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Original Research Article

Study of abnormal liver function tests in pregnancy in a tertiary centre in North Kerala

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ABSTRACT

Background: Abnormal liver function tests in pregnancy require proper evaluation and diagnosis. The underlying disorder can have a significant effect on the outcome of both mother and fetus. The present study was done with the objective to study the clinical profile, incidence and possible causes of derangements of liver function tests.
Methods: The pregnant women with abnormal liver function were studied prospectively. All the liver function tests values were studied along with other required tests to identify the cause. The fetal and maternal outcome were also noted.
Results: The incidence of abnormal liver function tests was 6.7%. Among these 96% were due to pregnancy specific liver dysfunction mainly due to hypertensive disorders. The mean value of bilirubin was more in infective hepatitis. There were 4 cases of intra uterine deaths and no maternal death.
Conclusions: Pregnancy specific disorders are the major cause of abnormal liver function tests in pregnancy especially in the third trimester.

Keywords: Hypertensive disorders, Hepatitis, Intrauterine deaths, Liver dysfunction, Maternal deaths

INTRODUCTION

Abnormal liver function tests in pregnancy require proper interpretation in order to avoid pitfalls in diagnosis. The liver diseases in pregnancy can have significant effect on the maternal and fetal outcome.[1] The abnormal liver function tests may be found in an asymptomatic pregnant woman, and on other hand, a fulminant form may present with life threatening complications.

The physiological changes in a pregnant woman can confuse the clinician by nonspecific symptoms such as nausea, vomiting and abdominal pain. Alterations of laboratory test results representing the physiological changes of pregnancy include a threefold to fourfold increase in the level of alkaline phosphatase and also an increase in the synthesis of clotting factors, whereas decrease in the levels of anti-thrombin lll and protein S, serum albumin and total proteins.

The abnormal liver function tests may be related to pregnancy or may co-exist with pregnancy. It may be divided into three major groups.[2] The liver disorders specific to pregnancy include hyperemesis gravidarum, pre-eclampsia, HELLP syndrome, acute fatty liver of pregnancy and intra hepatic cholestasis of pregnancy. These are mostly trimester specific. The second group include intercurrent liver disease occurring in pregnancy such as viral hepatitis. Third group includes pregnancy with preexisting liver disease such as chronic active hepatitis, cirrhosis of liver, Budd Chiari syndrome etc. The present study was done to study the clinical profile,

causes of abnormal LFTs and its effect on maternal and fetal outcome.

METHODS

The study was conducted in the department of OBG, ACME, Pariyaram medical college at Kannur, Kerala over a period of one year. All pregnant women with abnormal LFTs were studied prospectively.

Inclusion criteria

Included all the pregnant women admitted in the study period in our obstetric unit of hospital with abnormal liver function tests.

Exclusion criteria

Included women with chronic liver disease and drug induced abnormal liver function tests were excluded.

After obtaining the demographic profile, the specific symptoms related to liver dysfunction such as persistent vomiting, pruritus, yellowish discoloration of urine, diminished urine output and epigastric pain were asked. History of blood transfusion and drug intake were also noted.

Detailed general and obstetric examination was carried out in all. Lab investigations like LFT, RFT, LDH, Complete blood count, urine analysis, RBS and peripheral smear were also done. In cases of abnormal liver parameters, viral markers of hepatitis also done. These women were properly diagnosed, managed and followed up till delivery and along with their neonates up to 7 days postpartum. The results were statistically analysed using median, mean and mode.

Diagnostic criteria for different underlying pathologies were based upon following parameters.[3]

Pre-eclampsia related liver dysfunction: BP > 140/90 mm Hg, Proteinuria, elevated transaminases and bilirubin.

HELLP Syndrome: Hemolysis (elevated LDH, fragmented RBCs in peripheral smear), Elevated liver enzymes, Low platelet count.

Intra hepatic cholestasis of pregnancy: Pruritus with elevated liver enzymes.

Acute fatty liver of pregnancy: Six or more of the following: vomiting, abdominal pain, encephalopathy, leucocytosis, elevated bilirubin, elevated transaminases, marked hypoglycemia, renal impairment, coagulopathy, elevated uric acid, ascites or bright liver on USG.

Viral hepatitis: Positive serlogy with elevated transaminases and bilirubin.

RESULTS

There were 128 cases with abnormal LFT amongst 1906 admissions giving incidence of 6.7% in our study. Majority of the women were young and aged less than 30 years. Most of them were referred cases from periphery, booked outside our hospital. Majority of the patients were in the age group 21-30 yrs and were primigravida. 93 % of the women presented in third trimester (>32 weeks) of pregnancy. The most common presenting symptoms were oedema, vomiting followed by yellow discolouration of urine (Table 1).

Table 1: Demographic profile.

Demographic features		Number	%
Age	<20	11	9
	21-30	97	76
	>30	20	15
Parity	Po	69	54
	P1	41	32
	P2	18	14
ANC care	Booked in	35	27
	Booked out	93	73
Trimester wise	1	2	1.5
	2	7	5.5
	3	119	93

In our study, majority of the cases were in third trimester 93%. Among these, 96% were due to pregnancy specific liver dysfunction, Pre-eclampsia being the most common followed by HELLP syndrome, AFLP, ICP and viral hepatitis (Table 2).

Table 2: Causes of abnormal LFT.

Diagnosis	Number	%
Pre-eclampsia	83	65
HELLP syndrome	15	12
AFLP	8	6
ICP	6	5
Viral hepatitis	5	4
Hyper emesis	3	1.5

Among the various abnormalities of LFT, the majority of woman had AST elevation of <100 IU/ L (62%). In 40% of cases ALT was elevated to 100-500 IU/L. Most of the cases serum bilirubin was between 1.5-2.5 mg% (60%). Only 6% had bilirubin elevated to >6mg% and AST/ALT>500 IU/L. LDH> 700 IU/L was seen in 65% of cases. In 10% cases, LDH was >1200IU/L. The mean value of bilirubin was elevated most in infective hepatitis, followed by AFLP, ICP and pre-eclampsia.

In viral hepatitis, labour was induced once jaundice was controlled towards term. All cases of viral hepatitis had a normal vaginal delivery. In other cases of AFLP, ICP and Pre-eclampsia, immediate termination of pregnancy was done. The obstetric outcome of patients with severe pre-

eclampsia, 71% delivered vaginally, with mother and baby in good condition in all these cases. Intra uterine death happened in 4 cases, 2 in AFLP and 2 in Pre-eclampsia with IUGR. Among the neonatal deaths, 3 were due to pre-maturity and 2 were due to sepsis (Table 3) DIC was seen in 5 cases and managed with blood and blood products.

Table 3: Fetal outcome.

Fetal outcome	Number	%
IUD	4	3
Live birth	110	92
Preterm	92	77
IUGR	26	22
Neonatal death	5	4

DISCUSSION

Liver diseases in pregnancy is a complicated situation for both mother and fetus. The incidence of abnormal LFT in pregnancy is higher in younger age group. In our study, majority of women were of low socio-economic status, booked outside and generally got admitted in the hospital only as emergency. Similar facts are observed in other Indian studies too.[4-6] Most common gestational period of abnormal liver function test was third trimester, and pregnancy related causes were the commonest cause, particularly the pre-eclampsia related disorder.

In most studies, the cause of abnormal LFT is reported to be pregnancy specific disorder and vary from 67 % to 80 %.[7-9] Our finding of 93 % is in agreement with others. Liver diseases had a very peculiar pattern of association with the gestational age and most cases in first trimester are of hyperemesis gravidarum.

In the second trimester it is often due to the causes that are co-incidental and are nonspecific to the pregnancy whereas the pregnancy specific causes such as ICP, AFLP or more commonly preeclampsia related disorder are the etiopathological factor in the III trimester.

In our study out of 128 women, the most common problem was found to be pre-eclampsia related 65%, followed by HELLP syndrome 12%, AFLP 6% and ICP 5%. Viral hepatitis contributed to 4% only.

AST and ALT are the most commonly used markers of hepatocyte injury.[10] ALT levels are elevated to several thousand units per liter in patients with viral hepatitis. LDH is less specific than ALT and AST. LDH is markedly elevated in HELLP syndrome indicating hemolysis.

In our study, the induction rate was high because of many cases with pre-eclampsia related obstetric conditions. HELLP syndrome and AFLP are associated with poor maternal and fetal prognosis and even high maternal mortality rate.[11,12] These patients are at high risk of complications such as liver rupture, DID, abruption placenta and acute renal failure.

CONCLUSION

Pre-eclampsia related obstetric conditions had poorer prognosis for fetus as well. In our study, intra uterine death occurred in 3 % of cases. SGA infants were also in increased numbers. This may be because majority of our cases had pre-eclampsia related obstetric conditions which itself may lead to these adverse outcomes and the women manifesting abnormal LFT represent more severe forms of the disease spectrum.

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