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# Jaundice in Pregnancy and Maternal Outcome

KEYWORDS: Jaundice in pregnancy, complications, etiological factors, maternal outcome

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**ABSTRACT** *Introduction:- Jaundice in pregnancy, whilst relatively rare, occurs in approximately one in 1500 pregnancies and has potentially serious consequences for maternal and fetal health. .* ***Objectives:*** *To study the etiological factors and maternal outcome associated with jaundice in pregnancy.* ***Methods:*** *50 pregnant women with jaundice in pregnancy were included in the study. A thorough history, detailed clinical examination and all relevant investigation s were carried out in the beginning. The course of the pregnancy was studied and monitored periodically.* ***Results:*** *The main etiological factors causing jaundice in pregnancy included viral hepatitis (30%),pregnancy induced hypertension(22%) and eclampsia (6%). Maximum maternal mortality (20%) occurred in the age group of 25-29 years followed by 14.3% in the group of 30-35 years.* ***Conclusion:*** *Jaundice in pregnancy is associated with high maternal and perinatal mortality even in a tertiary referral center.*

## INTRODUCTION

Jaundice in pregnancy, whilst relatively rare, occurs in approximately one in 1500 pregnancies and has potentially serious consequences for maternal and fetal health[1]. Abnormal liver tests occur in 3%-5% of pregnancies, with many potential causes, including coincidental liver disease (most commonly viral hepatitis) and underlying chronic liver disease[2]. It can be caused by pregnancy or occur intercurrently. Causes of jaundice specific to pregnancy include preeclampsia associated with HELLP (Hemolysis, Elevated Liver enzymes and Low Platelets) syndrome, acute fatty liver of pregnancy, hyperemesis gravidarum, and intrahepatic cholestasis of pregnancy. Preeclampsia and the associated HELLP syndrome and acute fatty liver of pregnancy (AFLP) represent major causes of maternal and perinatal morbidity and mortality[3].

Liver involvement in pregnancy is of three types, namely, liver diseases peculiar to pregnancy, liver diseases coincidental to pregnancy and pregnancy in patients with preexisting liver disease. Some of these lead to maternal and perinatal death[2].

Pregnancy in jaundice is associated with various maternal complications (viz. coagulopathy, hepatic encephalopathy, renal failure, abruption placenta, etc.) and fetal complications (IUGR, IUFD,LBW, etc.) that may lead to maternal as well as fetal mortality.

There is insufficient information about the frequency, etiological profile, outcome, and management guidelines for pregnancy-related liver diseases in India. We therefore prospectively studied the spectrum of liver diseases in pregnancy, and its course and effect on maternal and fetal outcomes, at a tertiary-care referral center.

### Aims and Objectives

1) To study the etiological factors and complications associated with jaundice in pregnancy.

2) To study the maternal and fetal outcome of jaundice in pregnancy.

### Materials and methods

The present prospective study was undertaken from April 2011 to October 2013 at department of obstetrics and gynecology ,Government Medical College, Akola situated in Maharashtra state of India. Permission from the head of the institute and clearance from ethical committee was obtained before starting this study. Informed consent of patients and/or close relatives was taken. Confidentiality of data was maintained and privacy of it was assured.

All the 50 pregnant patients with Jaundice in pregnancy admitted were included in the study.

On admission a thorough history was taken and a detailed clinical examination was carried out which included pulse, blood pressure, pallor, icterus, fetal heart sounds, abdominal palpation, per speculum and per vaginal examination.

All the patients were subjected to biochemical investigations including complete blood count, HIV, HBs Ag, VDRL test, Liver function tests (Serum bilirubin, SGOT, SGPT, alkaline phosphatase) renal function tests (serum creatinine, blood urea, serum uric acid), obstetric and abdominal ultrasound.

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Special investigations like peripheral smear for malarial parasite, malarial antigen, HAV, HEV, HCV, dengue antibody, widal test, leptospirosis antibody were carried out where there was a suspicion of these cases. Prothrombin time (PT), activated partial thromboplastin time, serum fibrinogen D-dimer levels in cases where coagulation abnormality was suspected.The course of pregnancy was studied and the investigation profile was monitored.

Treatment of the study population was at discretion of attending physician. Intravenous antibiotics and antimalarials were used accordingly. Also antihypertensive and anticonvulsants were used in patients of preeclampsia and eclampsia. Blood and blood products (platelets, fresh frozen plasma and cryoprecipitate) were transfused as per deficiency and associated clinical evaluation.

Critically ill patients were managed in medical intensive care unit and specialized measures like mechanical ventilation and renal replacement therapy were given to respective patients.

For maternal outcome, the fate of mother, course in hospital, mode of delivery was noted.

Data was collected in predesigned and pretested proforma. Suitable descriptive and inferential statistics was applied accordingly.

**OBSERVATIONS AND RESULTS**

In this study, maximum (46.00%) patients were in the age group of 20-24 years followed by 25-30 years (40.00%) and 30-35years (07.00%).

The main etiological factors causing jaundice in pregnancy found were viral hepatitis (30.00%), pregnancy induced hypertension (22.00%) and eclampsia (6.00%). In 17 patients (34%) etiology could not be established.

Maximum maternal mortality (20.00%) occurred in the age group of 25-29 years followed by in the age group of 30-35 years (14.3%). The difference was not statistically significant ($p<0.05$).

In the study 6 maternal deaths were recorded out of which 2 were due to dengue and 1 each due to eclampsia, Hepatitis A, leptospirosis and unknown etiology.

In this study, 38% patients were anemic (Hb <10 gm %) and 62% were not anemic (Hb>10 gm%). Maternal mortality was more among the anemics (5 out of 19 i.e. 26.31%) as compared to nonanemics (1 out of 31i.e. 3.22%) This difference was statistically significant ($p<0.05$).

10 patients (20%) had abnormal findings on ultrasonography, which included hepatomegaly (8%), ascites (4%), acalculus cholecystitis, bilateral hydronephrosis, fatty liver and medical renal disease (2% each). In 80% of patients no sonographical abnormality was detected.

Obstetric complications occurred among 66% patients which included preeclampsia (24%), preterm labour (14%) and meconium stained amniotic fluid (10%).

Also 28% patients had postpartum complications in the form of postpartum hemorrhage (8%), posterior reversible encephalopathy syndrome (4%), HELLP syndrome (4%), septicemia (4%), episiotomy hematoma, episiotomy wound gape, wound discharge and wound gape (2% each). 10 patients required medical intensive care unit admission with ventilator support.

70.2% patients delivered vaginally, 25.5% patients required lower segment caesarean section where as 4.3 % patients had outlet forceps delivery. 3 patients died in the antenatal period.

Out of 12 patients in which LSCS was done 4 patients had pre-eclampsia, 3 patients had oligohydromnios, one had eclampsia and one patient had cholestatic jaundice with MSAF. Post LSCS condition of all the patients improved.

**DISCUSSION**

50 patients were included in this study who satisfied the inclusion criteria after screening 18720 patients in the hospital during the given period. Hence the estimated incidence of cases of jaundice in pregnancy was 1:374 in the hospital. The incidence of jaundice in India varies from 0.4 to 0.9/1000 deliveries. In our study the incidence was 2.7/1000 deliveries, which was almost similar to the incidence noted by Oladokun A.et al[5] (3/1,000).

In this study, age of the patients ranged from 20 - 35 years with average age being 25.62 years which was more as compared to the study by Suruchi shukla, et al., where the mean age was 23.85 years. 86% cases belonged to the age group of < 30 years followed by 14% cases in the age group of > 30 years. According to Sarkar& Giri[6] jaundice in pregnancy seems to affect younger age group more due to early age of marriage in our country.

In 17 patients (34%) etiology could not be established. Viral hepatitis was the most common etiological factor among 30% cases, followed by pregnancy induced hypertension (22.00%) and eclampsia (6.00%).This correlates with the observations of the study done by K Kalaivani et al[7].

Total 6 (3 before and 3 after delivery) mothers died during the study period. Maternal mortality recorded was comparatively lower (12%) than that by Nagaria Tripti et al.[4] (30.3%).

Out of the total 6 maternal deaths recorded, 2 were due to dengue and 1 each was due to eclampsia, Hepatitis A, leptospirosis and unknown etiology.

Out of the 3 patients who died undelivered, one presented at 16 weeks with leptospirosis associated with multiorgan failure and DIC, one at 16 weeks and one at 37 weeks with dengue associated with multiorgan dysfunction.

In this study, 38% patients were anemic (Hb <10 gm %) which was not comparable with the findings of studies by Sarkar CS et al[6] and K Kalaivani et al[7]. where more than 70% patients were anemic. The mean hemoglobin in present study population was 10.3 mg%.

On co-relating presence of anemia in pregnancy with maternal mortality, 26.31% cases with Hb < 10 mg expired which was significantly more as compared to 3.22% mortality in cases with Hb > 10 .According to study by Kalaivani K et al[7] in India, anemia is directly or indirectly responsible for 40 per cent of maternal deaths.

14 % patients had preterm vaginal delivery as compared to study by Oladokun A. et al[5] in which preterm delivery occurred in 39.6%. Other complications which were observed include meconium stained liquor (10%), pla-

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cental abruption (2%), premature rupture of membrane and oligohydramnios.

In the present study, 28% patients had postpartum complications; the most common was postpartum hemorrhage (8%). Similarly Parveen T, Begum F et al[8] also observed postpartum complications among 43.4% patients, again most common was postpartum hemorrhage (15.3%). Other complications included posterior reversible encephalopathy syndrome, episiotomy hematoma, episiotomy wound gape, LSCS wound discharge and wound gape.

Mortality rate was 28.6 % in patients who had postpartum complications compared to 5.6% in patients without complications. The difference is statistically significant ($p<0.05$).

Out of 10 patients who required medical intensive care unit management (MICU), 8 patients required ventilator support. Of those 8 patients, 6 expired. No maternal mortality was noted in patients who did not required MICU management. Mortality rate in patients who required MICU admission with ventilator support was 75% as compared to study done by Moulick ND, Trivedi TH et al[9] in which the mortality was 57%. Significant association was found between need for MICU and ventilator support with maternal outcome. Thus ventilator requirement in patients is suggestive of poor outcome.

According to present study, 70.2% patients delivered vaginally whereas, 25.5% underwent caesarean section as opposed to study by Oladokun A. et al[5] in which 5.3% patients delivered by caesarean Section. There was no significant association found between mode of delivery and maternal and fetal outcome

**CONCLUSION:-**

Our study shows that Jaundice in pregnancy is associated with high maternal and perinatal mortality, even in a tertiary referral center. Viral hepatitis and PIH-associated liver dysfunction are serious conditions. A high index of suspicion of liver disease, early diagnosis, prompt referral to a higher center when required, availability of blood and blood products, appropriate supportive management and a proactive policy of early delivery when indicated may improve the maternal and fetal outcomes in pregnant women with Jaundice.

**Table No. 1: Etiology of Jaundice**

| Etiology of Jaundice | No | Percentage |
|---|---|---|
| Hepatitis E | 12 | 24.0% |
| Preeclampsia | 11 | 22.0% |
| Eclampsia | 3 | 6.0% |
| Dengue | 2 | 4.0% |
| Cholestatic Jaundice + Hepatitis E | 1 | 2.0% |
| Hepatitis A | 1 | 2.0% |
| Leptospirosis | 1 | 2.0% |
| Portal Hypertension | 1 | 2.0% |
| Preeclampsia+ Hepatitis E | 1 | 2.0% |
| Unknown etiology | 17 | 34.0% |
| Total | 50 | 100.0% |

**Table No. 2: Distribution according to mode of delivery and maternal outcome**

| Mode of Delivery | | Maternal Outcome | | Total |
|---|---|---|---|---|
| | | Death | Discharge | |
| Normal Vaginal | No. | 3 | 30 | 33 |
| | % | 9.1% | 90.9% | 100.0% |
| LSCS | No. | 0 | 12 | 12 |
| | % | 0.0% | 100.0% | 100.0% |
| Forceps | No. | 0 | 2 | 2 |
| | % | 0.0% | 100.0% | 100.0% |
| Total | No. | 3 | 44 | 47 |
| | % | 6.4% | 93.6% | 100.0% |

**Table No. 3: Antepartum and Postpartum Complications**

| Complication | No. | Percentage |
|---|---|---|
| Antepartum Complications (n=50) | | |
| Preeclampsia | 12 | 24.0% |
| Preterm Labor | 7 | 14.0% |
| Meconium stained amniotic fluid | 5 | 10.0% |
| Eclampsia | 3 | 6.0% |
| Premature rupture of membranes | 3 | 6.0% |
| Cholestatic Jaundice | 1 | 2.0% |
| Oligohydromnios | 2 | 4.0% |
| No complication | 17 | 34.0% |
| Postpartum Complications (n=50) | | |
| Postpartum Hemorrhage | 4 | 8.0% |
| Posterior reversible encephalopathy Syndrome | 2 | 4.0% |
| HELLP Syndrome | 2 | 4.0% |
| Septicemia | 2 | 4.0% |
| Episiotomy Hematoma | 1 | 2.0% |
| Episiotomy Wound Gape | 1 | 2.0% |
| Wound Discharge | 1 | 2.0% |
| Wound Gape | 1 | 2.0% |
| No complication | 36 | 72.0% |

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