Fetomaternal Outcome in Acute Viral Hepatitis

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Abstract

Introduction: Viral hepatitis is one of the commonest causes of jaundice in pregnancy. Hepatitis E viral (HEV) infection is associated with major catastrophes in pregnancy with high maternal and foetal mortality rate.

Objectives: To determine the prevalence of HEV infection in pregnancy and to study maternal and foetal outcome in acute HEV and non HEV infection.

Material and Methods: This was a prospective observational study, conducted at SAIMS obstetrics department over a period of 2 years, June 2011-June 2013, among pregnant women presented with features of acute viral hepatitis like nausea, vomiting, jaundice, fever etc. These women were further investigated and those who were found to be positive for infection with HAV, HBV and HEV were further studied in view of maternal and foetal outcome.

Results: Pregnant women who were found to be suffered from acute viral hepatitis were twenty five. Majority of women were unbooked (90%) with mean age of 23±3.5years, most of them were presented in third trimester with mean gestational age of 31.33±3.5 weeks. Primigravida (58%) forms the largest group. Infective pathology due to HEV was 84% and 16% due to HAV and none of the patients were found to be acutely infected with HBV, HCV. HEV infected patients found to have high rate of complications as compared to non HEV infected patients. HEV infected patients had high rate of abortion (4.7%), fulminant hepatic failure (23.8%), Disseminated intravascular coagulation (33%), acute respiratory distress syndrome (14.28%), hepatic encephalopathy (23.8%), acute renal failure (9.52%), intrauterine foetal demise (35.29%), low birth weight (84.6%), NICU admission rate and preterm labour as compared to non HEV infected patients.

Conclusion: Acute hepatitis E viral infection in pregnancy carries a poor maternal and foetal outcome as compared to other viral hepatitis causative agents.

Keywords: Hepatitis, HEV infection

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Introduction

The most common cause of jaundice in pregnancy is acute viral hepatitis which is a systemic infection caused by 6 distinct types of virus namely A, B, C, D, E & G viruses[(1)]. Hepatitis E virus (HEV) is known for sporadic cases of acute hepatitis in developing countries and even large epidemics have been reported[(2)]. It is a single stranded RNA virus with an incubation period of 8-10 wks which transmits by faeco-oral route[(3)]. The course of most of the hepatitis is unaffected by pregnancy except in patients with hepatitis E in which fetal and maternal mortality rates are significantly higher. In pregnant women, acute HEV infection is associated with increased risk of miscarriage, preterm labor, still birth, antepartum hemorrhage, disseminated intravascular coagulopathy (DIC), fulminant hepatic failure(FHF), acute Renal Failure (ARF), and even death[(4)] with Fetal complications like prematurity, low birth weight, intrauterine demise (IUD) and vertical transmission[(5)]. In various studies maternal mortality rate with HEV infection found to be 15-20% which is mostly in third trimester[(6)]. Other virus induced hepatitis has been found in pregnancy but these do not have high complication rate as E virus induced hepatitis. Only few studies have been done so far to document its prevalence and outcome in pregnancy. This study was undertaken to determine the incidence of viral hepatitis in women presenting with jaundice during pregnancy and correlate it with maternal and fetal outcomes.

Aims and Objectives

Our Aim is to determine the prevalence of acute hepatitis E viral (HEV) infection in pregnancy and its feto-maternal outcome also comparing it with non HEV induced hepatitis in pregnancy.

Material and Methods

This was a prospective observational study done in Shri Aurobindo Institute of Medical Sciences, Indore over a period of two years (June 2011 to June 2013) where in pregnant women presented with signs and symptoms of acute viral hepatitis were studied in terms of various maternal and fetal factors. All

pregnant women visited to the Obstetrics department, irrespective of gestational age and parity, with signs and symptoms of acute viral hepatitis (jaundice, fever, nausea, vomiting etc.) were included in the study.

Pregnant women with other causes of jaundice like acute fatty liver of pregnancy, HELLP syndrome, and cholestasis of pregnancy and previous history of jaundice were excluded from the study. Women fulfilling the inclusion criteria were evaluated by detailed history and examination including blood investigations (routine antenatal profile, liver function test, renal function test) along with viral serology (hepatitis A, B, C & E viruses IgG and IgM). Fetal wellbeing was assessed by ultrasonography, colour doppler, fetal heart auscultation and by other means (CTG etc). Fetal and maternal outcome were studied under various parameters like abortion rate, preterm labour, disseminated intravascular coagulopathy (DIC), acute respiratory distress syndrome (ARDS), acute renal failure (ARF), hepatic encephalopathy (HE), fulminant hepatic failure (FHF), duration of hospital stay, maternal mortality, prematurity, low birth weight, intrauterine fetal demise and NICU admission rate.

Results

Pregnant women who were found to be having acute viral hepatitis were twenty five. Out of them 21 (84%) women were found to be infected with HEV and 4 (16%) women with HAV. None of the patients were found to be acutely infected with HBV and HCV. 90% of women with acute viral hepatitis were referred from primary health care centers and only 10% were booked. Mean age of HEV infected women was 23.3±3.9 years and with HAV infection 22±2.3 years. Most of the women were primigravida (58% in HEV and 30% in non HEV) with majority of them in their third trimester (mean gestational age HEV-31.33±3.5 weeks and nonHEV-36±2 weeks).

Trimester wise prevalence of HEV infection in 1st, 2nd and 3rd trimester were found as 4%, 28% and 68% respectively and in non-HEV infection it was 25%, 25%, 50%. Mean billirubin level was found to be high in HEV patients (12.58±5.3mg/dl) as compared to non HEV patients (7.8±2.5mg/dl). Comparative analysis of HEV and non HEV infected women were depicted in Table 1 and 2.

Table 1: Comparison of maternal outcome in HEV and non HEV patients

	HEV	Non HEV
Abortion	4.7%(n=1)	0
FHF	23.8%(n = 5)	0
DIC	33%(n=7)	0
ARDS	14.28%(n=3)	0
HE	23.8%(n=5)	0
ARF	9.52%(n=2)	0
Patient Undelivered	14%(n=3)	2
Recovery	38%(n=8)	100%
Overall Mortality Rate	28%(n = 6)	0
Total n = 25	n = 21	n = 4

Table 2: Comparison of fetal outcome in HEV and non HEV patients

	HEV	Non HEV
Preterm Delivery	29%(n=5)	0
IUD	35.29%(n=6)	0
Low Birth Weight	84.61%	0
NICU Stay(days)	7	0
Term Live Birth	11.7%	50%

This observational study in patients with HEV infection reveals increased complications rate with high maternal and perinatal mortality.

Discussion

Since studies done on hepatitis in pregnancy in India are very few, our study is a scientific contribution to understand the consequences of this deadly infection. In spite of the smaller sample size as compared to other studies significant association of complications cannot be determined however a strong observation and association with HEV induced hepatitis in pregnancy than non HEV induced one can clearly be outlined. Association of poor maternal and perinatal outcome in HEV infection in our study cannot be overlooked also high prevalence of HEV infection is a noticeable finding.

Other studies with larger sample size like Shukla et.al (2011), Jethwa et al (2015), Patra et al and others shows comparative results[7,8,9] though acutely infected patients with HBV and HCV has been seen in their studies, current study does not.

Prevalence rate of current study {HEV (84%) and HAV (16%)} and Patra et al study (HEV 60%)[7] and Jaiswal et al[10] 57.5% are comparable. Majority of patients with mean age of 23.3±3.9 years were primigravida (58%) in their third trimester (75%). Our findings are similar to the observations seen in other studies by Jaiswal et al(72%), Singh S et al (72%)[11] and Patra et al (72%) who reported more than 70% of pregnant women with acute viral hepatitis presented in their third trimester and were primigravida.

Current study also shows, high maternal (28%) and fetal mortality rate (35.29%) in HEV infected pregnant women which is also shown in other studies (14-45%[10,12,13] and even 70%[11]). Our results shows higher complications rate {FHF(23.8%), DIC(33%), ARDS(14.28%), HE(23.8%), ARF(9.52%), preterm delivery(29%), IUD(35.29%), low birth weight(84.61%)} which is consistent with other studies also showing, poor maternal and fetal outcome like Jaiswal et al, Patra et al, Wani et al and Shukla et al. Quantitative variations are obvious due to smaller sample size however end results are comparable. At last viewing poor maternal and fetal outcome and high mortality rates, public awareness, immunization, safe drinking water, avoiding travelling to endemic area, better sanitation facilities, easy and early approach to health care centre can significantly lower down its incidence rate.

Conclusion

Acute viral hepatitis is the most common cause of jaundice in pregnancy with HEV being the predominant cause with highest maternal and fetal complication rate and even mortalities. Since the study has smaller sample size a multicentric metaanalytical study will definitely help us to formulate the guidelines for proper management, prevention and cure. Till then increased availability of antenatal care for early detection and well equipped hospitals for intensive care will help in the reduction of viral hepatitis in pregnancy and also its associated maternal and perinatal mortality and morbidity.

References

1. Wani S, Kadri SM, Bhat S. Prevalence of acute viral hepatitis in women presenting with jaundice with fetomaternal outcome. Global journal of medicine and public health. 2013 Vol 2, issue 6.
2. Khuroo MS, Kamili S. Etiology, clinical course and outcome of sporadic acute viral hepatitis in pregnancy. J Viral Hepat. 2003;10:61–69.
3. Suzuki K, Aikawa T, Okamoto H. Fulminant hepatitis E in Japan. N Engl J Med 2002;347:1456.
4. Krawczynski K, Aggarwal R, Kamili S. Hepatitis E. Infect Dis Clin North Am. 2000;14:669-87. [PMID: 10987115]
5. Kumar A, Patra S, Trivedi SS, Puri M, Sarin SK. Maternal and fetal outcomes in pregnant women with acute hepatitis E virus infection. Ann Intern Med 2007;147:28-33.
6. Aggarwal R. Clinical presentation of hepatitis E. Virus Res 2011;161:15-22.
7. Tsega E, Hansson BG, Krawczynski K, Nordenfelt E. Acute sporadic viral hepatitis in Ethiopia: causes, risk factors, and effects on pregnancy. Clin Infect Dis 1992;14:961-5.
8. Patra S, Kumar A, Trivedi SS, Puri M, Sarin KS: Maternal and fetal outcomes in pregnant women with acute hepatitis E virus infection. Ann Intern Med 2007,147:28-33.
9. Shukla S, Mehta G, Jais M, Singh A: A prospective study on acute viral hepatitis in pregnancy; seroprevalence and fetomaternal outcome of 100 cases. J Biosci Tech, Vol 2 (3),2011,279-286.
10. Jethwa DK, Chauhan DV, Badrakiya GL, Badrakiya SG: Hepatitis E virus in pregnancy with fetomaternal outcome-A prospective study. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 14, Issue 8 Ver. I (Aug. 2015), PP 25-28.
11. Jaiswal SP, Jain AK, Naik G, Soni N, Chitnis DS. Viral hepatitis during pregnancy. Int J Gynecol Obstet 2001;72:103-8.
12. Singh S, Mohanty A, Joshi YK, Deka D, Mohanty S, Panda SK. Mother to child transmission of hepatitis E virus infection. Indian J Pediatr. 2003;70:37–9.
13. Khuroo MS, Kamili S. Aetiology and prognostic factors in acute liver failure in India. J Viral Hepat. 2003;10:224-31.
14. Beniwal M, Kumar A, Kar P, Jilani N, Sharma JB. Prevalence and severity of acute viral hepatitis and fulminant hepatitis during pregnancy: A prospective study from north India. Ind J of Med Microbiol 2003;21(3):184-5.