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Original Research Article.

The Effect of Raised Liver Enzyme in Pregnancy

Farhana Islam[1*], Rina Haider[2], Ruma Akhter[3], Syeda Farzana Yesmin[4], Md Munjur Hossain[5], Mahbubur Rahman[6]

[1]Assistant Professor, Department of Gynecology and Obstetrics, AkijAd-din Medical College and Hospital, Boikali, Dhaka Highway, Khulna, Bangladesh.
[2]Associate Consultant, Department of Gynecology and Obstetrics, Square Hospital, 18/F, Bir Uttam Qazi NuruzzamanSarak West, Panthapath, Dhaka, Bangladesh.
[3]Junior Consultant, Department of Gynae and Obstetrics UHS, Chatmohor, Pabna, Bangladesh.
[4]Assistant Professor, Department of Gynecology and Obstetrics, AkijAd-din Medical College and Hospital, Boikali,Dhaka Highway, Khulna, Bangladesh
[5]Assistant Professor, Department of Anasthesiology, AkijAd-din Medical College and Hospital, Boikali, Dhaka Highway, Khulna, Bangladesh
[6]Associate Professor, Gynae, Potuakhali Medical College, Patuakhali, Bangladesh.

ABSTRACT

Objective: The aim of this study is to detect the effect of raised liver enzyme in pregnancy.

Methods: A retrospective data analysis was performed on 100 patients with abnormal liver dysfunction admitted in the obstetric unit of hospital were studied prospectively and who were willing to participate and provide required information at Akij Ad-Din Medical College and Hospital, Khulna during the period 2017 to 2019.

Results: 72.5% were un-booked, of low parity and belonged to lower socio-economic status; 87.5 % of pregnant women presented in third trimester of pregnancy. The most common presenting complaint was oedema (25%) followed by yellow discoloration of urine and visual symptoms with headache. 16.75% women had liver disorder which were not specific to pregnancy and consisted of infective hepatitis, malaria and sickle cell disease, whereas 83.25 % women had pregnancy-specific liver dysfunction. 37% patients had abortion followed by 15% had hepatic abscess, 14% had acute renal failure.

Conclusion: From our study we can conclude that, Abnormal liver functioning enzyme is greatly affected in women during pregnancy. If a systematic approach is adopted, the cause is often apparent. Early and timely join care by the obstetric and medical team can bring the best results in this so far grim situation in the developing world.

Keywords: Raised Liver Enzyme, Specific Liver Dysfunction, Pregnancy.

***Correspondence to:**

Dr. Farhana Islam,
Assistant Professor,
Department of Gynecology and Obstetrics,
AkijAd-din Medical College and Hospital,
Boikali, Dhaka Highway, Khulna, Bangladesh.

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INTRODUCTION

The physiological changes in a pregnant woman can confuse the clinician by some 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 factor, whereas there is a decrease in the level of antithrombin III and protein S, serum albumin and total proteins. There are no significant changes in the level of liver transaminase enzyme, serum bilirubin level and prothombin time.[1-3] The pathological derangement in the liver functions may be related to pregnancy or may coexist with pregnancy and may be divided into three major groups. First group includes liver disorders that are specific to pregnancy such as hyperemesis gravidarum, pre-eclampsia, eclampsia, syndrome of haemolysis, elevated liver test and low platelets (HELLP), acute fatty liver of pregnancy and intrahepatic cholestasis of pregnancy.[3-5] These disorders are mostly trimester specific. Second group includes intercurrent liver disease occurring during pregnancy such as viral hepatitis and herpes simplex. Third group includes pregnancy with pre-existing liver disease such as chronic active hepatitis, Wilson's disease, cirrhosis of liver, portal hypertension, Budd-Chiary syndrome and hepatic tumour. The guidelines for pregnancy-related liver disorders are not very clear in India and abroad.[4]

In this study our main objective is to detect the effect of raised liver enzyme in pregnancy.

OBJECTIVE

General Objective

- To evaluate the effect raised of liver enzyme in pregnancy.

Specific Objectives

- To detect causes of abnormal LF
- To identify maternal outcome with abnormal LF enzyme.

METHODOLOGY

Type of Study: Retrospective study

Place of Study: Akij Ad-Din Medical College and Hospital, Khulna.

Study Period: 2017 to 2019

Study Population: 100 pregnant women with abnormal liver dysfunction admitted in the obstetric unit of hospital were studied prospectively and who were willing to participate and provide required information.

Sampling Technique: Purposive

Method: All pregnant women with abnormal liver dysfunction admitted in the obstetric unit of hospital were studied prospectively, and 100 such women were included in the study. Women with chronic liver disease and drug-induced abnormal liver function test were excluded.

After obtaining the demographic, menstrual and obstetric details, the specific symptoms related to liver dysfunction such as pruritus, persistent vomiting, yellowish discoloration of urine, blurring of vision, diminished urine output, upper abdominal discomfort and anorexia were asked.

A detailed history of any drug intake such as paracetamol, antitubercular drugs, oral contraceptive and history of sickling was noted. Specific history taken in view of abnormal liver function is history of blood transfusion, tattoos, alcohol consumption, and hyperlipidemia was noted.

A thorough general and obstetric examination was carried out in all. In all cases of severe gestational hypertension and pre-eclampsia, clinical signs and symptoms of ICP, infective hepatitis or other disorders, all available LFT including LDH were ordered.

Statistical Analysis

First data were edited to the validity and consistency of the data. After proper verification data were coded and entered into computer by using SPSS software programs. Descriptive analysis was done by percentage, mean and standard deviation. Association was observed by appropriate statistical test at 95% confidence interval eg. odds ratio, Chi-square, t-test.

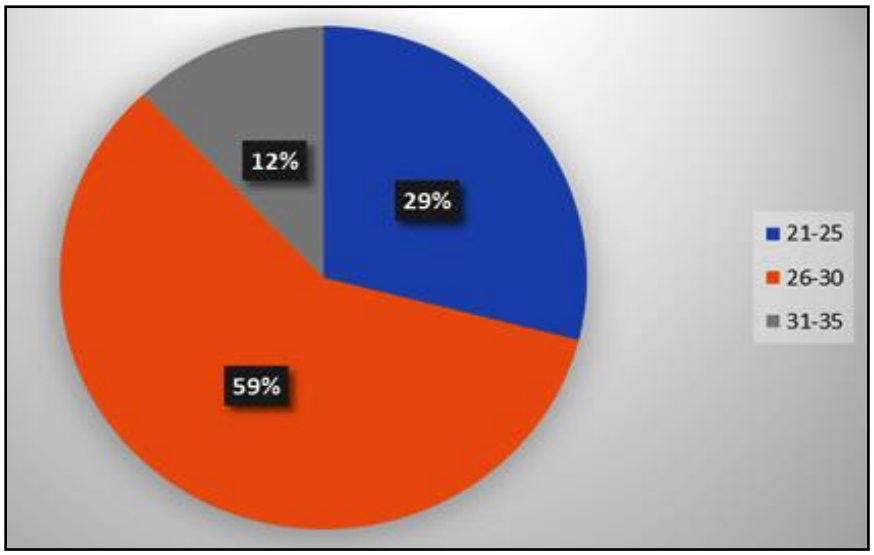

Figure 1: Age distribution of the patients

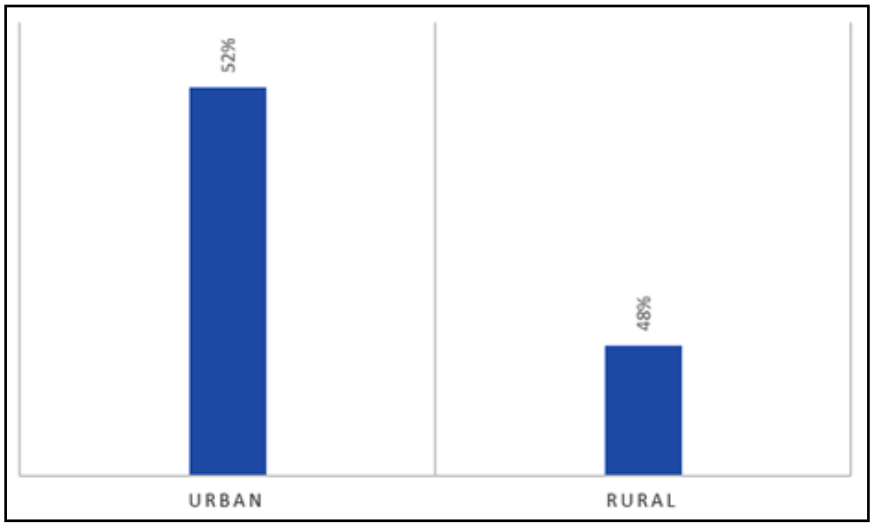

Figure 2: Distribution of the patients according to residential area.

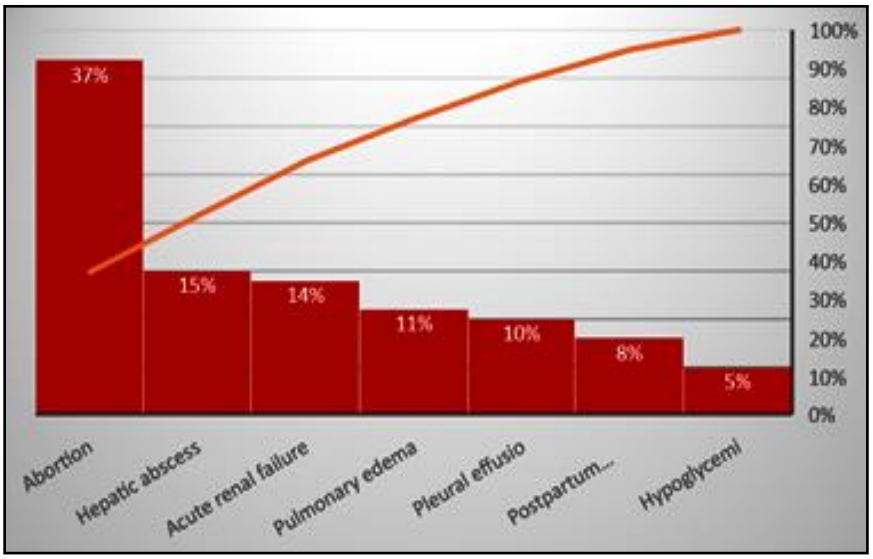

Figure 3: Distribution of cases according to maternal outcome.

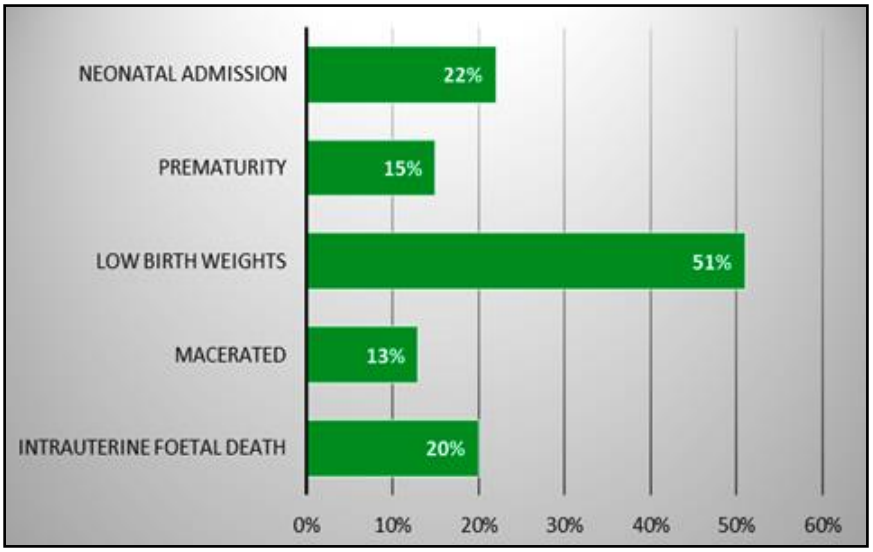

Figure 4: Fetal outcome

Table 1: Sociodemographic characteristics of the patients

Variable		%
Parity	**Po**	51.25%
	P1	31.25%
	P2 and above	17.5%
ANC care status	**Booked**	27.5%
	Un-booked	72.5%
Gestational age (Trimester)	**I**	2.5%
	II	10%
	III	87.%
Presenting complaints	**Fever**	02%
	Vomiting	05%
	Yellow urine	15%
	Epigastric pain	10%
	Headache	13%
	Oedema	25%
	Visual symptoms	12.5
	Miscellaneous	7.5

Table 2: Distribution of causes of abnormal LF

Variable		%
First trimester	**Hepatitis**	2.5%
Second trimester	**Pre-eclampsia**	3.75%
	Sickle cell disease	2.5%
	Hepatitis	3.75%
Third trimester	**Acute fatty liver of pregnancy**	1.25%
	HELLP syndrome	13.75%
	Hepatitis	6.25%
	Intrahepatic cholestasis of pregnancy	1.25%
	Pre-eclampsia	56.2%
	Eclampsia	7.5%
	Malaria	1.25%

Table 3: Distribution of women according to range of abnormal LF enzymes

Variable		%
Alkaline phosphatase (IU/L)	**42–141**	
	141–564	16.25
	564–1000	83.75
	>1000	
S.LDH (IU/L)	**<230**	2.5
	230–460	15
	461–600	16.25
	>600	66.25
AST (IU/L)	**<100**	45
	100–500	45
	500–1000	6.25
	>1000	3.75
ALT (IU/L)	**<100**	41.2
	100–500	47.5
	500–1000	7.5
	>1000	3.75
Total bilirubin (mg/dL)	**<1**	18.75
	1–2.5	47.5
	2.6–5	13.75
	5.1–10	10
	>10	10
Direct bilirubin (mg/dL)	**<0.3**	11.25
	0.3–1.5	50
	1.6–2.5	7.5
	2.6–5	11.25
	>5	20

RESULTS

In figure-1 shows distribution of patients in different age groups (n = 100) where highest percentage of age group was found in 26-30 years age group, 59%.

In table-1 shows sociodemographic characteristics of the patients where 72.5% were un-booked, of low parity and belonged to lower socio-economic status; 87.5 % of pregnant women presented in third trimester of pregnancy. The most common presenting complaint was oedema (25 %) followed by yellow discoloration of urine and visual symptoms with headache.

In figure-2 shows distribution of the patients according to residential area where 52% patients were from urban.

In table- 2 shows distribution of causes of abnormal LF. In our

study, 16.75 % women had liver disorder which were not specific to pregnancy and consisted of infective hepatitis, malaria and sickle cell disease, whereas 83.25 % women had pregnancy-specific liver dysfunction.

In table-3 shows Distribution of women according to range of abnormal LF enzymes where the majority (45 %) women had AST elevation of less than 100 IU/L and 47.5 % had ALT elevated in 100–500 IU/L range. The commonest value of bilirubin level was between 1 and 2.5 mg/dL found in 47.5 % case.

In figure-3 shows distribution of cases according to maternal outcome where 37% had abortion followed by 15% had hepatic abscess, 14% had acute renal failure.

In figure-4 shows fetal outcome where 51% fetus had low birth weight, 20% fetus death occurred and 22% got admission.

DISCUSSION

During the study we found that, where highest percentage of age group was found in 26-30 years age group, 59%. Also, 72.5% were un-booked, of low parity and belonged to lower socio-economic status; 87.5 % of pregnant women presented in third trimester of pregnancy. The most common presenting complaint was oedema (25 %) followed by yellow discoloration of urine and visual symptoms with headache. Which is supported by one study, they found that, the incidence of abnormal LF in pregnancy is higher in younger age group. In our study, majority of women were of low socio-economic status, not booked for antenatal care and generally got admitted in the hospital only as emergency. Similar facts are observed in other Indian studies too.[5-7]

In most studies, the cause of abnormal LFT is reported to be pregnancy-specific disorder and varies from 67 to 89 %. 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 coincidental and are nonspecific to the pregnancy, whereas the pregnancy-specific causes such as ICP, AFLP or more commonly pre-eclampsia-related disorder are the etiopathological factor in the third trimester. Which very much similar to our study.

The factor responsible for the higher maternal and foetal morbidity and mortality appear to be due to lack of facilities, lack of awareness regarding the pregnancy-specific conditions which may lead to worsening of the outcome of pregnancy especially in the presence of abnormal liver function, poor nutrition, prevalence of anaemia, delay in seeking medical advice and delay in referral to the tertiary care hospital. Many of these women when brought to the referral hospital are already in moribund condition and often do not respond to treatment. In our study we noted that, 51% fetus had low birth weight, 20% fetus death occurred and 22% got admission. Also, where 37% patients had abortion followed by 15% had hepatic abscess, 14% had acute renal failure.[8]

CONCLUSION

Abnormal liver functioning enzyme is greatly affected in women during pregnancy. If a systematic approach is adopted, the cause is often apparent. Early and timely join care by the obstetric and medical team can bring the best results in this so far grim situation in the developing world.

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