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PERINATAL OUTCOMES AMONG WOMEN WITH INTRAHEPATIC CHOLESTASIS OF PREGNANCY IN A SECONDARY CARE CENTRE: A PROSPECTIVE STUDY

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ABSTRACT

Background: Intrahepatic cholestasis of pregnancy (ICP), also described as obstetric cholestasis is the second most common cause of icterus in pregnancy. Although not fully understood, proposed theories indicate it could be due to decreased bile flow through the liver and its poor excretion, leading to increased levels of colic and chenodeoxycholic acid. It is known to be associated with adverse maternal and fetal outcomes. Methods: This was a prospective observational study carried out in a secondary care hospital. Total 800 pregnant women were screened during the study period. Patients with ICP were identified in out-patient department (OPD) of obstetrics and gynaecology after eliciting history about itching. Pregnancies with pregnancy induced hypertension and other liver diseases in pregnancy were excluded. Results: 64 pregnant women with prevalence rate of 8% were found to be suffering from ICP. Majority of the population suffering from ICP were multiparous women (65.6%) in the age group of 26-30 years (54.7%). Most common foetal complications encountered were meconium staining of liquor (46.9%) and low birth weight (45.3%). Other adverse foetal outcomes were preterm delivery, abnormal CTG and increased risk of NICU admissions. Maternal complications included increased chances of lower segment caesarean section (LSCS) (57.8%), insomnia (59.4%), PPROM (17.2%) and PPH (18.8%). Conclusions: Proper history taking should be undertaken to screen women with ICP in the antenatal period. The delivery team should be prepared to manage meconium aspiration in the newborn.

KEYWORDS: Intrahepatic cholestasis of pregnancy, perinatal complications, secondary care.

INTRODUCTION

Intrahepatic cholestasis of pregnancy (ICP), which has also been described as obstetric cholestasis or hepatosis gestational, is a common liver disorder among pregnant women and it is the second most common cause of icterus in pregnancy after viral hepatitis.[1] Intrahepatic cholestasis of pregnancy (ICP) is a cholestatic syndrome characterized by:

- Pruritus with onset in the second or third trimester of pregnancy.
- Elevated serum aminotransferases and bile acid levels.
- Spontaneous relief of signs and symptoms within two to three weeks after delivery.[2]

The incidence of ICP among Indian women has been reported to be around 1%.[3] Certain specific biochemical markers detect the presence of ICP, like bile salts, liver biopsy, etc., which are generally not a part of the routine tests in most of the developing countries including India. Hence, it is usually a diagnosis by exclusion of various hepatic diseases associated with cholestasis.[4] In addition to bile acids other biochemical parameters have to be tested. Commonly used biochemical markers like alanine aminotransferases (ALT) and aspartate aminotransferase (AST) which are also commonly raised in ICP could benefit in early diagnosis of ICP.[5] Although the underlying cause is not fully understood, it has been attributed to decreased bile flow through the liver and/or its poor excretion, increased levels of cholic and chenodeoxycholic acid, and is associated with adverse maternal and foetal outcomes, which are reversed with the delivery of the placenta, as seen by the disappearance of signs and symptoms.[6] Recently mutated genes responsible for ICP have been described in familial cases. Two such mutated genes are MDR3 and ABCB4.[7] Secondary effects of cholestasis as observed in animal studies, show estradiol 17 β-d-glucuronide to be cholestatic. In addition, substantial amounts of sulphated progesterone metabolites in the urine of pregnant women are additionally conjugated with N-acetyl glucosamine and the formation of such metabolites is selective for β-hydroxy bile acids, such as ursodeoxycholic acid.

(UDCA) which is a front-line treatment for ICP.[8] ICP is associated with significant maternal morbidities. Women with ICP have an increased risk for postpartum haemorrhage, dyslipidaemia, preterm labour and operative interference. Foetus in ICP has been associated with an increased incidence of preterm labour, preterm prelabour rupture of membrane (PPROM), foetal distress, abnormal CTG, meconium staining, spontaneous intrauterine death.[9] Hence, accurate and rapid diagnosis and quality treatment help prevent adverse perinatal outcomes.

Aims and objectives

The aim of this study was to evaluate the perinatal outcomes, maternal outcomes and foetal outcomes of intrahepatic cholestasis in a secondary care centre.

MATERIAL AND METHODS

This was a prospective observational study carried out at civil hospital, Palampur, Himachal Pradesh over a period of 1 year from January 1st 2022, to December 31st 2022. Total 800 pregnant women were screened during the study period. Patients with ICP were identified in the OPD after eliciting history about itching. The diagnosis was based on:

- Clinical examinations, generalized pruritus in the absence of any dermatologic condition.
- Laboratory results: serum AST and ALT exceeding 40 U/L; that returned to normal after delivery.
- No signs of viral hepatitis, negative results in assays for hepatitis B surface antigen and anti-hepatitis A and C antibodies.
- Normal ultrasonography of the liver and biliary tract.

Patients' demographic data and pregnancy outcome measures were recorded and the results were summarised in numbers and percentages.

RESULTS

Total 800 pregnant women were screened during the study period. As per the defined criteria for intrahepatic cholestasis of pregnancy (ICP) for the present study, 64 pregnant women have been found to be suffering from ICP. This gives the overall prevalence of 8% of ICP for the present study. Majority of study population with ICP (54.7%) belonged to the age group of 26-30 years followed by 30-35 years (18.6%). Below 19 years of age only 4.5% of patients developed ICP. Maximum number of patients with ICP were multipara (65.6%) (Table 1). Meconium staining of liquor (46.9%) and low birth weight (45.3%) were the two most common complication in patients with ICP. Other complications were pre term delivery (40.6%), increased chances of NICU admission (23.4%) and abnormal cardiotocograph (CTG) findings (18.8%) (Table 2). Regarding maternal outcomes of pregnancy, caesarean section as mode of delivery was found in 57.8% of the patients. Another common maternal complication was insomnia, seen in 59.4% of the patients. The cause for insomnia reported by the patients was generalised pruritus. Preterm prelabour rupture of membranes (PPROM) and postpartum haemorrhage (PPH) was seen in 17.2% and 18.8% of the patients respectively.

Table 1: sociodemographic characters of the participants.

Age group	Number of cases (%)
<19 years	3 (4.5%)
20-25 years	6 (9.8%)
26-30 years	35 (54.7%)
30-35years	12 (18.6%)
>35 years	8 (12.5%)
Parity	
Primipara	22(34.4%)
Multipara	42(65.6%)

Table 2: Foetal outcomes of patients with ICP.

Foetal outcome	Number of cases (%)
Low birth weight	29 (45.3%)
Pre-term	26 (40.6%)
Abnormal CTG	12 (18.8%)
Meconium stained liquor (MSL)	30 (46.9%)
NICU admission	15 (23.4%)

Table 3: Maternal outcomes of patients with ICP.

Maternal outcome	Number of cases (%)
Mode of delivery	
vaginal	27 (42.2%)
LSCS	37 (57.8%)
PPROM	11 (17.2%)
PPH	12 (18.8%)

Insomnia	38 (59.4%)

DISCUSSION

In the present study, total 800 pregnant women were screened, and 64 pregnant women have been found to be suffering from ICP with prevalence of 8%. The different study reported different incidence rates according to their geographic location and race.[10] The reported incidence of ICP are - Chile: 12-20%; Bolivia: 9%; Sweden: 2%-3%; <1.0% in Australia, France, China and Canada.[11] In the present study, a majority of pregnant women with intrahepatic cholestasis of pregnancy were multipara (65.6%) which was comparable to study conducted by Parihar *et al.*[12] (70.97%). In our study the reported incidence of low birth weight, preterm labor, abnormal CTG, MSL and NICU admissions was 45.3%, 40.6%, 18.8%, 46.9% and 23.4% respectively. These results were comparable to study conducted by Medda *et al*,[13] wherein 100 patients with ICP were included. The study showed following foetal outcomes: foetal distress (23%); abnormal CTG (17.0%), meconium stained liquor (41.0%), preterm birth (22.0%) excluding IUFD; low birth weight babies (32.0%); neonates required admission to NICU (27.0%). In normal term pregnancies, the incidence of meconium staining of amniotic fluid (MSAF), a sign of foetal distress, is approximately 15%. In case pregnancies complicated by ICP, the incidence of MSAF has been reported to increase up to 58%.[14] In our study 57.8% of patients with ICP underwent LSCS. The results were comparable with the study conducted by Yang *et al*.[15] and Parihar *et al*[12] which reported that caesarean section was seen in 57.69% and 58.06% of pregnancies with ICP respectively. Literature reports that postpartum haemorrhage is 2.33 times more common in pregnancies complicated by ICP as compared to pregnancies not complicated by ICP.[16] Another study in France showed 20.7% of pregnant women with ICP had PPH.[17] Our study showed an incidence of 18.8% which is similar to above studies. In the present study PPROM and insomnia was seen in 17.2% and 59.4% patients respectively. Study by Medda *et al*[13] also reported similar incidence (10% and 60% respectively).

CONCLUSION

Intrahepatic cholestasis of pregnancy poses risks to the mother and foetus. Mothers with ICP should be screened in the antenatal period. Foetal complications like MSL should be anticipated and timely and efficient neonatal resuscitation can improve the neonatal outcome. Maternal outcomes have good prognosis but foetal outcomes can be improved by timely and effective intervention. Ursodeoxycholic acid continues to remain the gold standard for the treatment of ICP. Close monitoring in the antenatal period with regular LFT and foetal surveillance increases the chance of a good outcome of the pregnancy complicated with ICP.

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