Original article

Effect of viral hepatitis E on maternal and fetal outcome

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Abstract

Viral hepatitis in pregnancy has been a subject of continuing interest. It is a major cause of enteric transmission of non A and non B hepatitis and is usually self limiting. However in pregnant women, it is more severe. This prospective study was conducted in the department of obstetrics and gynecology, Liaquat University of Medical and Health Sciences, Jamshoro from May 2013 to July 2014 to know the frequency and outcome of women with hepatitis E virus (HEV) infection. Among the women with jaundice, sixty eight pregnant women were selected as cases and 16 non pregnant women were selected as control and a comparative study was done. Blood sample were taken at the beginning of the pregnancy and in the postpartum period. Serology was done for HEV and other tests included blood picture, hepatic and kidney function tests. All women underwent ultrasound examination. Hepatitis E was found in 77.9% of pregnant women and 25% in non pregnant women. The commonest age group was between 21-25 years. The liver function test and renal function test were not significantly different in the two groups. No virus was detected in 9 (13.2%) cases and 8 (15%) control. The maternal mortality was 19.1% in cases. The fetal loss was found in 42.6% of cases. Pregnancy with hepatitis E is associated with adverse maternal and fetal outcome.

Key words: Fetal outcome, HEV, Maternal outcome

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Infection with hepatitis E virus during pregnancy is associated with increased morbidity and mortality. It is a major cause of enteric transmission of non A and non B hepatitis in many developing countries with large epidemics reported in Asia, Africa and Latin America. It is usually self limiting. However in pregnant women, it is more severe. The high mortality rate in pregnancy has been thought to be secondary to the associated hormonal changes during pregnancy and consequent immunological changes. The incidence of hepatic failure and mortality is higher than with other viral infections. There is variation in the course outcome of viral hepatitis in pregnancy.

The purpose of this study was to know the frequency and outcome of women with hepatitis E virus (HEV) infection.

Material and methods

This prospective study was conducted in the department of obstetrics and gynecology, Liaquat University of Medical and Health Sciences, Jamshoro.
horo from May 2013 to July 2014. Among the women with jaundice, sixty eight pregnant women were selected as cases and 16 non pregnant women were selected as control and a comparative study was done. The protocol was approved by the Ethical Committee and written consent was taken from all the women. Blood sample were taken at the beginning of the pregnancy and in the postpartum period. Serology was done for HEV and other tests included blood picture, hepatic and kidney function tests. All women underwent ultrasound examination. All data collected was analyzed using SPSS version 17.0. Student t-test and chi-square tests were applied.

Results

During the study period 68 pregnant women were selected as cases and 16 non pregnant women were chosen as controls. The commonest age group of women having jaundice was between 21-25 years. Hepatitis E was found in 77.9% of pregnant women and 25% in non pregnant women (Table 1). No virus was detected in 9 (13.2%) cases and 8 (15%) control.

The liver function test and renal function test were not significantly different in the two groups (Table 2). The maternal mortality was 19.1% (n=13) in cases. The fetal loss was found in 42.6% (n=29) of cases.

Discussion

Hepatitis E virus causes epidemics of acute viral hepatitis particularly in developing countries. There is an increased rate of maternal mortality in pregnant women with hepatitis E. Mortality rates have ranged between 5% and 25%, much higher that man and non pregnant women. Hepatitis E infection during third trimester, especially with genotype 1 is associated with more severe infection and might lead to fulminant hepatic failure and maternal death. Third trimester maternal mortality in HEV is upto 15% to 25% of cases.

The prevalence of hepatitis E was 77.9% in our study. It was similar to the study conducted by Khuroo et al in which it was 86% while varying rate of HEV infection from 32% to 86% have been reported in different studies.

The reason for the difference in the outcome of HEV infection in different geographical areas remain unclear but could be the result of early childhood HEV exposure producing long lasting immunity or modifying subsequent responses to exposure to the virus.

There is a complex interaction among viral, host, immunological and hormonal factors producing severe liver damage in pregnancy.

In our study, maternal deaths were noted in 19.1% of cases. It was comparable to other studies done on Asian population. A study conducted in North India reported 12% to 64% mortality rate. A high infection rate but very low mortality rate of 3.4% was reported in another study carried out in South India.

All women who presented with hepatic encephalopathy died. This finding was similar to the study conducted by Banait et al.

<table>
<thead>
<tr>
<th>Table 1: Comparison of type of hepatitis in controls and cases</th>
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<tbody>
<tr>
<td><strong>Type of viral hepatitis</strong></td>
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<tr>
<td>-----------------------------</td>
</tr>
<tr>
<td>HBV positive</td>
</tr>
<tr>
<td>HCV positive</td>
</tr>
<tr>
<td>HEV positive</td>
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<tr>
<td>No virus detected</td>
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*Statistically significant; **Statistically highly significant

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<th>Table 2: Blood parameters (Mean±2SD)</th>
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<tr>
<td><strong>Blood parameter</strong></td>
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<tr>
<td>Hemoglobin (gm/dL)</td>
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<tr>
<td>Serum bilirubin (mg/dL)</td>
</tr>
<tr>
<td>Prothrombin time (PT) (sec)</td>
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<tr>
<td>International normalized ratio (INR)</td>
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<td>Serum creatinine (mg/dL)</td>
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</table>
There is a very high risk of vertical transmission of HEV infection from mother to fetus. It might be responsible for 2400 to 3000 still births each year in developing countries. In our study a high fetal wastage was found in 42.6% of cases. Same observation was noted in other study in which fetal mortality was found to be 69% in cases. In live births, hepatitis E was found in two babies. Most of neonates were lost to follow up. The exact rate of vertical transmission could not be estimated as most of the surviving neonates were lost to follow up.

Breast feeding is considered safe in asymptomatic women infected with HEV. It is unsafe if the mother has acute hepatic disease or an increased viral load.

**Conclusion**

Pregnancy with hepatitis E is associated with adverse maternal and fetal outcome. HEV infection can be prevented by practicing good hygiene, handling food appropriately and drinking safe water.

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**Conflict of interest:** None to declare

**References**