

Acute Viral Hepatitis in Pregnancy

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Abstract

Objective: To assess the prevalence of viral hepatitis in pregnant women and their obstetric and fetal outcome.

Background: Viral hepatitis is the major cause of jaundice in pregnancy. It can lead to coagulation defects, postpartum haemorrhage, organ failure and high maternal mortality and poor outcomes of their newborns such as still births, neonatal deaths, acute and chronic liver disease and hepatocellular carcinoma. so early diagnosis and treatment is required for better management of the patients.

Materials and Methods: 57 pregnant women admitted at gynae ward with serologically proven for viral hepatitis markers (Ig M ELISA for HAV, HCV, HDV, HEV and HBsAg antigen detection) were included in the study. All the patients were followed during their hospital stay and maternal morbidity, mortality and fetal outcome were recorded.

Results: HEV was the major cause of viral hepatitis 68.4%(39/57) followed by HAV 22.8%(13/57), HBV 8.8%(5/57). one out of five HBV infected patients were co infected with HDV. Maternal mortality rate is 15.8%. Perinatal mortality rate is 42%.

Conclusion: Viral hepatitis is the most common cause of jaundice in pregnancy with HEV being the predominant cause. so water supply should be of high quality complying with drinking water standards and safe sanitation should be given priority. Health programmes should be activated to educate community regarding control of transmission of viral hepatitis and complete immunization against viral hepatitis should be taken by all women of reproductive age group.

Keywords: Hepatitis A, B, C, D, E, Maternal Mortality, Perinatal mortality, Pregnancy

I. Introduction

Acute viral hepatitis is a systemic infection caused by six distinct types of viruses A, B, C, D, E and G. Acute viral hepatitis is usually self limiting and has altered liver function test, rise in serum aspartate aminotransferase along with clinical jaundice.^{1,2} Pregnancy appears to be a potential risk factor for viral replication and leads extreme low immune status of pregnant women. Viral hepatitis in pregnancy can lead to coagulation defects, postpartum haemorrhage, organ failure and high maternal mortality and poor outcomes of their newborns such as still births, neonatal deaths, acute and chronic liver disease and hepatocellular carcinoma. so early diagnosis and treatment is required for better management of the patients. therefore, it is included in the screening tests in antenatal visits in health programme.^{3,4} Incidence of hepatitis varies widely in different geographical areas. There is no difference in the clinical course of the disease in pregnant and non pregnant women in developed countries but the course and the severity of viral hepatitis is quite different in pregnant women than the non pregnant women in the developing countries.^{3,4} HEV and HBV infections during pregnancy are associated with fulminant hepatic failure and high mortality rate.^{3,4,5,6} HEV infection is responsible for worse maternal and fetal outcome in pregnant women with compared to other types of viral hepatitis.⁷ HEV infection is more severe, often leading to fulminant hepatic failure and death in up to 15% to 20% of cases.⁸ Hepatitis B during pregnancy is related to its role in the perpetuation of chronic infection through vertical transmission. Mothers with a reactive serum test for HBeAg have more circulating virus and higher rates of perinatal transmission than do mothers without detectable serum HBeAg and a reactive serum test for anti-HBeAg.⁹ The risk for vertical transmission of HCV is about 5%-10% and the risk increases by 2 fold if there is co infection with HIV.¹⁰ There is little information regarding HDV in pregnancy. The prevalence of viral hepatitis is always controversial in developed and developing countries. This study was conducted to know the prevalence, obstetric complications and maternal, perinatal outcome in pregnant women presenting with viral hepatitis.

II. Materials And Methods

57 pregnant women admitted at gynae ward, tertiary care hospital, Gujarat, either emergency or registered with serologically proven for viral hepatitis markers (Ig M ELISA for HAV, HCV, HDV, HEV and HBsAg antigen detection) were included in the study. Diagnosis was made on clinical presentation i.e. recent onset of jaundice, vomiting, loss of appetite, altered sensorium. Patients with negative results on serology and those with clinical evidence of other causes of jaundice such as HELLP syndrome (Haemolysis, elevated liver enzymes, low platelet count), acute fatty liver of hepatitis and Intrahepatic cholestasis, drug induced jaundice and those with clinical or laboratory evidence of chronic liver disease were excluded from the study. Baseline investigations i.e. complete blood count and liver function tests, prothrombin time, APTT, FDP, d-dimer also carried out. All the patients were followed throughout the pregnancy and intrapartum period and any complications, maternal and foetal morbidity and mortality and perinatal outcome were recorded. All data were statically analysed. Advice from internal medicine and gastroenterology department was taken for better comprehensive management of the patients.

III. Results

57 pregnant women (mean age 23.5 ± 2.5 yrs) presenting with clinical and biochemical evidence of hepatitis and serologically proven for viral hepatitis markers were included in this study. Majority of the patients were from rural area (92%) and 89% of patients were from lower socio economical class. 90% of patients were emergency admission and only 10% were previously registered before admission. Most of the pregnant women were primigravida (42%) and majority were in their third trimester (82%).

Table 1. Age, Gravidity and duration of pregnancy at the time of admission.

Age(Years)	No. of patients	% of patients
<20	4	7
20-24	22	39
25-29	26	46
≥ 30	5	8
Gravida		
Primigravida	24	42
Second gravida	19	33.3
Multigravida	14	25
Duration of pregnancy		
First trimester	2	3.5
Second trimester	8	14
Third trimester	47	82

Out of 57 patients with acute viral hepatitis, HEV was the major cause of infection in 68.4% (39/57), followed by HAV 22.8% (13/57), HBV 8.8% (5/57). One out of five HBV infected patients was co infected with HDV. None of them was HCV sero positive. Maternal complications, mode of delivery, foetal outcome, requirement of NICU admission, maternal mortality, perinatal outcome, perinatal deaths are shown in table no.2.

Maternal morbidity	Frequency	Percentage
Hepatic Encephalopathy	7	12.2%
DIC	4	7%
Thrombocytopenia	1	2%
Post partum haemorrhage	3	5.3%
Acute renal failure	1	2%
Maternal outcome		
Vaginal Delivery	47	82%
Cesarean section	9	16%
Undelivered Expired	1	2%
Preterm Delivery	33	58%
Full term Delivery	24	42%
Recovered	48	84.2%
Mortality	9	15.8%
Foetal outcome		
Live	44	77%
Intra uterine death	13	22.8%
Total perinatal death	24	42%
NICU admission required	19	33.3%
Low birth weight	14	25%

Table 2. Maternal morbidity, mortality and foetal outcome

IV. Discussion

Viral hepatitis is the most common form of liver disease worldwide and it frequently affects women of childbearing age, either as an acute infection or as a chronic disease. Neither HAV and HBV infection influence the course of pregnancy nor pregnancy alter the natural history of that.⁹ Acute Hepatitis E during the third trimester of pregnancy is a cause of fulminant hepatic failure and has a mortality rate of up to 20%.¹¹ Maternal Hepatitis E virus infection has been associated with intra uterine fetal death. The risks of intrauterine death and abortion in any trimester are greater in pregnant women with HEV.¹² Out of 57 pregnant women, age group most commonly affected was 20 to 29 years with mean age 23.5±2.5yrs .Same age group is also affected in study done by patra et al and shukla et al. 92% of the patients were from rural area and 89% of patients were from lower socio economical class.90% of patients were emergency admission and only 10% were previously registered before admission. Most of the pregnant women were primigravida (42%) and majority were in their third trimester (82%).

HEV infection alone was most commonly responsible for acute viral hepatitis in present study(68%),which can be comparable with other studies shown in table 3.Most of the HEV sero positive patients were primigravida (41%) and 79%of patients were in third trimester. Obstetric and fetal outcome in HEV infected pregnant women is not favorable as noticed by other studies also.^{13,14} Out of 68% of HEV seropositive patients 15% of women turned in to hepatic encephalopathy and 5 (13%) died.DIC and PPH occurred in 10.3% and 5.1% of cases respectively and 3(7.8%) death occurred because of both. These findings are similar with the other studies.^{7, 13, 14} 72% of pregnant women with HEV had preterm deliveries, which is consistent with findings of Kumar *et al.*¹⁵ who observed that two-third of the pregnant women with HEV had preterm deliveries. Out of 39 HEV infected women deliveries, 26 live births and 13 intra uterine deaths were noted. Perinatal mortality rate is 62% in them. The reason behind high perinatal mortality in HEV is still not clear. It may be due to vertical transmission from mother to baby, preterm deliveries and low birth weight.^{13,14,15} which leads more perinatal deaths as seen in this study too. Bannait *et al.* in Mumbai reported 69% perinatal mortality which is similar to this study's finding.

Table 3: Comparison of commonest viral hepatitis with other studies.

Study	Year	Commonest virus hepatitis	Maternal mortality rate
Jaiswal et al	2001	HEV(57.5%)	45%
Beniwal et al	2003	HEV(47.4)	39.1%
Kumar et al	2005	HEV(45%)	73%
Patra et al	2007	HEV(60%)	41%
Banait et al	2007	HEV(55.76%)	54%
Sahai et al	2010	HEV(77.9%)	19.1%
Present study	2009-2011	HEV(68%)	20.5%

22.8% of pregnant women were HAV sero positive. Which is higher than other studies that in Beniwal et al it is 5.2% ,patra et al 1.5%,Khuroo et al 0.5%.All cases with HAV seropositives were multigravida and from lower socioeconomic class, Poor sanitation and unsafe drinking water supply may had contributed the higher rate of HAV in the present study. All patients had normal vaginal delivery with 10% of NICU admission rate and favourable maternal and fetal outcome.

Prevalence of HBV infection was 8.8% in the present study which is consistent with the other Indian studies done by Beniwal et al 7.2%, Singh et al 10%. One patient had HBV+HDV co infection which is comparable with study done by Khuroo et al in which 1.5% had co infection of HBV+HDV. All the HBV positive patients were infected during their third trimester and 4 of them had pre term normal vaginal delivery with low birth weight babies (mean weight 2kg).One patient who had HBV+HDV co infection died due to hepatic encephalopathy and post partum haemorrhage.HCV infection was not seen in any case as was also observed by other groups.^{14,18} This is explained by the low prevalence of high risk factors for HCV transmission in the study group.

V. Conclusion

Viral hepatitis is the most common cause of jaundice in pregnancy with HEV being the predominant cause.Complications, maternal and perinatal morbidity and mortality is highly associated with HEV infection. So safe potable water supply, Safe sanitation, Hygienic environment should be given priority to minimize HAV and HEV infections. Information, education and communication activities should be carried out to sustain such practices in the community and people need to be made aware about the parenteral modes of transmission in case of hepatitis B, C and D viral infections. Complete immunization against viral hepatitis should be taken by all women of reproductive age group.

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