

## EFFECT OF LIVER DISEASE ON MATERNAL AND FETAL OUTCOME – EXPERIENCE IN A TERTIARY HOSPITAL

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### ABSTRACT

**Objective:** To determine the frequency, causes and outcome of liver disease in pregnant women. Setting: Tertiary care teaching hospital.

**Method(s):** All pregnant women with liver disease attending the inpatient or outpatient services of the Department of Obstetrics and Gynecology over a period of 3 years were evaluated and followed up till delivery or death.

**Results:** The study included 40 patients of Cholestatic jaundice, 38 patients of viral hepatitis, 15 patients of sepsis, 5 patients of HELLP syndrome and 1 patient each of hyperemesis gravidarum, amoebic abscess, enteric hepatitis & acute cholecystitis with pancreatitis. Intra hepatic cholestasis of pregnancy was the most common and least detrimental cause of liver disease in pregnancy. Number of preterm deliveries and incidence of LSCS was highest with HELLP Syndrome. ICU admissions were maximum with diagnosis of Hepatitis E and NICU admissions highest with HELLP Syndrome. Both HELLP Syndrome and Hepatitis E were responsible for maximum maternal and perinatal deaths. Conclusions: Liver disease in a pregnant woman needs to be treated with caution.

**Key words:** Liver Disease, Cholestatic Jaundice, Viral Hepatitis, HELLP Syndrome, Perinatal Outcome

### INTRODUCTION

Liver disease is an uncommon association with pregnancy. But whenever it occurs, it may have far reaching effects on pregnancy outcomes. Liver involvement in pregnancy is of three types, namely, liver diseases peculiar to pregnancy, liver diseases coincidental to pregnancy, and pregnancy in patients with pre-existing liver disease. Some of these may lead to maternal and perinatal death. The present study was undertaken to evaluate the maternal and fetal outcomes in pregnant patients exhibiting liver disorders.

### MATERIALS AND METHODS

This was a three year study (two years retrospective and one year prospective). Out of all the patients who attended antenatal clinic, women with pre-existing liver disease or those suspected to have liver dysfunction on the basis of clinical and/or laboratory data were included. The protocol was made and approved by the ethics committee of the institute.

Thorough clinical assessment including detailed history and examination of these patients was done. Expert opinion was taken from the gastroenterologists. These patients were then investigated and treated as per etiology. They were followed further throughout pregnancy for occurrence of maternal complications including abortions, premature rupture of membranes, preterm labor, intrauterine death, postpartum hemorrhage and maternal morbidity and mortality. The fetal outcomes were assessed in terms of gestational age at delivery,

route of delivery, fetal heart rate abnormalities in labor like bradycardia (< 110 beats / min), variable decelerations or late decelerations, meconium staining of amniotic fluid, birth weight, Apgar scores at 1 and 5 minutes and neonatal morbidity and perinatal mortality. The results were tabulated and the data was analyzed according to protocol.

### RESULTS

During the study period, 102 pregnant women were diagnosed to have liver disease. Intra hepatic cholestasis of pregnancy was the most common cause of liver disease in pregnancy while hepatitis E and HELLP Syndrome were associated with high maternal and perinatal morbidity and mortality.

#### I. Cholestatic Jaundice

Most of the patients (92.5%) presented in third trimester; pruritus being the most common presenting complaint (85%). The most common maternal complication seen was preterm labor (22.5%). Meconium staining of liquor was common (22.5%) and fetal heart abnormalities were seen in 15%. Other complications seen were premature rupture of membranes in 10%, intra-uterine growth restriction in 5% and post-partum hemorrhage in 2.5% patients. 70% patients delivered at term. 22.5% underwent LSCS; most of them for obstetric indications. 31% of neonates did not have any complication. 52% had physiological jaundice. 82.5% were appropriate for gestational age. Apgar score of 7 or less was seen in 16.7% and 2.4%

neonates at 1 and 5 minutes respectively. Neonatal death was uncommon (7.1%).

## II. Viral Hepatitis

Most of these patients (57.8%) also presented in 3<sup>rd</sup> trimester. Hepatitis E virus was responsible for hepatitis in 86.9% patients, followed by Hepatitis B in 7.9%, hepatitis A in 5.3% patients and Hepatitis C in 2.6% patients. No adverse maternal or neonatal outcome was seen with Hepatitis A, B or C. However complications were common in patients with Hepatitis E and are shown in Figures 3, 4 and 5.

In the non-HEV group, 14 patients delivered at term out of which 9 (23.7%) had normal vaginal delivery, 3 patients (7.9%) had forceps delivery while 2 (5.3%) underwent LSCS. 17 patients delivered before term out of which 13 (34.2%) were preterm vaginal deliveries, 2 (5.3%) had forceps delivery and 2 (5.3%) had caesarean deliveries. The timing and mode of delivery in patients with Hepatitis E is shown in Table 2.

Majority (89.2%) of the neonates born to mother with viral hepatitis weighed appropriate for their gestational age. Apgar >7 at 5 minutes was seen in 85.7% neonates. Neonatal outcome is shown in Figure 5.

## III. HELLP Syndrome

HELLP Syndrome was diagnosed in 5 patients. All the patients presented in 3<sup>rd</sup> trimester. The main presenting symptoms (in the background of preeclampsia) were pedal edema in 60%, yellowing of eyes in 60%, nausea/vomiting in 20%, epigastric pain and bleeding manifestations in 20% each. The Lab parameters seen are shown in Table 3. There was no abortion, 40% had premature rupture of membranes and 40% had preterm labor. Intrauterine growth retardation was seen in 20%. There was 1 (20%) still birth. Meconium staining of liquor was seen in 40% patients. 20% had intra partum FHR abnormality. 80% patients delivered preterm and 20% had post partum hemorrhage. 40% of the patients had acute renal failure, 20% patients had disseminated intravascular coagulation and pulmonary edema each. 40% patients underwent cesarean section. There was 1 death. 50% of the neonates were AGA while 25% were SGA. Apgar > 5 at 5 minutes was seen in 50% of the neonates. Birth asphyxia was the most common complication seen in 75% neonates. Both physiological jaundice and neonatal hepatitis were seen in 25% each. There was no neonatal death.

**Table 1: Delivery characteristics in Obstetric Cholestasis**

Mode of Delivery	Term (%)	Preterm (%)
Normal vaginal	17 (42.5%)	10 (25%)
Forceps	3 (7.5%)	1 (2.5%)
Caesarean	8 (20%)	1 (2.5%)

**Table 2: Delivery characteristics in Hepatitis E**

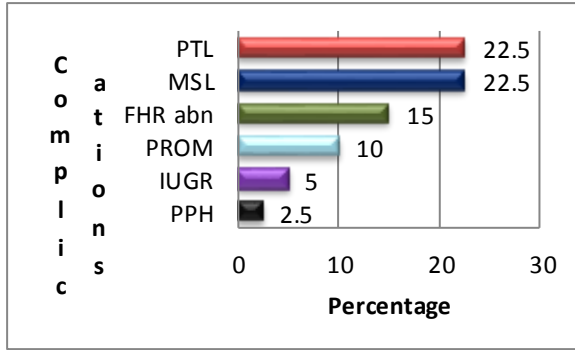
Mode of Delivery	Term (%)	Preterm (%)
Normal vaginal	9 (23.7%)	13 (34.2%)
Forceps	3 (7.9%)	2 (5.3%)
Caesarean	2 (5.3%)	2 (5.3%)

**Table 3: Laboratory Results in HELLP Syndrome**

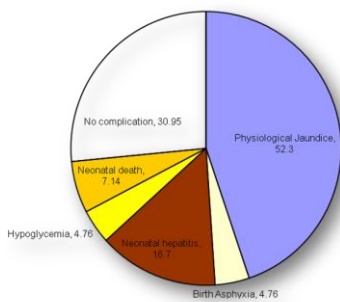
Lab Test	Range
Platelet Count	71,000-1,30,000
SGOT (IU/L)	98-537
LDH (IU/L)	640-950
Total Bilirubin (mg/dl)	1.6-17
Serum Creatinine (mg/dl)	0.4-3.2
Serum Uric Acid (mg/dl)	6.1-10.6

**Table 4: Comparison of Outcomes in Cholestasis, Hepatitis E and HELLP Syndrome**

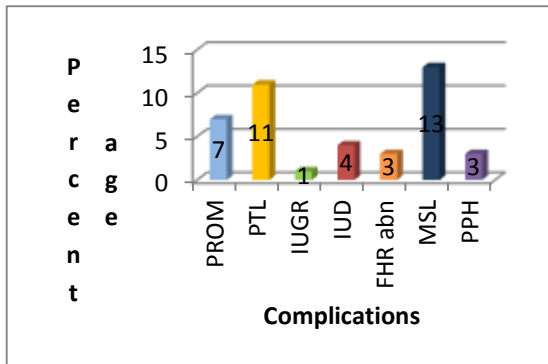
Associated Complications	Cholestatic Jaundice %	Viral Hepatitis E %	HELLP syndrome %
Abortion	0	10.5	0
PROM	10	18.42	40
Preterm labour	22.5	28.9	40
IUGR	5	2.6	20
Still Birth	0	10.5	20
Meconium Staining	22.5	34.2	40
Intra partum FHR abnormalities	15	7.9	20
PPH	2.5	7.9	20
DIC	0	7.9	20
ARF	0	10.5	40
FHF	0	13.1	
Encephalopathy	0	10.5	
Maternal deaths	0	10.5	20
Preterm Delivery	30	44.7	80
LSCS	22.5	10.6	40



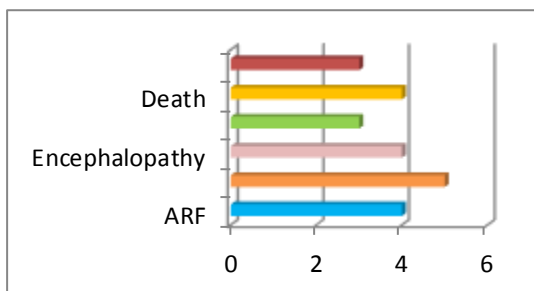
**Figure 1: Maternal complication in Obstetric cholestasis**



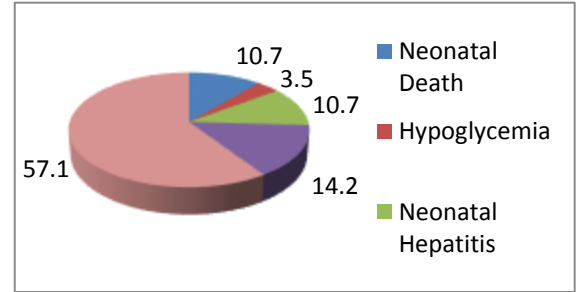
**Figure 2: Neonatal morbidity and mortality in Obstetric Cholestasis**



**Figure 3: Obstetric complications in patients with Hepatitis E**



**Figure 4: Maternal complications with Hepatitis E**



**Figure 5: Neonatal Outcome in Hepatitis E**

**IV Miscellaneous**

Liver functions were found to be deranged in 15 patients with sepsis. 40% of the patients in this group went into hepatic encephalopathy and 40% had fulminant hepatic failure. 13.3% had acute renal failure, 6.7% had acute respiratory distress syndrome and 40% of the patients died. Obstetric outcomes in these patients are not being mentioned because of the likely influence of the primary pathology on the pregnancy. Also included were four more patients, one each of hyperemesis gravidarum, enteric hepatitis, amoebic liver abscess and acute cholecystitis with pancreatitis. No adverse maternal or neonatal event was seen in either of them.

**DISCUSSION**

In the present study, liver disease was found in 102 of pregnant women attending our antenatal clinic. Out of a total of 102 pregnancies with liver disease, 46 (45%) had pregnancy specific liver disease and 38 (37.25%) had viral hepatitis. In 15 patients, no specific cause could be determined.

Cholestatic jaundice was found to be the most common cause (39.2 %) of liver dysfunction associated with pregnancy in our study. It presents with non specific symptoms like itching which may be ignored by the patients. Hence, a high index of suspicion is required for diagnosis. Maternal prognosis was excellent with symptoms and lab parameters improving rapidly postpartum, as has been reported (1). Though sudden onset fetal distress has been reported to be common in these patients [2, 3], no still birth was seen in our study. Hepatitis E was the most common cause of acute hepatitis in our study and was seen predominantly in the third trimester. It was commonly associated with fulminant hepatic failure (FHF) and high maternal and perinatal morbidity and mortality with 13.1 % patients developing FHF and 10.5 % maternal mortality. This is in accordance with previous reports from India [4, 5]. HELLP Syndrome was found to be responsible for the worst maternal and perinatal outcomes in our study. The rate of occurrence of complications like Acute Renal Failure, DIC was high being 40% and 20% respectively. Maternal mortality was also

highest (20%) compared to other liver disorders. Similar results have been reported in literature (6).

Disorders un-related to pregnancy like enteric hepatitis, Amebic liver abscess, acute cholecystitis and pancreatitis were also included in the study. No maternal or perinatal deaths were seen in this group. To conclude, this study shows that though liver disease is uncommon in our setting, it is associated with maternal and perinatal mortality even in a tertiary referral centre. Hence, early diagnosis, appropriate supportive management and a proactive policy of early delivery is required to improve maternal & perinatal outcomes in pregnant women with liver disease.

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