acute hepatitis E was found in majority (47.6%) cases, having the age range of above 30 years. Acute viral hepatitis especially HEV exposure may have a much greater effect on pregnancy and neonatal outcomes than others. So routine viral hepatitis screening in pregnant women may need to be reconsidered at first antenatal visit.

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