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Original Research Article

A study on feto-maternal outcome of intra hepatic cholestasis of pregnancy

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ABSTRACT

Background: Intrahepatic cholestasis of pregnancy is one kind of the hepatic disorder which is unique to pregnancy. It is associated with many adverse pregnancy outcomes if doesn't intervened at right time. It requires adequate clinico-biochemical correlation during management.

Methods: A prospective observational study was conducted at multispecialty government zonal hospital. Total 137 IHCP patients were managed during the study period from 01 Jan 2017 to 30 Jun 2019. Incidence and pregnancy outcome in form of several maternal and fetal factors were analysed by appropriate statistical test using spss software version 20.0.

Results: During the study period total 4872 patients were undergoing delivery and 137 patients were diagnosed with IHCP. The incidence of IHCP was 2.81%. Majority of cases 75 out 137 (54.74%) were nulligravida. Total 29.92% (41/137) cases were underwent LSCS delivery and of this 21.17% (29/137) were primary caesarean delivery. There were three still birth noted in IHCP study population. Total 28 cases (20.44%) of IHCP were presented with preterm labour. And NICU admissions of the study population were 32 new born babies (23.36%). 2.18% case of still birth was noted among study population.

Conclusions: IHCP causes significant maternal and neonatal morbidity and is major contributor of preterm delivery, caesarean delivery, meconium stained liquor and NICU admission.

Keywords: Antenatal care, Intrahepatic cholestasis of pregnancy, Obstetric choleostasis

INTRODUCTION

Pregnancy brings several reversible and irreversible changes to maternal physiology during its course. Almost all maternal systems undergo some kind of adaptation to pregnancy. Hepatobiliary system also undergoes several changes which can be appreciated clinically and biochemically. Intra Hepatic cholestasis of pregnancy (IHCP) is one such liver disorder which is unique to pregnancy.

IHCP is found among all ethnic groups with marked variation in incidence. It affects 0.2-2% of pregnant

women worldwide.¹ IHCP cases are almost double in Asian women compared to European women. The highest incidence of IHCP (~4%) was found in indigenous women from Chile and Bolivia.²

The maternal complication associated with IHCP are increased risks of post-partum haemorrhage, operative delivery, severe pruritus with dyslipidemia and deranged coagulation profile, preterm prelabour rupture of membrane.³ IHCP is associated with increased risk of adverse perinatal outcomes like spontaneous preterm birth, meconium staining of the amniotic fluid and stillbirth.⁴

Due to this wide variation in incidence and foeto - maternal outcomes among different ethnic groups of several countries, we planned to conduct this study on foeto - maternal outcome pregnancy complicated by intra hepatic cholestasis. The primary objective of the study was to see the incidence of IHCP among the study population of our centre. The secondary objectives were to see the different foeto - maternal outcome like caesarean rate, NICU admissions, still birth rate.

METHODS

A prospective observational study was conducted at our Government multispecialty hospital at Jammu, Jammu and Kashmir, India. The Study duration were from 01 Jan 2017 to 30 June 2019. The institutional ethical approval was taken prior to conduct of study. All patients who participated in the study were explained about the study methodology and recruited only after obtaining informed written consent. The study population were all patient diagnosed with intra hepatic cholestasis of pregnancy. Diagnostic criteria used were clinically evident unexplained pruritus without skin rash especially in palms, soles with increased intensity at night and abnormal transaminase enzyme level of greater than at least twice the normal value 5.

All patient beyond 28 weeks period of gestation (POG) and diagnosed with IHCP were included in the study. The exclusion criteria for the study was patient diagnosed with IHCP after 38 weeks POG. All patients who participated were subsequently treated with tablet ursodeoxycholic acid (UDCA) 10-15 mg/kg (300 mg BD). Liver enzymes were tested every weekly / biweekly till delivery. All patients were followed up in high risk antenatal clinics as per need. The patients who did not have spontaneous preterm birth were admitted by 37 -38

weeks POG and were delivered by suitable method as per institutional protocol. Subsequently they were followed till 14 days post-delivery.

Feto-maternal outcome in form of onset of labour, mode of delivery, outcome of pregnancy, complication, neonatal intensive care unit (NICU) admissions and other foetal and neonatal morbidity were recorded. Statistical analysis was done by appropriate statistical test using SPSS software version 20.

RESULTS

There were 4872 patients underwent delivery and 137 patients were diagnosed with IHCP and they participated. The incidence of IHCP in our study population was 2.81%. The mean age group of the study population was 26.41±3.84 years [1 standard deviation (SD)] with 95% confidence interval (CI) = 25.72 - 27.04 years and range of patient age was 19 to 39 years (Figure 1).

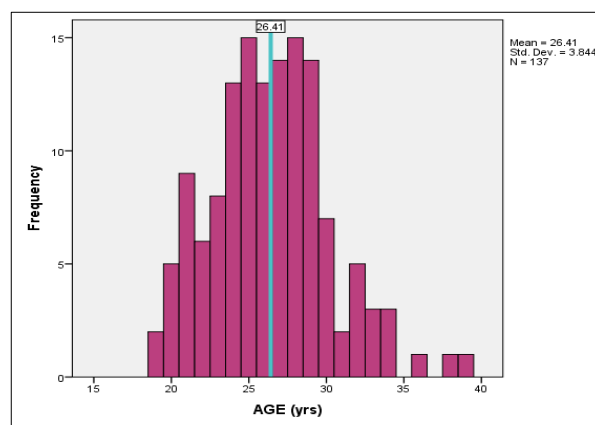


Figure 1: Age distribution of study population.

Table 1: Distribution of patient according to age group, gravida and parity.

Characteristics	Frequency (n)	Percentage (%)	95% Confidence interval	
			Lower	Upper
Age group in years	19-23	29	21.2	14.2 - 27.7
	24-28	71	51.8	43.4 - 60.2
	29-33	31	22.6	15.3 - 30.7
	34-39	6	4.4	1.5 - 7.7
Gravida	1	65	47.4	39.4 - 56.6
	2	46	33.6	24.8 - 41.3
	3	20	14.6	8.8 - 20.8
	4	4	2.9	.7 - 5.8
	5	2	1.5	.0 - 3.6
Parity	0	75	54.7	47.4 - 63.6
	1	54	39.4	31.0 - 46.7
	2	7	5.1	1.8 - 9.1
	3	1	.7	.0 - 2.2

Majority of the patients (51.8%) were in age group of 24-28 years. IHCP was found more in primigravida 47.4% with 95% CI 39.4-56.6%. Second and third gravida were 33.6% with 95% CI 24.8-41.3% and 14.6% with 95% CI 8.8-20.8% respectively. According to parity of study population, IHCP found maximum in nullipara i.e. 54.7% with 95% CI 47.4-63%. Primi para contributed 39.4% and multipara were 5.8% of total IHCP patients (Table 1).

The median gestational age of delivery was 37 weeks 3 days (262 days) and mean age of delivery was 260.58±5.50 days (approx. 37 weeks 02 days) with 95% CI from 259.63-261.61 days. Total no of preterm delivery was 28/137 (20.43%) and term delivery was 109/137 (79.56%) cases. In obstetrics outcome total vaginal delivery was 96 cases (70.07%) and caesarean delivery was 41 cases (29.93%) (Figure 2).

In further sub group analysis, we found that the caesarean delivery rate in preterm and term delivery was 32.11% (35/109) and 21.43% (06/28) respectively. The vaginal delivery in term pregnancy group was 67.89% (74/109) and preterm delivery group was 78.57% (22/28). The primary caesarean was 21.17% (29/137) of delivery. The term pregnancy group has 23.86% (26/109) of primary caesarean rate whereas preterm group has only 14.29% (4/28) of primary caesarean delivery (Table 2). Meconium

stained liquor (MSL) was noted in 41 cases (29.93%) of delivery. Preterm delivery group has approx. 16% more MSL compare to term delivery group. (42.86% versus 26.61%). NICU admissions following delivery was 19.26% in term delivery group (21/109) and 39.29% in preterm delivery group (11/28). There were two cases (1.83%) of intrauterine fetal demise was noted in term pregnancy delivery group and one case (3.57%) was there in preterm delivery group (Figure 2 and Table 2).

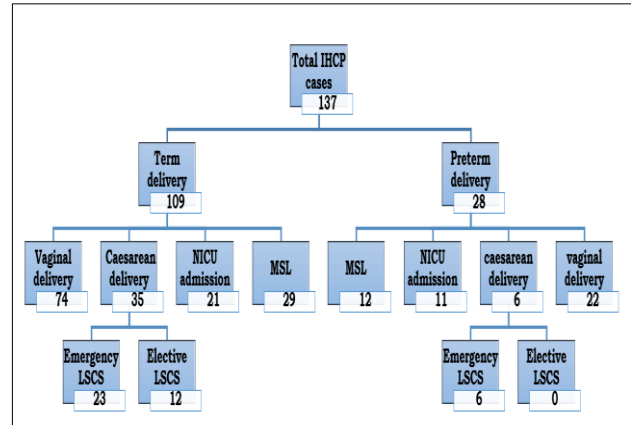


Figure 2: Distribution and different outcome of study population.

Table 2: Distribution of foeto - maternal outcome.

Parameter	Term delivery		Preterm delivery	
	No. (n)	Percentage (%)	No. (n)	Percentage (%)
IHCP cases	109/137	79.56	28/137	20.44
Vaginal delivery	74/109	67.89	22/28	78.57
Caesarean delivery	35/109	32.11	06/28	21.43
Primary caesarean rate	26/109	23.85	4/28	14.29
MSL	29/109	26.61	12/28	42.86
NICU admission	21/109	19.27	11/28	39.29
Still birth / IUFD	2/109	1.83	1/28	3.57

DISCUSSION

Though it is said earlier that the exact cause of IHCP is not known. But recent improvement in medical science have found out the etiology of IHCP. It has a complex etiology with genetic, environmental and endocrine components. The cause of IHCP is believed to be because of effect of reproductive hormone i.e. estrogen and progesterone on genetically susceptible women having variation in gene encoding several hepatobiliary transport protein and bile acid transporter receptor mainly farnesoid X Receptor (FXR).¹

This study was conducted to access the different fetal and maternal outcome during the two- and half-year period of

study from January 2017. The incidence of IHCP were 2.81%. One study from Kolkata, India by Padmaja M et al, reported the incidence of IHCP was 8.2%.⁶ Another study from Jammu, India by Gupta A et al. reported the incidence of IHCP was 9.3% during their study period from 2003 to 2005.⁷ However, in the present study we found the decrease in the incidence rate of IHCP and it is comparable with the study reported by Ray A et al and Glantz A et al.^{2,5} The mean age group of the study population was 26.41±3.84 years which was similar to the study reported by Medda S et al.⁸

Majority of the reported studies showed that the IHCP is more common in multigravida lady with advanced maternal age.^{2,4} However our study showed that the IHCP

was more common in nullipara (54.7%) as well as in primigravida too (47.4%). This finding was also supported by the one study based on north Indian population by Kant A et al.⁹

Preterm delivery rate was higher among IHCP patients. All cases of preterm birth were spontaneous in onset in our study and it was 20.43% of patients. The study reported by Dang A et al, reported 19.14% of preterm delivery in IHCP patients.¹⁰ Present study was also comparable with the above finding. IHCP also contributes to iatrogenic preterm birth due its severity in third trimester. However, in contrary to present believe, we found the mean gestational age of delivery was 37 week 2 days (260.58±5.50 days). Shobaili et al, reported the mean gestational age of their study population was in late preterm range (36.63±2.57 weeks).¹¹

Present evidence supports either the induction of labour or spontaneous onset of labour doesn't increase the incidence of emergency caesarean delivery in pregnancy complicated by IHCP.¹² In our study we found overall caesarean rate was 29.93% with slight (3%) increase in caesarean delivery rate among term delivery group. The primary caesarean rate was higher in term delivery group (~9%) and the most common indications were fetal distress / abnormal CTG trace.

Meconium stained liquor and fetal distress during labour are the known complication in patient with IHCP. IHCP is also associated with higher rate of sudden intrauterine fetal demise. Present study also showed overall 29.93% delivery complicated by MSL with approx. 43% association with preterm birth. Asulum A et al, also reported that IHCP was associated with 44.3% rate of MSL in their study. The probable cause of such high MSL was mainly due to fetal distress and bile acid induced increase in gut motility of fetus.¹³ Over all NICU admissions and still birth in present study were 23.36% and 2.19% respectively. Study reported by Mahajan N et al, also reported the NICU admission rate of 16%.¹⁴ Majority of the NICU admissions were due meconium aspiration and low birthweight baby with respiratory distress in our study.

CONCLUSION

In present days obstetrics practise IHCP is associated with significant maternal and perinatal morbidity in form of increase rate of preterm birth, MSL, NICU admissions and caesarean delivery. However, a large multicentre study is needed for better external validity.

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