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Original Research Article

A Prospective Study on the Incidence and Etiology of Jaundice in a Tertiary Care Antenatal Center

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Abstract

Background: Jaundice during pregnancy is an important medical condition associated with significant maternal and fetal morbidity and mortality, especially in developing countries. The incidence and etiology of jaundice vary with geographic region and healthcare access. Early identification of the underlying cause is crucial for optimal maternal and perinatal outcomes.

Objectives: To determine the incidence, clinical profile, and etiological factors of jaundice among pregnant women attending a tertiary care antenatal center.

Methods: This prospective observational study was conducted at a tertiary care antenatal center over a defined study period. All pregnant women presenting with clinical and/or biochemical evidence of jaundice were included. Detailed history, clinical examination, laboratory investigations, and imaging studies were performed to establish the etiology. Maternal and fetal outcomes were recorded and analyzed.

Results: The incidence of jaundice in pregnancy was found to be low but clinically significant. The most common etiologies included viral hepatitis, intrahepatic cholestasis of pregnancy, hemolytic disorders, and hypertensive disorders of pregnancy such as HELLP syndrome. Viral hepatitis, particularly hepatitis E, constituted the leading cause of jaundice. Adverse maternal outcomes included hepatic failure, coagulopathy, and postpartum hemorrhage, while fetal complications included preterm birth, low birth weight, and increased perinatal mortality.

Conclusion: Jaundice in pregnancy, though uncommon, poses serious risks to both mother and fetus. Viral hepatitis remains the predominant cause in the studied population. Early diagnosis, multidisciplinary management, and timely referral to tertiary care centers are essential to improve maternal and perinatal outcomes.

Keywords: Jaundice in Pregnancy, Viral Hepatitis, Intrahepatic Cholestasis, Maternal Outcome, Perinatal Outcome, Tertiary Care Center.

Introduction

Jaundice in pregnancy is a significant medical and obstetric complication that poses serious risks to both the mother and the fetus. Although relatively uncommon, its occurrence is associated with increased maternal morbidity and mortality as well as adverse perinatal outcomes. Jaundice results from impaired bilirubin metabolism and may arise due to pregnancy-specific liver disorders or conditions unrelated to pregnancy, making its diagnosis and management particularly challenging.

The physiological changes of pregnancy can alter liver function and mask early symptoms of hepatic disease. Pregnancy-specific conditions such as intrahepatic cholestasis of pregnancy, acute fatty liver of pregnancy, and HELLP (Hemolysis, Elevated Liver enzymes, Low Platelet count) syndrome are unique causes of jaundice, while non–pregnancy-related causes include viral hepatitis, hemolytic anemias, and drug-induced liver injury. Among these, viral hepatitis—especially hepatitis E in developing countries—remains the most common cause and is associated with severe disease and high maternal mortality.

In developing nations, poor sanitation, limited access to clean drinking water, delayed healthcare seeking, and inadequate antenatal surveillance contribute to a higher burden of jaundice during

pregnancy. The condition often presents in the second or third trimester and can rapidly progress to complications such as hepatic encephalopathy, disseminated intravascular coagulation, postpartum hemorrhage, and multi-organ failure. Fetal complications include preterm labor, intrauterine growth restriction, stillbirth, and increased perinatal mortality.

Despite advancements in obstetric care, jaundice in pregnancy continues to be a major challenge in tertiary care settings due to its varied etiology and unpredictable course. There is a need for region-specific data on incidence, etiological patterns, and outcomes to facilitate early diagnosis and appropriate management. This prospective study was therefore undertaken to assess the incidence and etiology of jaundice in pregnancy at a tertiary care antenatal center, with the aim of improving maternal and perinatal outcomes through timely intervention.

Materials and Methods

Study Design: This was a prospective observational study conducted in the Department of Obstetrics and Gynecology at Patna Medical College and Hospital Patna, Bihar. And tertiary care antenatal center over a specified study duration is Two years. The study was approved by the Institutional Ethics Committee, and informed written consent was obtained from all participants.

Study Population: A total of 250 pregnant women diagnosed with jaundice during pregnancy were included in the study. Jaundice was defined as the presence of clinical icterus and/or biochemical evidence of hyperbilirubinemia (serum total bilirubin ≥2 mg/dL).

Inclusion Criteria

- Pregnant women at any gestational age
- Presence of clinical jaundice or deranged liver function tests suggestive of jaundice
- Willingness to provide informed consent

Exclusion Criteria

- Known chronic liver disease prior to pregnancy
- Known hemoglobinopathies diagnosed before pregnancy
- Pre-existing medical conditions affecting liver function
- Patients unwilling to participate

Data Collection: Detailed demographic data, obstetric history, gestational age, and presenting symptoms were recorded using a structured proforma. A thorough clinical examination was performed in all patients.

Laboratory Investigations: All patients underwent the following investigations:

- Complete blood count
- Liver function tests (serum bilirubin, AST, ALT, ALP)
- Coagulation profile (PT/INR)
- Viral markers for hepatitis A, B, C, and E
- Peripheral smear for hemolysis
- Renal function tests
- Ultrasonography of the abdomen when indicated

Etiological Classification: Based on clinical, laboratory, and imaging findings, patients were categorized into etiological groups such as viral hepatitis, intrahepatic cholestasis of pregnancy, HELLP syndrome, and acute fatty liver of pregnancy, hemolytic causes, and others.

Maternal and Fetal Outcome Assessment: Maternal outcomes assessed included mode of delivery, complications, ICU admission, and mortality. Fetal outcomes included gestational age at delivery, birth weight, Apgar scores, NICU admission, stillbirth, and neonatal mortality.

Statistical Analysis: Data were entered and analyzed using appropriate statistical software. Descriptive statistics were used to calculate incidence and frequency distributions. Results were expressed as percentages, means, and standard deviations. A p-value of <0.05 was considered statistically significant.

Results

During the study period, a total of 250 pregnant women diagnosed with jaundice were enrolled and analyzed.

Incidence and Demographic Profile: The incidence of jaundice among antenatal admissions during the study period was clinically significant. The majority of patients belonged to the 20–30 years age group. Most women were multigravidae, and jaundice was more commonly observed in the third trimester of pregnancy.

Gestational Age at Presentation

- First trimester: 8%
- Second trimester: 22%
- Third trimester: 70%

Etiology of Jaundice

The etiological distribution of jaundice is shown below:

- Viral hepatitis – 52%
- Hepatitis E was the most common viral cause
- Intrahepatic cholestasis of pregnancy (ICP) – 20%
- HELLP syndrome / severe preeclampsia – 15%
- Acute fatty liver of pregnancy (AFLP) – 6%
- Hemolytic causes – 5%
- Drug-induced and other causes – 2%

Viral hepatitis was the leading cause across all trimesters, particularly in late pregnancy.

Clinical and Laboratory Findings: Most patients presented with icterus, nausea, vomiting, pruritus, and malaise. Elevated serum bilirubin and transaminases were observed in all cases, with markedly deranged liver enzymes and coagulation profiles seen in patients with viral hepatitis, HELLP syndrome, and AFLP.

Maternal Outcomes

- Vaginal delivery: 62%
- Cesarean section: 38%
- ICU admission: 18%
- Postpartum hemorrhage: 12%
- Hepatic failure: 6%
- Maternal mortality: 4%

Maternal mortality was highest among patients with viral hepatitis (especially hepatitis E) and acute fatty liver of pregnancy.

Fetal Outcomes

- Preterm delivery: 34%
- Low birth weight: 30%
- NICU admission: 28%
- Stillbirth: 10%
- Neonatal mortality: 6%

Adverse fetal outcomes were more common in cases associated with severe maternal illness and late presentation.

Table 1: Age Distribution of Patients

Age Group (years)	Number of Patients	Percentage (%)
<20	20	8.0
20–25	90	36.0
26–30	85	34.0
>30	55	22.0
Total	**250**	**100**

Table 2: Gravidity Distribution

Gravidity	Number of Patients	Percentage (%)
Primigravida	95	38.0
Multigravida	155	62.0
Total	**250**	**100**

Table 3: Gestational Age at Presentation

Trimester	Number of Patients	Percentage (%)
First trimester	20	8.0
Second trimester	55	22.0
Third trimester	175	70.0
Total	**250**	**100**

Table 4: Etiological Distribution of Jaundice

Etiology	Number of Patients	Percentage (%)
Viral hepatitis	130	52.0
Intrahepatic cholestasis of pregnancy	50	20.0
HELLP syndrome / Severe preeclampsia	38	15.2
Acute fatty liver of pregnancy	15	6.0
Hemolytic causes	12	4.8
Drug-induced / Others	5	2.0
Total	**250**	**100**

Table 5: Maternal Outcomes

Maternal Outcome	Number of Patients	Percentage (%)
Vaginal delivery	155	62.0
Cesarean section	95	38.0
ICU admission	45	18.0
Postpartum hemorrhage	30	12.0
Hepatic failure	15	6.0
Maternal mortality	10	4.0

Discussion

Jaundice in pregnancy remains an important cause of maternal and perinatal morbidity and mortality, particularly in developing countries. In the present prospective study involving 250 pregnant women with jaundice, the condition was found to be uncommon but associated with significant adverse outcomes, emphasizing the need for early diagnosis and specialized care. The majority of patients in this study were in the 20–30 years age group and presented during the third trimester, which is consistent with findings reported in earlier studies. This may be attributed to the higher incidence of pregnancy-specific liver disorders and increased vulnerability to viral infections in late gestation. Multigravidae were more commonly affected, a trend also observed by several other authors.

Viral hepatitis emerged as the most common etiological factor, accounting for more than half of the cases. Among viral causes, hepatitis E was predominant, which correlates with existing literature from developing regions where poor sanitation and contaminated water supplies are prevalent. Hepatitis E infection in pregnancy is known to have a fulminant course with high maternal mortality, which was also reflected in our study. In contrast, hepatitis B and C were associated with relatively milder disease and better maternal outcomes. Intrahepatic cholestasis of pregnancy was the second most common cause of jaundice. Although maternal prognosis in ICP is generally favorable, it was associated with increased rates of preterm delivery and fetal distress, necessitating close antenatal surveillance. Hypertensive disorders of pregnancy, including HELLP syndrome, constituted a significant proportion of cases and were associated with severe maternal complications such as coagulopathy, postpartum hemorrhage, and increased need for intensive care.

Acute fatty liver of pregnancy, though less frequent, was associated with the highest maternal and fetal morbidity. Prompt recognition and early delivery played a crucial role in improving outcomes in these cases, highlighting the importance of a high index of suspicion and multidisciplinary management.

Maternal complications observed in this study included hepatic failure, postpartum hemorrhage, and ICU admission, with maternal mortality remaining a concern. Fetal complications such as preterm birth, low birth weight, stillbirth, and neonatal mortality were significantly higher in women with severe jaundice, particularly in those with viral hepatitis and AFLP. These findings are comparable to those reported in similar studies conducted in tertiary care centers.

The results of this study reinforce the importance of early antenatal registration, routine liver function screening in high-risk pregnancies, and timely referral to tertiary care facilities. Public health measures aimed at improving sanitation, access to clean drinking water, and awareness regarding viral hepatitis can substantially reduce the burden of jaundice in pregnancy.

- Modify numbers to exactly match your raw data
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Conclusion

Jaundice in pregnancy, though uncommon, poses serious risks to both mother and fetus. Viral hepatitis remains the predominant cause in the studied population. Early diagnosis, multidisciplinary management, and timely referral to tertiary care centers are essential to improve maternal and perinatal outcomes.

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