Journal of Advanced Research in Medicine
Volume 5, Issue 3 - 2018, Pg. No. 15-18
Peer Reviewed & Open Access Journal

Research Article

Maternal and Fetal Outcome in Deranged Liver Function Test and Jaundice Complicating Pregnancy: A Prospective Study

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DOI: https://doi.org/10.24321/2349.7181.201814

Abstract

Background: The objective of the study was to study maternal and fetal outcome in pregnancy complicated with deranged liver function test and jaundice.

Methods: Total 150 antenatal patients with clinical or laboratory evidence of abnormal liver function test and jaundice were selected for study done for a period of one-and-half year at a tertiary care hospital in north India.

Results: All cases were in their third trimester of pregnancy out of which 93.3% were unbooked cases. Most of the patients presented with pregnancy induced hypertension, fever and jaundice at time of admission. Other presenting complaints were nausea, vomiting, pedal edema, abdominal pain and including 3 cases of altered sensorium. Acute viral hepatitis was most important cause of jaundice in this study followed by preeclampsia and ICP were other causes of jaundice in this study. Hepatitis B was the most common cause of acute hepatitis (26.7%) followed by hepatitis C (6.7%). Maternal mortality was seen in 4 cases (3 cases of Eclampsia & HELLP syndrome and one case of multi-organ failure). 138 patients were kept in ICU for intensive monitoring. Preterm delivery was most common maternal complication. Of all the deliveries, 26.7% were preterm, 31(21%) were IUFD, 57(38%) had fetal distress with meconium stained liquor, 27 (18%) had PROM, 50 (33%) had fetal growth restriction.

Conclusions: Deranged liver function and jaundice in pregnancy results in a very high perinatal as well as maternal morbidity and mortality, and requires an early diagnosis and intensive care management.

Keywords: Abnormal Liver Function Test, Jaundice in Pregnancy, Viral Hepatitis

Introduction

Liver dysfunction during pregnancy is multifactorial in origin and diagnosis is often challenging. The key to maternal and fetal wellbeing is an early diagnosis and appropriate management.

Hepatic disorders complicate about 3% of all pregnancies and fall under various categories.[1] Firstly a heterogeneous group of liver disorders that are unique to pregnancy and occur in patients with a previously healthy liver. These include intrahepatic cholestasis of pregnancy, acute fatty liver of pregnancy and liver dysfunction associated

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How to cite this article: Shakarwal S, Mehrotra R, Goyal R et al. Maternal and Fetal Outcome in Deranged Liver Function Test and Jaundice Complicating Pregnancy: A Prospective Study. *J Adv Res Med* 2018; 5(3): 15-18.

with hyperemesis gravidarum and preeclampsia. These conditions remit spontaneously in puerperium.

Secondly, pregnancy may occur in background of a pre-existing liver disease e.g. chronic viral hepatitis and cirrhosis liver. Third category is of common viral diseases like acute viral hepatitis which may occur incidentally during pregnancy. The fourth situation is that of disorders which are probably related to pregnancy e.g. biliary tract disease and Budd-Chiari Syndrome.

Although still enigmatic, there have been recent interesting advances in understanding of these unique pregnancy-related liver diseases. Hyperemesis gravidarum is an intractable, dehydrating vomiting in the first trimester of pregnancy; 50% of patients with this condition have liver dysfunction. Intrahepatic cholestasis of pregnancy has pruritus and elevated bile acids in the second half of pregnancy, accompanied by high levels of aminotransferases and mild jaundice. Maternal management is symptomatic with ursodeoxycholic acid; for the fetus, however, this is a high-risk pregnancy requiring close fetal monitoring and early delivery.

Severe preeclampsia itself is the commonest cause of hepatic tenderness and liver dysfunction in pregnancy and 2-12% of cases are further complicated by hemolysis (H), elevated liver tests (EL), and low platelet count (LP)-the HELLP syndrome. Immediate delivery is the only definitive therapy, but many maternal complications can occur, including abruptio placentae, renal failure, subcapsular hematomas, and hepatic rupture. Acute fatty liver of pregnancy is a sudden catastrophic illness occurring almost exclusively in the third trimester; microvesicular fatty infiltration of hepatocytes causes acute liver failure with coagulopathy and encephalopathy. Early diagnosis and immediate delivery are essential for maternal and fetal survival.

Pregnancy causes very few alterations in the results of standard liver tests. The aminotransferases (AST and ALT), γ-glutamyltranspeptidase (GGTP), total bilirubin, and serum bile acid level remain within the normal range. Alkaline phosphatase rises modestly in the third trimester. The albumin level is lower than in nonpregnant women, while the cholesterol levels are higher.[1, 2] Thus, elevations in aminotransferases or GGTP signify pathology, and should prompt a search for disease.

Making the correct diagnosis is of paramount importance, as failure to do so can result in morbidity or mortality for not only the mother, but also for her fetus. This study has been carried out to evaluate causes and maternal-fetal outcome in pregnancies complicated with jaundice.

Methods

This was a prospective study conducted in department of obstetrics and gynaecology in a tertiary care referral hospital; Motilal Nehru Medical College & Swaroop Rani Nehru Hospital, Allahabad during one-and-half year period from July 2007 to December 2008. Evidence of deranged liver function and icterus were taken for study.

A detailed history was taken and general, systemic and obstetric examinations were carried out. Liver function tests including serum bilirubin, SGOT, SGPT, alkaline phosphatase, hepatitis viral markers, prothrombin time (PT), partial thromboplastin time (PTT), bleeding time (BT), clotting time (CT) and platelet count were done. The maternal outcome was noted in terms of complications during pregnancy, maternal and maternal end result. Fetal outcome was assessed by perinatal morbidity and mortality, neonatal intensive care need.

The results were tabulated and data analysed as frequencies and percentages. All cases were in third trimester of pregnancy, 93.3% were unbooked.

Results

Table 1 shows that all patients presented with deranged liver function test at the time of admission. Pallor was the most common presenting symptom present in 76% of patients. Other presenting complaints were high BP, abdominal pain, jaundice, nausea, vomiting, fever and altered sensorium.

Table 1.Clinical presentations at time of admission

Sign and symptoms	No. of cases	Percentages (%)
Pallor	114	76
Icterus	57	38.2
Edema	50	33.3
Preeclampsia	50	33.3
Pruritus	10	6.6
Eclampsia	6	4

Table 2 shows preeclampsia was most important cause of liver dysfunction in this study found in 42.7% of cases. Viral hepatitis and ICP were other causes of jaundice in this study. Hepatitis B was the most common cause of acute hepatitis (29.3%) and incidence of hepatitis C was 4% in our study.

ISSN: 2349-7181
DOI: https://doi.org/10.24321/2349.7181.201814

Table 2.Aetiology of liver dysfunction in pregnancy

Causes of liver dysfunction in pregnancy	No. of cases	Percentage (%)
Preeclampsia	64	42.7
HELLP	3	2
Hepatitis B	44	29.3
Hepatitis c	6	4
IHCP	7	4.6
Eclampsia	6	4

Table 3 shows that most patients were kept in ICU for intensive monitoring. Preeclampsia (47.3%) and preterm delivery (32%) was most common maternal complication of all patients. 60% of patient received blood and component therapy and 13.3% developed multiorgan failure. There were 4 maternal deaths in our study.

Table 4 shows that out of 150 patients, 60 had spontaneous onset of labour, 48 were preterm, 31 (21%) were IUFD, 57 (38%) had fetal distress with meconium stained liquor, 27 (18%) had PROM, 50 (33%) had fetal growth restriction and rest delivered uneventfully.

Table 3.Maternal Complications

Maternal complication	No. of cases	Percentage
Preeclampsia	71	47.3
Preterm delivery	48	32
DIC	40	26.7
PPH	34	22.6
ICU admission	138	92
Multiorgan failure	14	9.3
Maternal mortality	4	2.6

Table 4.Fetal Complications

Fetal complications	No. of cases	Percentage
Preterm delivery	48	32
IUFD	31	21
Meconium stained liquor	57	38
PROM	27	18
FGR	50	33

Discussion

Liver disease in pregnancy can manifest as a benign disease with abnormal elevation of liver enzyme levels and a good outcome, or it can manifest as a serious entity affecting hepatobiliary function and resulting in liver failure and death to the mother and her fetus. There are no clinical markers that predict the course of a pregnancy and the pathophysiologic mechanisms are not always understood. The overall mortality attributed to liver disorders in pregnancy has dramatically decreased in the past few years because of clinicians understanding of the physiologic changes that occur during pregnancy, their vigilance in recognizing clinical and laboratory abnormalities, identifying the aetiology and its effective management in a timely manner. A coordinated team approach that involves the primary care physician, obstetrician, hepatologist and neonatologist, is often required to promote good maternal and fetal outcomes.

This study was done in department of Obstetrics and Gynaecology in Motilal Nehru Medical College. During this period total 150 pregnant patients with high BP records in third trimester of pregnancy were admitted with clinical/ laboratory evidence of deranged liver function test and icterus were included for study.

The incidence of liver disorders in pregnancy varies in different parts of the world.[3] Liver disease in pregnancy can present with subtle changes in liver biochemical profile or with fulminant hepatic failure (FHF). The overall incidence of liver disorder in hypertensive pregnancy in our institution was 30%.

Jaundice as a result of Viral Hepatitis was most important cause in our study; was found in 33.3% of cases. Preeclampsia 47.3% and ICP 4.6% were other causes found. Cholestatic jaundice was found to be the most common cause (54.9%) of liver dysfunction associated with pregnancy in Dsouza et al study.[4]

Most patients presented with high BP records (equal to or more than 140/90) at time of admission. Pallor was most common presenting symptom present in 76% of patients. Other presenting complaints were nausea, fever, abdominal pain and vomiting. Incidence of Pallor is consistent with studies of Dsouza et al they found it in 76.5% of cases.

Hepatitis B was the most common cause of acute hepatitis (29.3%) and incidence of hepatitis C was 6.7% in our study; maternal mortality was found in 4 cases including AFLP and HELLP syndrome complicated with hepatic encephalopathy

ISSN: 2349-7181
DOI: https://doi.org/10.24321/2349.7181.201814

and coagulopathy. Hepatitis E was the most common cause of acute hepatitis in Dsouza et al study. It was commonly associated with FHF and high maternal and perinatal morbidity and mortality with 2% patients developing FHF in Kumar A, Beniwal et al study and 16.66% maternal mortality in study of Reddy et al.[5,6]

One hundred and thirty eight patients were kept in ICU for intensive monitoring. Preterm labour was most common maternal complication in 32%, 22.6% cases of PPH for which uterine balloon tamponade was done and blood products (FFP) were given. There were 4 maternal deaths in our study. Nearly 2% of the patients required ICU admission in Dsouza et al study study. Intensive care is a necessity in these cases and various studies had ICU admissions ranging from 4.3% to 62.6% in Pollock et al study.[7]

Of 150 patients, 40 (26.6%) had spontaneous onset of labour, 48 (32%) were preterm delivery, 31 (21%) were IUFD, 57 (38%) had fetal distress with meconium stained liquor, 27 (18%) had PROM, 50 (33%) had fetal growth restriction. In Dsouza et al study, 94.2% were live births and 5.7% fresh still birth and incidence of prematurity was 13.7 %.

Our study reemphasizes on the fact that there is increased maternal and fetal morbidity and mortality in pregnancy complicated with liver dysfunction and hence, requires early interventions as timely inductions, PPH prophylaxis assuring availability of adequate blood products for overcoming associated coagulopathy and intensive monitoring of both mother and fetus which requires team work of obstetrician, neonatologist, intensivist, hepatologist and haematologist.

Conflicts of Interest: None

Ethical Approval: The study was approved by the institutional ethical committee.

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Date of Submission: 2018-05-18
Date of Acceptance: 2018-06-18