

## A Retrospective Study on Maternal and Fetal Outcome of Viral Hepatitis in Pregnancy

Nisha Singh<sup>1</sup>, Piyush Ranjan<sup>2</sup><sup>1</sup>Associate Professor, Department of Obstetrics and Gynaecology, Narayan Medical College and Hospital, Jamuhar, Rohtas, Bihar<sup>2</sup>Associate Professor, Department of Pediatrics, Narayan Medical College and Hospital, Jamuhar, Rohtas, Bihar

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Corresponding Author: Dr. Piyush Ranjan

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### Abstract:

**Background:** Compared to pregnant women with chronic viral hepatitis, pregnant women with acute viral hepatitis have a higher risk of morbidity and death. Acute viral hepatitis E carries the highest risk of death, while hepatitis B virus (HBV) infection may have the highest rate of transmission to the fetus. Pregnancy-related viral hepatitis management involves evaluating the baby's risk of infection, figuring out the mother's risk of decompensation and the gestational age at infection, and being aware of the adverse effects of antiviral medications. The purpose of this study was to evaluate the etiology, progression, and outcomes for both the mother and the fetus of viral hepatitis E that was discovered during pregnancy.

**Methods:** Over the period of five years, from October 2017 to November 2022, the Department of Obstetrics and Gynecology at Narayana Medical College and Hospital in Sasaran, Bihar, collaborated with the Pediatrics Department to perform this retrospective study. In this investigation, 130 pregnant women had hepatitis infection.

Following the women's consent, a viral profile was produced and included to the study. Biochemical and hematological data were taken from a database.

**Results:** It was found that 0.97% (130/13385) of pregnant women had hepatitis during their pregnancy. Women in the age range of 21 to 30 were found to have the highest prevalence, resulting in 72 cases (55.38%). The majority of the women, Primigravida 73 (56.1%), had hepatitis, which was mostly found in the first trimester of pregnancy. Seven (5.38%) patients had HAV, 110 (84.61%) had HEV, 4 (3.07%) had HCV, and 9 (6.92%) had HBV, among other etiologies. 13 cases (10%) showed intrahepatic cholestasis. Analyzing the outcomes and delivery difficulties for mothers, it was shown that prolonged pervaginal leaking and fetal distress were the most common causes of 74 (56.92%) caesarean sections.

**Conclusion:** The condition of hepatitis becomes increasingly concerning as pregnancy goes on. The management of problems resulting from liver failure is made much more complex and time-consuming when it is related to or occurs concurrently with illnesses such pregnant hypertension.

**Keywords:** Hepatitis E Virus, Pregnancy, Maternal and Fetal Prognosis, Hepatocellular Carcinomas.

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### Introduction

Hepatitis infections are currently a major global health issue. According to WHO estimates, 350 million people globally were chronic HBV carriers in 2009, and over 2 billion people had been exposed to HBE and HBV at some time in their lives. One million people die annually is the projected death rate.[1,2] Worldwide, there is debate concerning hepatitis during pregnancy. According to Udaya Kumar et al. and Sookia et al., the outcomes for the mother and fetus could vary from minimal issues to the worst possible morbidity or even death.[3,4] Maternal infection and geographic location have an interesting

association. Studies show that hepatitis E is not associated with a significant increase in maternal deaths in India. The different types of hepatitis infections raise different concerns.[5,6] While hepatitis B is acquired during pregnancy owing to a high viral load and has a high vertical transmission rate, it can have major effects for the unborn child as it can develop into cirrhosis or hepatocellular cancer. Hepatitis A is spread orally and does not impact pregnancy.[7,8] It is well known that hepatitis C causes hepatocellular cancer in both the mother and child due to its vertical conductivity.[9,10] Pregnancy does not normally

cause hepatitis E to worsen; it typically goes away on its own. Hepatitis and fulminant hepatic insufficiency are generally highly correlated.[9,10] Singh and et al stated that they were really worried about the hepatitis E virus's vertical transmission. There hasn't been much research on how pregnancy affects the clinical course and outcome.[11,12] Thus, the purpose of this study was aimed at the clinical course, maternal outcome, and incidence of hepatitis in pregnant fetuses.

### Material and Methods

Over the course of five years, from October 2017 to November 2022, we carried out a retrospective study at the Obstetrics and Gynecology department at Narayan Medical College and Hospital in Sasaram, Bihar, in collaboration with the Pediatrics department.

A group of 130 women who had been diagnosed with hepatitis were chosen. Exclusion criteria included Hellp, severe preeclampsia, drug-induced hepatitis, and acute fatty liver during pregnancy. The coagulation profile, serological tests for anti-

HAV IgM, anti-HEV IgM, anti-HCV IgM, and HBs antigen, as well as results from biochemical test reports, were gathered and compiled into the table. Study has been done on therapy choices and the clinical course. Investigations were conducted into fetal and maternal difficulties, including preterm, fetal ascites, meconium aspiration, and neonatal jaundice. Maternal complications included premature uterine contractions, placental rupture, and early membrane rupture.

Numbers and interest are used to express data in tables.

### Results

Out of the 13,385 pregnant women who were registered and delivered to us, 130 of them had hepatitis during the trial. The percentage of females who contracted hepatitis while pregnant was 0.97% (130/13385). The demographic profile of these females is displayed in Table 1. The range of the average bilirubin level is  $9.02 \pm 9.14$  mg/dl. In [Table 2], biochemical parameters are shown.

**Table 1: Demographic profile**

Categories		Number
Age in years	<20	22
	21-30	72
	>30	36
Gravida	Primigravida	73
	Multigravida	57
Antenatal care	Regular	112
	Irregular	18

**Table 2: Biochemical parameters**

Biochemical parameters	Mean±SD
Total bilirubinmg/dl	9.04±9.14
ASTInu/l	365±563.8
ALTInu/l	353±442.44

Seven (5.38%) patients had HAV, 110 (84.61%) had HEV, 4 (3.07%) had HCV, and 9 (6.92%) had HBV, among other etiologies. 13 patients (10%) showed intrahepatic cholestasis following the abdomen examination [Table 3].

**Table 3:Viralmarker**

Etiology	Number of patients	Percentage
HAV	7	5.4%
HEV	110	84.6%
HCV	4	3.1%
HBV	9	6.9%
HAV+HEV	Nil	Nil
HBsAg+AntiHEV	Nil	Nil

Analyzing the outcomes and delivery difficulties for mothers, it was shown that prolonged pervaginal leaking and fetal distress were the most common causes of the 49 (37.69%) vaginal deliveries and the 74 (56.92%) caesarean sections. Coagulation dysfunction, encephalopathy, and fulminant hepatic failure were other noted side effects [Table 4].

**Table 4: Maternal outcome and complications**

Maternal outcome	HAV	HEV	HCV	HBV
Modes of Vaginal delivery	5	36	3	5
Instrumental	0	7	0	0
Caesarian	0	72	0	2
Coagulopathy	0	7	0	3
Fatal hepatitis	0	6	0	2
Hepatic encephalopathy	0	4	0	0
Maternal mortality	0	3	0	0

Out of 130 mothers who had hepatitis 40 patients delivered preterm babies(30.76%). There were 7 intrauterine fetal demise(5.38%) and neonatal jaundice developed in 50 newborns (38.46%) that required ICU hospitalization.

**Table 5: Fetal outcome**

Fetal outcome	HAV	HBV	HCV	HEV
Preterm	0	37	0	3
Intrauterine fetal demise	0	4	0	3
Neonatal icteric	4	42	0	4

## Discussion

Pregnancy-related jaundice is most frequently caused by hepatitis, which can have a wide variety of consequences, from non-existent to lethal. While hepatitis E has a highly deadly prognosis and is associated to the highest rate of maternal death in endemic areas, the majority of hepatitis illnesses do not change during pregnancy.[11,12] Most cases of hepatitis do not change throughout pregnancy, however hepatitis E can be extremely fatal and is the leading cause of maternal death in endemic areas.[13,14] In the study, the majority of cases of infection were recorded between 21 and 30 years of age, which corresponds to (65) 57.01%, which is consistent results obtained by Sahai et al., Krishnamoorthy et al.[15,16] and Madan et al. Most women belonged to the lower average socio-economic status and from an educational point of view (67) 58.7% were literate, while 70% were illiterate in Shukla et al.[17,18] and up to 73.8% in a study by Ashoka et al.

Primigravida (65) 57.01% was the largest group of women diagnosed with viral infection, and 56 (49.1%) were diagnosed for the first time with no signs of pregnancy, which was similar to the result obtained by Veronica et al (48%).[19,20] A study by Elsheikh et al. He states another result that the second gravid has the highest prevalence. Hepatitis E infection was responsible for the maximum number of cases of viral infection in our study. Similar results were reported in a study by Shukla et al.[21,22] while in the study of Jaiswal et al. And Aziz et al. Hepatitis E has been reported to be the most common virus. Although the low incidence of hepatitis E was not a contributing factor in any maternal deaths in our investigation, Sahai et al. Morbidity in the form of encephalopathy, fulminant liver failure, and coagulation failure was noted in the third trimester of pregnancy and in women with inconsistent prenatal control.[23] Most studies

don't offer a thorough report on fetal performance. There was one premature delivery among the 130 women who had hepatitis; Patra et al. (65%) and Kumar et al. This is significantly less than the results given by the 70% of women who had intrauterine fetal mortality, and the 36.8% of newborns who experienced neonatal jaundice. Every youngster received vaccinations and immunoglobulins from the paediatrician below.

## Conclusion

Pregnant women who contract hepatitis have an increased risk of maternal morbidity and fetal deformity. In our hospital, the most common cause of most studies is hepatitis E. It is important to treat and underline that women who have jaundice should be admitted to the hospital.

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