

DOI: <http://dx.doi.org/10.18203/2320-1770.ijrcog20170410>

Original Research Article

Fetomaternal outcome and raised bilirubin level in pregnancy

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Received: 13 December 2016

Accepted: 07 January 2017

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ABSTRACT

Background: Jaundice in pregnancy has potentially serious consequences for maternal and fetal health. The cardinal features of hepatobiliary disease may include jaundice, pruritus, abdominal pain; nausea, vomiting, and a variety of liver biochemical test abnormalities. Challenges involve making the diagnosis and the methods of treatment and their safety for both the mother and the baby.

Methods: Based on inclusion criteria, 120 pregnant women were selected from Department of Obstetrics & Gynecology, MGMMC and MYH Indore from 1 Aug 2014 to 1st August 2015. Patients were categorized according to serum bilirubin level. Basic investigations done and associated complications studied and correlated according to the severity and degree of jaundice.

Results: 60% of the patients were aged between 20 and 30 years. 54% were primigravida. 83.3% lived in rural areas while 74.27% came in emergency. Maternal mortality was found highest in the third trimester and when the serum bilirubin crossed 5mg/dl. 43.34% patients with jaundice developed acute kidney injury with serum creatinine level above the cut-off. INR was deranged in 47.5% of the patients. The most common complication seen in our study group was that of HELLP closely followed by multi organ dysfunction and encephalopathy. 67% of the patients delivered vaginally, while 20% went under LSCS. Maternal mortality was 32.5% and perinatal outcome was poor with 50% mortality and 25% nursery admission. 62% of the patients who died were referred from a peripheral health centre.

Conclusions: Liver disease can cause significant morbidity and mortality in both pregnant women and their infants. Better identification and treatment of mothers and fetuses at risk may have far-reaching implications for maternal and child health. Monitored intensive care gives a long term pay off in the maternal and fetal outcome.

Keywords: Maternal, Jaundice, Perinatal, Pregnancy

INTRODUCTION

In this study we have defined jaundice as increase in serum bilirubin level >1 mg/dl. Jaundice is the physical manifestation of elevated serum bilirubin. Up to 3% of all pregnancies are complicated by liver disorders. Jaundice in pregnancy carries a grave prognosis for both the foetus and the mother. It is responsible for about 60% of perinatal mortality and about 14% of maternal mortality. The hepatic functions during pregnancy are affected by increased serum oestrogen and progesterone. Hence, the present study analyses the cause and fetomaternal outcome in pregnancies which are affected with jaundice.

The diagnosis of liver disease in pregnancy is challenging and relies on laboratory investigations. Signs and symptoms are often not specific.¹ These changes are the result of hyperestrogenemia of pregnancy and occur in up to 60% of healthy pregnancies. Standard and ultra structural pathologic examination of the liver of a normal pregnancy reveals no specific abnormalities.² Because of hemodilution, serum albumin levels decrease during the first trimester. The decrement becomes more accentuated as the pregnancy advances.³ Serum total cholesterol and triglyceride concentrations increase markedly during pregnancy, which should be taken into account when assessing the patient's lipid profile.^{4,5} Serum alkaline

phosphatase is also increased in normal pregnancy. Clinical conditions that are seen only in pregnant women and involve the liver:

- Hyperemesis gravidarum
- Intrahepatic cholestasis of pregnancy
- HELPP
- Acute fatty liver of pregnancy

Jaundice needs to be timely diagnosed and treated as poor management at peripheral referral centres and lack of awareness leads to worsening of the symptoms and patients ends in hepatic encephalopathy or coma which has high mortality for both the mother and the fetus.

METHODS

The present study has been undertaken to determine the impact of deranged serum bilirubin level and maternal and fetal outcome during pregnancy. 120 cases of pregnant woman aged 15-45 years with raised bilirubin who came for treatment at MGMMC and MY hospital Indore were studied for duration of year from Aug2014-Aug 2015. 40 pregnant women in each trimester were worked up. Patient consent was taken and basic investigations, complete blood picture, coagulation profile, LFT, RFT and urine routine microscopy was done. Detailed history and examination was conducted.

Inclusion criteria

Pregnant females with recent onset of jaundice with serum bilirubin >1mg/dl and an increase in serum alkaline transferase more than 2 times than normal.

Exclusion criteria

Patient having chronic liver disease, alcohol abuse, significant comorbidities like thalesemia, sickle cell anemia. Complications of severe jaundice, maternal and perinatal outcome were studied.

RESULTS

Table 1: Age distribution and gravidity at time of presentation (n=120).

	Number of patients	% of patients
Age		
<20	46	38.34
20-30	72	60
>30	2	1.67
Gravida		
Primi	65	54.1
Second	45	37.5
Multi	10	8.33

The present study has been undertaken to determine the impact of deranged serum bilirubin level and maternal

and fetal outcome during pregnancy. 120 cases of raised bilirubin in pregnant women who came for admission at MGMMC and MY hospital Indore were studied. 40 pregnant women in each trimester were worked up. Patient consent was taken and basic investigations, complete blood picture, coagulation profile, LFT, RFT and urine routine microscopy was done. Detailed history and examination was conducted.

Table 2: Socioeconomic status of patients (n=120).

Socio-economic status	Number of patients	% of patients
Low	101	84.16
High	7	5.83
Medium	12	10

Table 3: Clinical presentations at time of presentation (n=120).

Symptom	1 st trimester (%)	2 nd trimester (%)	3 rd trimester (%)
Nausea, Vomiting	10	3	0
Yellowish discoloration	1	13	7
Abdominal pain	4	10	4
Pre-eclampsia	0	0	8
Pruritis	6	2	0
Hepatic encephalopathy	2	6	10

Table 4: Investigations - serum bilirubin/coagulation profile/serum ALT/serum creatinine.

	Number of patients	% of patients	Maternal deaths	% of maternal deaths
S. Bilirubin				
1-2	19	15.83	0	0
2-5	33	27.5	0	0
05-10	38	31.67	7	53.8
>10	30	25	6	46.2
PT-INR				
Normal<1.5	63	52.5	NA	NA
Raised>1.5	57	47.5	NA	NA
Serum ALT				
<50	58	48.3	NA	NA
50-1000	44	36.7	NA	NA
>1000	18	15	NA	NA
Serum creatinine				
<1.8	68	56.67	NA	NA
>1.8	52	43.34	NA	NA

Overall 13/40 maternal deaths were reported and all of the patients who died had serum bilirubin levels >5 mg/dl. All the patients died belong INR was deranged in 47.5% of the patients.18 out of 120 patients had serum

ALT of the range of 1000s indicating an underlying hepatitis. 52 out of 120 (43.34%) patients with jaundice developed acute kidney injury with serum creatinine level above the cut-off the most common complication seen in our study group was that of HELLP closely followed by multi organ dysfunction and encephalopathy.

Table 5: Complications/mode of delivery/maternal outcome/perinatal outcome.

Complications		
Number of patients (N=40)	% of patients	
Hepatic encephalopathy	10	25
PPH	2	5
DIC	6	15
HELLP	12	30
Sepsis/MODS	10	25
Mode of delivery		
Number of patients (N=40)	% of patients	
Delivered-vaginal	27	67.5
LSCS	8	20
Lama	2	5
Undelivered (Certified)	3	7.5
Maternal outcome		
Frequency	Percentage (%)	
Improved	25	62.50%
Mortality	13	32.50%
LAMA	2	5%
Perinatal outcome		
No. of babies	% of babies	
Healthy	10	25
Nursery	9	22.5
IUD	18	45
Undelivered (Certified)	3	7.5

Clinical presentation varied according to the trimester. In the first trimester nausea and vomiting was the most common presentation, in second trimester, yellowish discoloration of skin and sclera was the most common presentation and amongst the patients falling in third trimester encephalopathy was the most common presentation followed by preeclampsia. 62% of the patients who died were referred from a peripheral health centre. The rest came in emergency either directly from home or after taking some primary treatment at village levels. None of them was booked at MYH.

DISCUSSION

The incidence of jaundice in India varies from 0.4 to 0.9/1000 deliveries. In our study 54% were primi and 46% multigravida. 74.27% came in emergency. More than 55% had serum bilirubin level >5mg/dl and maternal mortality was found highest in these group of patients. 45% patient

had raised coagulation profile and 43.34% patients had raised kidney function test i.e. raised serum creatinine indicating acute renal injury. Of all the pregnant women coming in third trimester of pregnancy, HELPP (30%), hepatic coma (25%) and 25% ended in MODS. In a similar study by Nagaria T et al - encephalopathy (26.7%), DIC (21.8%), thrombocytopenia (21%), septicaemia (4.8%).² Maternal mortality in our study was 32.5% while in the study by Nagaria T et al was 14.4%, Bera and Sengupta et al - 19.9% (8), Sapre and Joshi et al - 4.99% and Trivedi et al - 29.3%.⁷⁻¹⁰ As far as outcome of pregnancy, 67.5% delivered vaginally, 20% underwent LSCS, 5% took LAMA and 7.5% certified without being delivered. Out of the 10 women who underwent LSCS, 9 were discharged and 1 certified due to multiorgan dysfunction. Under proper anaesthesia and vigilance and supportive management, LSCS in pregnancy can be performed with a positive outcome. The fetal morbidity and mortality figures in our study are comparable to those by the following authors. Perinatal outcome in jaundiced women is poor. Almost 45% women had IUD and 22.5% went to nursery. Of the babies who went to nursery only 30% were handover rest certified. Only 25% of the babies were healthy and handed over. Meconium aspiration and low birth weight being the common causes. These are comparable to those stated by Nagaria T et al 50% stillbirth and 67% NICU admissions.⁷

CONCLUSION

Pregnancy is associated with many normal physiologic changes that must be considered in the diagnosis of hepatobiliary diseases. The cardinal features of hepatobiliary disease may include jaundice, pruritus, abdominal pain, nausea, vomiting, and a variety of liver biochemical test abnormalities. Most are not unique to pregnancy. However, specific patterns that occur during a particular trimester may lead to easy recognition of the underlying disease. Mild jaundice can be conservatively dealt with and recovery is possible. Moderate to severe jaundice in late trimester have poor effect on health of fetus and causes maternal complications as well. Almost 67% of the patients delivered vaginally while 20% went under LSCS. All except 1 (certified) who went under LSCS were discharged. It means with proper precaution and experienced anesthetic skills patients with jaundice can undergo planned LSCS. With 32.5% mortality at a tertiary level centre and significant number of cases in hepatic encephalopathy came for admission, it indicates poor management at referral centres. Also awareness is to be made in people regarding early admission so that it doesn't progress to hepatic coma. Jaundice if timely managed and intervened can be recovered but if involves the brain the chances of recovery becomes dime.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Joshi R, Dalal N. Fetomaternal outcome and raised bilirubin level in pregnancy. *Int J Reprod Contracept Obstet Gynecol* 2017;6:710-3.