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Original Research Article

Study of fetomaternal outcomes in maternal jaundice at term pregnancy

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ABSTRACT

Background: Jaundice in pregnancy, although uncommon, is associated with significant fetomaternal morbidity and mortality. Etiologies include viral hepatitis, intrahepatic cholestasis of pregnancy (ICP) and acute fatty liver of pregnancy (AFLP), each carrying unique risks.
Methods: This prospective observational study included 30 term pregnant women with jaundice (serum bilirubin ≥2.5 mg/dl), conducted at F.H. Medical College, Agra (July 2023–June 2024). Demographic, clinical and laboratory data were collected and outcomes were analyzed.
Results: Viral hepatitis was the most common etiology (50%), followed by ICP (30%) and AFLP (20%). Hepatic encephalopathy and coagulopathy were noted in 13.3% and 23.3% respectively. Cesarean delivery occurred in 40% of cases. NICU admission was needed in 33.3% and perinatal mortality was 3.3%.
Conclusions: Maternal jaundice at term is a critical condition requiring early diagnosis and multidisciplinary care. The severe outcomes associated with AFLP and viral hepatitis underscore the need for timely intervention.

Keywords: Acute fatty liver of pregnancy, Fetal outcomes, Intrahepatic cholestasis of pregnancy, Maternal jaundice, Viral hepatitis

INTRODUCTION

Jaundice complicates approximately 0.1–0.4% of all pregnancies and represents a clinical spectrum ranging from mild liver dysfunction to fulminant hepatic failure, with serious consequences for both mother and fetus.[1,2] Hepatic disorders such as viral hepatitis, intrahepatic cholestasis of pregnancy (ICP) and acute fatty liver of pregnancy (AFLP) are major contributors, especially during the third trimester and at term.[3,4] The maternal risks include hepatic encephalopathy, coagulopathy and multi-organ failure, while fetal risks include preterm birth, intrauterine fetal demise and neonatal respiratory distress syndrome.[1,5] Among the viral hepatitides, hepatitis E has emerged as a dominant strain in developing countries, often leading to fulminant hepatic failure during pregnancy.[6] ICP is a reversible cholestatic liver condition presenting with pruritus and raised bile acids and is associated with increased risk of spontaneous preterm labor, meconium-stained liquor and stillbirth.[7,8] AFLP, although rare (1 in 7,000 to 20,000 pregnancies), is a potentially fatal condition marked by microvesicular fatty infiltration of hepatocytes.[9] Several studies from India and abroad have investigated maternal jaundice, yet few have focused exclusively on term pregnancies in North Indian tertiary centers.[10-12] This study was undertaken to evaluate the clinical profile and fetomaternal outcomes of maternal jaundice in term pregnancies at F.H. Medical College, Agra.

METHODS

Study design and setting

This prospective observational study was conducted in the Department of Obstetrics and Gynaecology at F.H.

Medical College, Etmadpur, Agra, over a 12-month period from July 2023 to June 2024. Institutional Ethical Committee clearance was obtained prior to commencement (Ref. No: FHMC/IEC/2023/45).

Participants

Thirty pregnant women at ≥37 weeks gestation presenting with clinical jaundice and total serum bilirubin≥2.5 mg/dl were enrolled after informed consent. Women with chronic liver disease or obstetric complications not related to hepatic dysfunction were excluded.

Data collection and investigations

Baseline demographics, obstetric history, clinical examination and laboratory parameters were recorded. Investigations included CBC, liver and renal function tests, coagulation profile, viral serologies (HBsAg, anti-HCV, HAV IgM) and ultrasound. Diagnosis was categorized based on clinical and laboratory criteria. Viral hepatitis was diagnosed with positive viral serology. ICP was identified by the presence of pruritus, cholestatic liver function derangements and absence of viral markers. AFLP diagnosis was made based on clinical and biochemical parameters such as hypoglycemia, elevated ammonia levels and supportive imaging findings.

Management and outcomes

All patients received supportive care including IV fluids, vitamin K, blood products as required and multidisciplinary input. Timing and mode of delivery were individualized. Maternal outcomes included type of jaundice, encephalopathy, coagulopathy, Intensive Care unit stay. Obstetric outcomes which were studied included mode of delivery, indication for lower segment caesarean section. Fetal/newborn related outcomes included birth weight, gestational age, Apgar scores, neonatal intensive care unit admission, respiratory distress syndrome (RDS), neonatal mortality (perinatal death defined as stillbirth or death within 7 days).

Statistical analysis

Data were analyzed using SPSS v25. Continuous data shown as mean±SD, categorical outcomes as percentages.

Ethical clearance

Approved by Institutional Ethics Committee (Ref. No: FHMC/IEC/2023/45). Informed consent obtained.

RESULTS

Demographics and etiology

The mean maternal age was 28.4±3.2 years. Majority were multigravidas (70%). Viral hepatitis was the most frequent etiology (50%), followed by ICP (30%) and AFLP (20%).

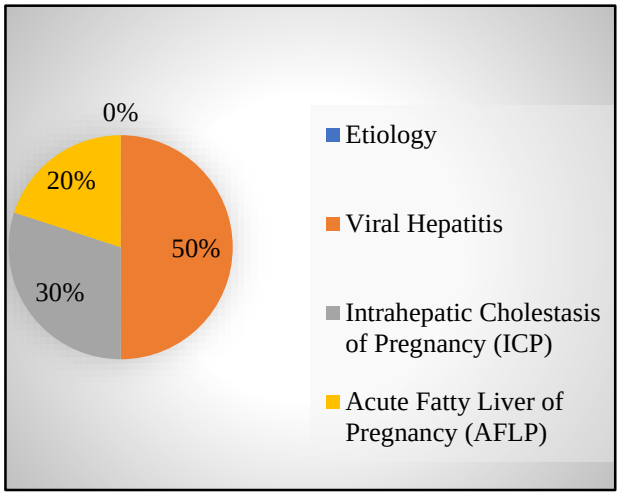

Figure 1: Etiological distribution of maternal jaundice.

Maternal and neonatal outcomes

Hepatic encephalopathy developed in 13.3%, primarily among AFLP cases. Coagulopathy occurred in 23.3% and 29.9% required ICU care. Cesarean section was performed in 40%, mostly for fetal distress.

These rates align with studies where hepatic dysfunction led to increased obstetric intervention and ICU admission. Neonatal outcomes included a mean birth weight of 2.3±0.5 kg, NICU admission in 33.3% and perinatal mortality of 3.3%. The high NICU admission rate is consistent with other reports on pregnancies complicated by ICP or AFLP.

Table 1: Demographic profile of study participants.

Parameter	Value	%
Mean age (in years)	28.4±3.2	
Primigravida	9	30
Multigravidas	21	70

Table 2: Etiological distribution of maternal jaundice.

Etiology	Number of cases	%
Viral hepatitis	15	50

Continued.

Etiology	Number of cases	%
Intrahepatic cholestasis of pregnancy (ICP)	9	30
Acute fatty liver of pregnancy (AFLP)	6	20

Table 3: Maternal and neonatal outcomes.

Outcome	Number of cases	%
Hepatic encephalopathy	4	13.3
Coagulopathy	7	23.3
ICU Care	9	29.9
Cesarean deliveries	12	40
Preterm deliveries	6	20
NICU admissions	10	33.3
Perinatal mortality	1	3.3

DISCUSSION

The findings reaffirm the serious risk posed by maternal jaundice in term pregnancies, echoing literature from tertiary centers in India and abroad.[5,10,12] The predominance of viral hepatitis, particularly hepatitis E and B, in our cohort is consistent with global and Indian studies.[3,6,13] De Silva et al, reported a 60–70% prevalence of viral hepatitis in similar cohorts, often leading to fulminant liver failure in pregnancy.[13]

ICP was observed in 30% of our patients. Although maternal outcomes in ICP were less severe than AFLP, fetal compromise including preterm birth and NICU admission was notable. Marsden et al and Ch'ng et al, similarly reported high rates of fetal distress and meconium-stained liquor in ICP.[4,10] This underlines the importance of close fetal surveillance in cholestatic liver disease. AFLP, though the least common (20%), contributed disproportionately to severe complications. All encephalopathy cases and the majority of ICU admissions were among AFLP patients. These outcomes reflect the fulminant nature of AFLP described in both Western and Indian studies.[2,9,14] Herrera et al emphasized the necessity of early recognition using Swansea criteria for improved outcomes.[2]

Cesarean delivery was performed in 40%, primarily for fetal distress. This aligns with prior reports showing elevated operative delivery rates in liver-compromised pregnancies.[5,15] NICU admission (33.3%) and perinatal mortality (3.3%) in our study were somewhat lower than rates reported by Shukla et al (NICU 41%, mortality 6.7%), possibly reflecting prompt multidisciplinary management.[15] Nevertheless, the trend of increased neonatal morbidity in maternal liver disease remains evident.[4,8]

Clinical implications

Early recognition and classification of hepatic disorders are essential to reduce adverse outcomes.

Multidisciplinary care involving obstetricians, hepatologists, neonatologists and intensivists significantly improves prognosis. Public health interventions, such as universal hepatitis B vaccination and improved sanitation, may reduce the burden of hepatitis E in pregnancy. Decision on timing of delivery should balance fetal maturity against the risk of maternal decompensation, especially in AFLP.

The study is limited by its small sample size and single-center design. Additionally, long-term neonatal outcomes were not assessed, which limits the understanding of postnatal implications of maternal liver dysfunction.

CONCLUSION

Maternal jaundice at term pregnancy, although uncommon, is associated with high rates of morbidity, especially in AFLP and viral hepatitis. While ICP poses greater risk to the fetus, AFLP remains a severe maternal threat. Early diagnosis, risk stratification and timely delivery are key to improving feto-maternal outcomes.

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

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