**ORIGINAL RESEARCH**

# Retrospective Analysis of Effect of Maternal Liver Disorder on Foetal Outcome: An Institutional Based Study

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## ABSTRACT

**Background:**The present study was conducted for evaluating the effect of maternal liver disorder on foetal outcome.
**Materials &Methods:**A total of 100 patients were evaluated. Retrospective assessment of data records was done. Complete demographic details of all the patients were obtained. Only those patients were assessed which were pregnant women and had some form of liver disease. Women with pre-existing liver disease or those suspected to have liver dysfunction on the basis of clinical or investigative data were included. Data of patients was followed up till two weeks postpartum or death. Fetal outcome was evaluated. All the results were evaluated by SPSS software.
**Results:**While analysing the maternal complications, it was seen that Abruptio placentae was present in 4 percent of the patients while postpartum haemorrhage was seen in 3 percent of the patients. Sepsis was seen in 1 patient while post-partum death was present in 2 patients.Term IUGR was seen in 25 percent of the patients while IUD (intrauterine death) was seen in 4 percent of the patients.
**Conclusion:**Maternal liver diseases are accompanied by significant proportion of both maternal and foetal morbidity and mortality.
**Key words:** Maternal, Liver, Foetal.



## INTRODUCTION

Managing liver disease during pregnancy is quite challenging and requires a multispecialty approach. Physiological and anatomical changes during pregnancy, the complex interaction between the mother and the fetus, and the rarity of liver disease in pregnancy itself are some of the many challenges that a hepatologist faces while managing liver disease during pregnancy.[1,] [2]Liver disorders unique to pregnancy include maternal liver disease associated with hyperemesis gravidarum (HG) in the first trimester, preeclamptic liver disease and HELLP syndrome in the second and third trimesters, acute fatty liver in pregnancy in the third trimester, and intrahepatic cholestasis of pregnancy in the third trimester.[3,] [4] Biochemical and hematological tests during normal pregnancy show decreased albumin in all trimesters due to hemodilution, and the decline in albumin levels becomes more pronounced as pregnancy advances. Alkaline phosphatase (ALP) is increased in the third trimester, but it is of placental origin due to fetal bone development.[5] Pregnancy is a pro-coagulant state in which clotting factors (I, II, V, VII, X, and XII) and fibrinogen are increased, whereas the ranges for prothrombin time (PT) and activated partial thromboplastin (APT) time are within normal values. Therefore, elevations in transaminases, bilirubin, fasting total bile acids, or the PT above the normal range during pregnancy are abnormal and indicate a pathological state that requires prompt evaluation.[6, 7]Hence; the present study was conducted for evaluating the effect of maternal liver disorder on foetal outcome.

## MATERIALS & METHODS

The present study was conducted for evaluating the effect of maternal liver disorder on foetal outcome. A total of 100 patients were evaluated. Retrospective assessment of data records was done. Complete demographic details of all the patients were obtained.

Only those patients were assessed which were pregnant women and had some form of liver disease. Women with pre-existing liver disease or those suspected to have liver dysfunction on the basis of clinical or investigative data were included. Thorough clinical evaluation was done of the data records. This was followed by assessment of reports of liver functional tests. Hepatic sonography was also evaluated. Patients with acute hepatitis were observed for complications. Patients with intrahepatic cholestasis of pregnancy received ursodeoxycholic acid. Patients with serious disease were managed in the intensive care unit. Patientsrecords were followed up till two weeks postpartum or death. Fetal outcome was evaluated. All the results were evaluated by SPSS software.

## RESULTS

39 percent of the subjects belonged to the age group of 22 to 28 years while 33 percent belonged to the age group of more than 28 years. Majority of the patients (71 percent) had zero parity. While analysing the maternal complications, it was seen that Abruptio placentae was present in 4 percent of the patients while postpartum haemorrhage was seen in 3 percent of the patients. Sepsis was seen in 1 patient while post-partum death was present in 2 patients.Term IUGR was seen in 25 percent of the patients while IUD (intrauterine death) was seen in 4 percent of the patients.

**Table 1: Demographic data**

| Variable | | Number | Percentage |
|---|---|---|---|
| **Age group (years)** | **Less than 22** | 28 | 28 |
| | **22 to 28** | 39 | 39 |
| | **More than 28** | 33 | 33 |
| **Parity** | **Zero** | 71 | 71 |
| | **One** | 18 | 18 |
| | **More than one** | 11 | 11 |

**Table 2: Maternal complications**

| Maternal complications | Number | Percentage |
|---|---|---|
| **Post-partum death** | 2 | 2 |
| **Multiorgan failure** | 2 | 2 |
| **Sepsis** | 1 | 1 |
| **Postpartum haemorrhage** | 3 | 3 |
| **Abruptio placentae** | 4 | 4 |
| **Total** | 12 | 12 |

**Table 3: Fetal outcome**

| Fetal outcome | Number | Percentage |
|---|---|---|
| **Pre-term** | 6 | 6 |
| **Term (healthy-normal)** | 65 | 65 |
| **Term IUGR** | 25 | 25 |
| **IUD** | 4 | 4 |
| **Total** | 100 | 100 |

## DISCUSSION

Pregnancy directly affects the physiology of the liver and hepatic disorders can adversely affect pregnancy outcomes. In developed countries, approximately 3% of pregnant women are affected by some form of liver disease during their pregnancy. Some of these conditions can be fatal for both the mother and fetus. It is, therefore, important to determine the underlying cause of abnormal liver function, enabling prompt management to reduce morbidity and mortality.[8,9]Although pathogeneses behind the development of these aliments are not fully understood, theories have been proposed. Some propose the special physiological changes that accompany pregnancy as a precipitant. Others suggest a constellation of factors including both the mother and her fetus that come together to trigger those unique conditions. Reaching a timely and accurate diagnosis of such conditions can be challenging. The timing of the condition in relation toward which trimester it starts at is a key. Accurate diagnosis can be made using specific clinical findings and blood tests.[8,9]Hence; the present study was conducted for evaluating the effect of maternal liver disorder on foetal outcome.39 percent of the subjects belonged to the age group of 22 to 28 years while 33 percent belonged to the age group of more than 28 years. Majority of the patients (71 percent) had zero parity. While analysing the maternal complications, it was seen that Abruptio placentae was present in 4 percent of the patients. Rathi U et al determined the frequency, causes and outcome of liver disease in pregnant women.Liver disease was found in 107 (0.9%) of 12,061 pregnancies. Of these, fifty six

(52.3%) had pregnancy-specific liver disorders. Liver disorders not specific to pregnancy included hepatitis E (16), hepatitis B, non A-E hepatitis and chronic liver disease (5 each) and others (14); in 6 patients no cause could be found. Ninety-six patients completed follow up. Overall maternal and perinatal mortality rates were 19.7% and 35.4%, respectively.PIH-associated liver dysfunction was the most common cause of liver disease in pregnancy.[10]In the present study, postpartum haemorrhage was seen in 3 percent of the patients. Sepsis was seen in 1 patient while post-partum death was present in 2 patients.Term IUGR was seen in 25 percent of the patients while IUD (intrauterine death) was seen in 4 percent of the patients. Xiang Gao et al described the characteristics and outcomes in pregnant women with liver cirrhosis, and identify the predictors of adverse events of mother and fetus.Compared to control, patients with liver cirrhosis had a higher frequency of adverse events, including bleeding gums (7.2%vs. 1.0%), TBA elevation (18.6%vs.3.1%), infection (10.3%vs.0.5%), cesarean section (73.6%vs.49.5%), postpartum hemorrhage (13.8% vs 2.1%), blood transfusion (28.9% vs 2.1%), new ascites or aggravating ascites, MODS and intensive care unit admissions. A higher frequency of fetal/infants' complications was observed in liver cirrhosis population than control, including newborn asphyxia, low birth weight infant. In patients who progressed into the third trimester, multivariable regression analysis demonstrated that severe adverse events were associated with a higher CTP score. Wilson's disease related liver cirrhosis has a better prognosis. The incidence of the adverse events was significantly increased in pregnancies complicated by cirrhosis.[11]Tripathi R et al assessed the spectrum of liver disease in pregnancy, and its course and effect on maternal and fetal outcomes. The following results were obtained: pregnancy-induced hypertension (PIH) was the most common cause of abnormal LFT (46.66%), about 57.5% patients delivered at term, 63.3% patients delivered vaginally, mostly cases delivered a term healthy neonate between 2.5-3.0 kg weight with Apgar score >7 at 5 minutes after birth and maternal complications were seen in 10.82% cases. Their study showed that though liver disease is uncommon in Indian pregnant women, but it is associated with high maternal and perinatal morbidity.[12]

## CONCLUSION

Maternal liver diseases are accompanied by significant proportion of both maternal and foetal morbidity and mortality.

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