

Outcome of Pregnancy Complicated by Obstetric Cholestasis: A Prospective Study

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Abstract

Introduction: Obstetric cholestasis (OC), also known as intrahepatic cholestasis of pregnancy (ICP), is a hepatic disease unique to pregnancy which presents with intense generalized pruritus without any skin rash.

Objective: The aim is to study the outcome of pregnancy both maternal and fetal complicated by OC.

Materials and Methods: A prospective, longitudinal, observational study was carried out in 75 patients with OC of pregnancy from January 2016 to December 2016 in LD Hospital, Government Medical College, Srinagar. Pregnant patients presenting with pruritus and with deranged liver function tests were taken for the study. Statistical analysis was performed.

Results: A total of 75 patients diagnosed with ICP were studied. Maximum patients were primigravida and in age group of 21-25 years. Pruritus was noted more in winter season. Jaundice was seen in 29.34% of patients. Nearly 50.67% of patients had spontaneous onset of labor. Induction of labor was done in 38.67% of patients. A maximum number of patients, i.e., 57.33% had vaginal delivery. Lower segment cesarean section was done in 38.67%. A total of 12 patients had postpartum hemorrhage. Two patients had intrauterine fetal death (IUD) and one patient had still birth. About 9.33% of the neonates had low birth weight and A/S was favorable in majority of neonates and 16% of newborn babies required admission in neonatal intensive care unit because of meconium aspiration.

Conclusion: We demonstrate increased risks of adverse maternal and perinatal outcomes, including stillbirth and IUD in OC. Our findings support the case for close antenatal monitoring of pregnancies affected by severe OC.

Key words: Obstetrics cholestasis, Perinatal outcome, Pregnancy outcome, Pruritus

INTRODUCTION

Obstetric cholestasis (OC), also known as intrahepatic cholestasis of pregnancy (ICP), is a hepatic disease unique to pregnancy which presents with intense generalized pruritus without any skin rash.¹ It is a temporary condition caused by maternal liver dysfunction during pregnancy and blood tests reveal increased levels of one or more of the liver enzymes.² The pathophysiology of intrahepatic cholestasis is poorly understood.³ A genetic background is suggested by family clustering and demographic variation,

with the highest incidence reported from Chile-Bolivia (6%-27%) and Sweden (1-1.5%).⁴ Prevalence in women of Indian Origin is 5%.² The prevalence may have seasonal cycles and may be more prevalent in winters.⁵ The importance of OC lies in the associated adverse pregnancy outcome. The potential risks are intrauterine fetal death (IUD), prematurity (usually iatrogenic), fetal distress, and postpartum hemorrhage (PPH).^{3,6-8} It is also associated with significant maternal morbidity due to persistent itching and consequent sleep deprivation.² Our study was aimed at determining the outcome of pregnancy of both mother and the fetus complicated by OC.

MATERIALS AND METHODS

A prospective longitudinal observational study was carried out in 75 patients with OC from January 2016 to December 2016 in LD Hospital, Government Medical

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Month of Submission : 04-2017
Month of Peer Review : 04-2017
Month of Acceptance : 05-2017
Month of Publishing : 05-2017

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College Srinagar (Jammu and Kashmir). Patients who fulfilled the inclusion criteria, i.e., with pruritus and deranged liver function test (LFT) were taken in the study. Informed consent was obtained from all the patients. The demographic data, complete history with evaluation of risk factors including history of oral contraceptives intake, gallstone, and family history of ICP were taken. The gestational age at which pruritus occurred was noted. Jaundice was noticed on examination. Investigations such as complete blood profile, coagulation profile, and hepatic viral serology were done.

At the time of delivery, the gestational age, the onset of labor, and the mode of delivery were noted. Intrapartum complications were observed. Neonatal outcome and complications including meconium aspiration and fetal distress along with admission of newborn to nursery or neonatal intensive care unit (NICU) were analyzed. Statistical analysis was performed on all the data obtained.

RESULTS

During the study, 83 women were diagnosed with OC, but 8 women did not give the consent for the study so excluded from the study. A maximum number of patients were primigravidae and in the age group of 21-25 years, and mean age was 24.79 years (Tables 1 and 2).

The cardinal symptom of ICP was pruritus after 28 weeks of gestation (about 58.67%) and was noticed more on palms and soles during winters (Figures 1 and 2).

Using pregnancy specific ranges for the LFTs, it was found that the most frequent abnormality encountered in OC was elevated transaminases. There was significant rise in

the serum bilirubin level which was noticed in 29.34%. The aspartate aminotransferase (AST) levels were also significantly raised, upper level being AST >300 mg/dl in 10.66% and was 100-200 in 38.67% of patients. The serum alkaline phosphatase was 400-600 in 38.67% of patients (Table 3).

Out of 75 patients, 10.67% had preterm delivery, whereas 50.67% had spontaneous onset of labor, and mean gestational age was 38 weeks 4 days. Induction of labor was done in 38.67% of patients. Maximum number of patients, i.e., 57.33% had vaginal delivery. Lower segment cesarean section (LSCS) was done in 38.67% and in 18% LSCS was done for obstetrical indication. In 4% of cases, the patients underwent instrument delivery (Figure 3).

Table 1: Distribution of patients according to age

Age (in years)	Number of patients (%)
≤20	5 (6.67)
21-25	35 (46.67)
26-30	28 (37.33)
>30	14 (9.33)
Total	75 (100)

Table 2: Distribution of patients according to parity

Parity	Number of patients (%)
P - 0	47 (62.67)
P - 1	19 (25.33)
P - 2	6 (8)
≥P - 3	3 (4)
Total	75 (100)

Table 3: Distribution of patients according to liver function tests

LFT	Number of patients n=75 (%)
Serum bilirubin (mg/dl.)	
0.2-0.6	31 (41.33)
0.6-1.0	22 (29.33)
1.0-1.4	17 (22.67)
≥1.4	05 (06.67)
AST (IU/L)	
0-100	23 (30.67)
100-200	29 (38.67)
200-300	15 (20.00)
≥300	08 (10.66)
ALT (IU/L)	
0-100	31 (41.33)
100-200	25 (33.33)
200-300	14 (18.67)
≥300	05 (06.67)
Serum ALP (IU/L)	
<200	12 (16.00)
200-400	26 (34.67)
400-600	29 (38.67)
≥600	08 (10.66)

LFT: Liver function test, AST: Aspartate aminotransferase, ALP: Serum alkaline phosphatase, ALT: Alanine aminotransferase

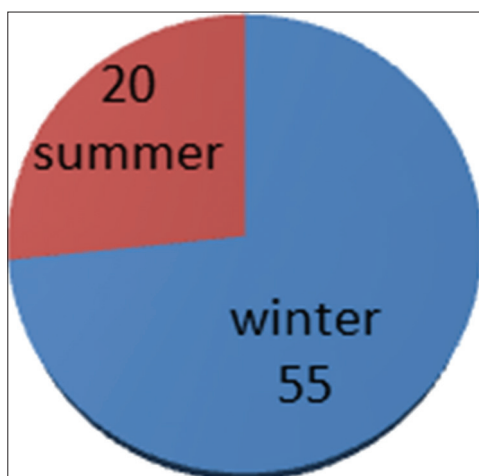


Figure 1: Distribution of patients according to season at the onset of symptoms

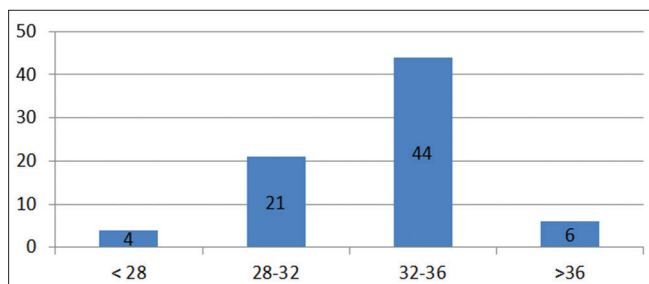


Figure 2: Distribution of patients according to gestational age at the onset of pruritus

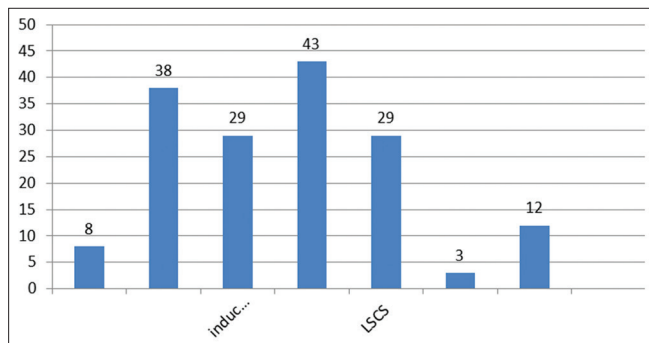


Figure 3: Maternal outcome in cholestasis of pregnancy

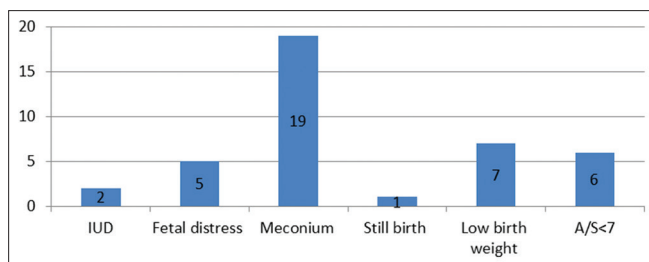


Figure 4: Perinatal outcome in cholestasis of pregnancy

Intrapartum complication in the form of meconium staining was observed in 25.33%, and LSCS was done for the same in 27% of patients.

Perinatal outcome was uneventful in 61.33% of patients. Poor perinatal outcome was observed in 38.67% of neonates. A total of 2 patients had IUD and one patient had still birth. Nearly 9.33% of the neonates had low birth weight and A/S was favorable in majority of neonates and 12 (16%) newborn babies required admission in neonatal intensive care unit (NICU) because of meconium aspiration (Figure 4).

DISCUSSION

The aim of this study was to describe the nature and outcome of OC. The true incidence may be varying because ICP is not assessed commonly and pruritus is overlooked easily when clinical symptoms may be mild or develop near term.

On analyzing the data, the maternal mean age in our study was 24.79 years; this was consistent with the study of Alokanda and Rashne who found mean age of 24.7 years in their study⁹. About two-third of patients were primigravida (62.67%). Padmaja *et al.* found in his study that ICP was present mostly in primigravidae (71.8%)¹⁰, whereas Singh *et al.* also found that 52% of patients were primigravidae in their study.¹¹

About 73.33% of patients were having symptoms in winter season while as only 26.67% presented with pruritus in summers.

In our study, 29.34% had elevated bilirubin and LFT were mildly deranged in most of the patients and these findings were consistent with that of Rashid and Mazhar.¹² Mean gestational age of the women was 38 weeks 4 days in our study while as Rook *et al.* found mean gestational age 37 weeks.¹³

Incidence of preterm delivery is 10.67% in our study consistent with Alsulyman *et al.* with 14% incidence of preterm labor in their study.¹⁴

Nearly two-third of the patients had spontaneous onset of labor and in 29 patients, i.e., (38.66%) induction of labor was done because of cholestasis of pregnancy.

Alokanda and Rashne had reported that 68.75% had spontaneous onset of labor, whereas as Heinonen and Saarikoski, found 12.5% that had undergone labor induction for cholestasis of pregnancy.¹⁵ In the present study, pregnancy outcome was good in induced group, i.e., 65.78% had vaginal delivery and LSCS was done in 34.22% of patients, whereas Alokanda and Rashne found LSCS rate in induced group as 33.3% which was higher than in spontaneous onset group.

Most of the patients had vaginal delivery but LSCS was done in induced group due to meconium and fetal bradycardia. Fetal distress was common after 38 weeks of gestation. Kenyon and Girling 2002 reported LSCS in 36% of his patients.

OC of pregnancy poses little risk to mother but a significant risk to fetus such as preterm delivery, fetal bradycardia, meconium staining of liquor, and intrauterine death also.

Hani *et al.* found increased incidence of fetal asphyxia in women with IHCP.¹⁶

Maternal morbidity, i.e., PPH was seen in 16% of patients. Rashid and Mazhar had PPH in 20% of patients in their study while as Alokanda and Rashne found a higher

incidence of PPH nearly one-fourth of patients in their study (25%).

Poor perinatal outcome was seen in nearly one-third of neonates, i.e., 38.67% of neonates consistent with the study of Rook *et al.* who reported fetal complication in 33% of patients with ICP, whereas Padmaja *et al.* found meconium staining in 17.8% of patients. In this study, 16% of neonates required admission in NICU because of meconium aspiration and prematurity almost consistent with Keyon *et al.* 2002 reported 14% NICU admission.

CONCLUSION

OC occurs in the final months of pregnancy with pruritus as a cardinal symptom. It is associated with increased maternal morbidity and perinatal mortality and morbidity. Close monitoring in antenatal period and induction of labor at 37-38 weeks may improve perinatal outcome.

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How to cite this article: Mahajan N, Afzal A, Lone MI. Outcome of Pregnancy Complicated By Obstetric Cholestasis: A Prospective Study. Int J Sci Stud 2017;5(3):271-274.

Source of Support: Nil, **Conflict of Interest:** None declared.