Section Obstetrics and Gynecology

Original Research Article

STUDY OF ANALYSIS OF EFFECTS OF MATERNAL LIVER DISORDER ON FETAL OUTCOME AT A TERTIARY CARE CENTRE

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Abstract

Background: Liver disease is a serious complication of pregnancy and poses a challenge for the gynecologist and hepatologist. It occurs in approximately 3% of all pregnancies, and may lead to various maternal and perinatal morbidities, some of them with fatal consequences for both mother and child. The study was conducted to assess the effect of maternal liver disease on fetal outcome. **Materials & Methods:** The present prospective study was conducted to assess the effect of maternal liver disorder on fetal outcome. Thorough clinical assessment including detailed history and examination of these patients was done. The fetal outcomes were assessed. The data was collected from the medical record and statistical analysis was done using statistical software SPSS version 22. **Results:** The 1000 pregnancies were evaluated out of which 200 pregnant women had liver diseases. The prevalence was found to be 20%. Hypertensive disorders of pregnancy were the most common liver disease 142 (62%), followed by cholestasis 34 (17%). Prematurity was found in 28.5% newborn. Still birth was 14.5%. Early neonatal death occurs in 11% and 21% newborns required NICU admission. **Conclusion:** The study concluded that the prevalence of liver disease was found to be 20%. Hypertensive disorders of pregnancy were the most common liver disease. Maximum newborns were premature.

INTRODUCTION

Liver as a vital organ plays important role for various metabolic changes during pregnancy. Pregnancy causes very few alterations in the results of standard liver tests. Findings such as elevated serum alkaline phosphatase levels, palmar erythema, and spider angiomas, which might suggest liver disease, are commonly found during normal pregnancy.[1] Pregnancy is a condition of metabolic and anatomic stress which alters mother physiology considerably. There are physiological and biochemical changes in liver functions which are needed to support the growing fetus. Any abnormal change needs to be differentiated from physiological change as liver dysfunction has adverse implications on the mother and fetus.[2] Liver involvement in pregnancy can be of 3 types i.e. liver disease as a consequence to pregnancy, liver disease coincidental to pregnancy and pregnancy in patients with pre-existing liver disease.3 Nearly 3% of pregnancies are complicated by some form of liver disease, and severe pregnancy-related liver diseases can have fatal consequences for both mother and child.[4] Liver diseases which can be due to pregnancy as a consequence of changes in pregnancy include intrahepatic cholestasis of pregnancy (ICP), acute fatty liver of pregnancy (AFLP) and hemolysis, elevated liver enzymes and low platelets count (HELLP) syndrome. Apart from these, liver abnormalities are often encountered in patients with pre-eclampsia (PE) and hyperemesis gravidarum (HG). Coincidental or preexisting liver disease include acute and chronic viral hepatitis, cirrhosis of liver, vascular alterations such as Budd–Chiari syndrome (BCS), drug induced hepatotoxicity, autoimmune liver diseases, and metabolic disorders.[5] These liver disorders in pregnancy may adversely affect maternal and fetal outcome. The study was conducted to assess the effect of maternal liver disease on fetal outcome.

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MATERIALS AND METHODS

The present prospective study was conducted to assess the effect of maternal liver disorder on fetal outcome. Before the commencement of the study ethical clearance was taken from the ethical committee of the institute. 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. Thorough clinical assessment including detailed history and examination of these patients was done. These patients were then investigated and treated as per etiology. They were followed further throughout pregnancy. The fetal outcomes were assessed. The data was collected from the medical record and statistical analysis was done using statistical software SPSS version 22. P-value less than 0.05 was considered statically significant.

RESULTS

The 1000 pregnancies were evaluated out of which 200 pregnant women had liver diseases. The prevalence was found to be 20%. Hypertensive disorders of pregnancy were the most common liver disease 142 (62%), followed by cholestasis 34 (17%). Prematurity was found in 28.5% newborn. Still birth was 14.5%. Early neonatal death occurs in 11% and 21% newborns required NICU admission.

Table 1: Spectrum of liver disease based on aetiology

Etiology of liver disease	n(%)
Hypertensive disorders of pregnancy	124(62%)
cholestasis	34(17%)
Hyperemesis gravidarum	5(2.5%)
Acute fatty liver of pregnancy	2(1%)
acute viral hepatitis	10(5%)
chronic liver disease	11(5.5%)
Others	4(2%)

Table 2: Fetal outcome in liver disease

Fetal outcome	n(%)
Prematurity	57(28.5%)
Still birth	29(14.5%)
Early neonatal death	22(11%)
Requirement of NICU admission	42(21%)
Mortality	50(25%)

DISCUSSION

The overall mortality attributed to liver disorders in pregnancy has dramatically decreased in the past few years because of better understanding of the physiologic changes that occur during pregnancy, early recognition of clinical and laboratory abnormalities that help in identifying the aetiology and its effective management in a timely manner. The incidence of liver disorder in pregnancy was reported in other prospective studies.[3,6-8]

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Rathi U et al (2007) found that liver disease was found in 107 (0.9%) of 12,061 pregnancies. Of these, fifty-six (52.3%) had pregnancy-specific liver disorders (pregnancy-induced hypertension [PIH]-associated liver dysfunction 36--including HELLP syndrome 22 and pre-eclamptic liver dysfunction 14; intrahepatic cholestasis of pregnancy 10; hyperemesis gravidarum 7; acute fatty liver of pregnancy 3). 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.[3]

Gao, X., et al (2021) in the study found that of 126 pregnancies enrolled, 29 pregnancies were terminated for worrying disease progression and 97 pregnancies continued. One hundred ninety-four pregnancies without liver cirrhosis were selected as control. At baseline, patients with liver cirrhosis have a lower level of platelet, hemoglobin, prothrombin activity, and a higher level of ALT, total Bilirubin, creatinine. 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%), caesarean 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 (6.2% vs. 0%), MODS (7.2% vs. 0.5%) and intensive care unit admissions (24.1% vs 1.1%). The incidence of severe maternal adverse events was also higher (32.0% vs 1.5%). Women who chose to terminated the pregnancy had less severe adverse events (3.4% vs. 32.0%). A higher frequency of fetal/infants' complications was observed in liver cirrhosis population than control, including newborn asphyxia (10.2% vs1.1%), low birth weight infant

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(13.6% vs. 2.6%). In patients who progressed into the third trimester, multivariable regression analysis demonstrated that severe adverse events were associated with a higher CTP score (OR 2.128, 95% CI [1.002, 4.521], p = 0.049). Wilson's disease related liver cirrhosis has a better prognosis (OR = 0.009, 95% CI [0, 0.763], p = 0.038).[9]

Sircar R et al (2015) determine the frequency, causes and outcome of liver disease in pregnant women. Setting: Tertiary care teaching hospital. 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.[10]

CONCLUSION

The study concluded that the prevalence of liver disease was found to be 20%. Hypertensive disorders of pregnancy were the most common liver disease. Maximum newborns were premature.

REFERENCES

1. Tiwari A, Aditya V, Srivastava R, Gupta G. A study of spectrum and outcome of liver diseases in pregnant women at BRD medical college. Int J Reprod Contracept Obstet Gynecol 2017;6:3641-5.
2. Suresha, Vijaykumar TR, Nandeesh HP. Predictors of fetal and maternal outcome in the crucible of hepatic dysfunction during pregnancy. Gastroenterol Res. 2017;10(1):21–7
3. Rathi U, Bapat M, Rathi P, Abraham P. Effect of liver disease on maternal and fetal outcome-a prospective study. Ind J Gastroenterol. 2007;26(2):59.
4. Mikolasevic I, Filipec-Kanizaj T, Jakopcic I, Majurec I, Brncic-Fischer A, Sobocan N, Hrstic I, Stimac T, Stimac D, Milic S. Liver Disease During Pregnancy: A Challenging Clinical Issue. Med Sci Monit. 2018 Jun 15;24:4080-4090. doi: 10.12659/MSM.907723. PMID: 29905165; PMCID: PMC6034557.
5. García-Romero CS, Guzman C, Cervantes A, Cerbón M. Liver disease in pregnancy: Medical aspects and their implications for mother and child. Ann Hepatol. 2019;18(4):553-62
6. Ch'ng CL, Morgan M, Hainsworth I, Kingham JG. Prospective study of liver dysfunction in pregnancy in Southwest Wales. Gut. 2002;51:876-80.
7. Sharma S, Aherwar R, Jawade S. Maternal and fetal outcome in jaundice complicating pregnancy: a prospective study. Internat J Reproduct Contracept Obstetr Gynecol. 2016;5(4):1084-7.
8. Dsouza AS, Gupta G, Sandeep SG, Katumalla FS, Goyal S. Maternal and fetal outcome in liver diseases of pregnancy-A tertiary hospital experience. Internat J Scient Res Publicat. 2015;21(25):27.
9. Gao, X., Zhu, Y., Liu, H. et al. Maternal and fetal outcomes of patients with liver cirrhosis: a case-control study. BMC Pregnancy Childbirth 21, 280 (2021). https://doi.org/10.1186/s12884-021-03756-y
10. Sircar R, Pawar G. Effect of liver disease on maternal and fetal outcome–experience in a tertiary hospital. Indian Journal of Obstetrics and Gynecology Research. 2015 Apr;2(2):65-8

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