# FOETOMATERNAL OUTCOME OF OBSTETRIC CHOLESTASIS

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**ABSTRACT**

**BACKGROUND**

Obstetric cholestasis is a medical condition in which cholestasis occurs during pregnancy. It typically presents with troublesome itching and can lead to complications for both mother and foetus.

The aim of the study was to determine the outcome of pregnancy of both mother and foetus complicated by obstetric cholestasis.

**MATERIALS AND METHODS**

This study was a prospective, longitudinal study which was carried out in 105 patients with obstetric cholestasis (OC) from March 2016 to November 2017 in Father Muller Medical College, Kankanady, Mangalore.

**RESULTS**

105 women were diagnosed with obstetrics cholestasis, but 5 women did not give the informed consent for the study. After 28 weeks, the symptom of ICP was pruritis. Number of patients who were less than or equal to 20 years were 10%, between 21-26 years were 41%, between 27-31 years were 30% and greater than 30 years were 19%. Parity of 0 women were 62%, Parity of 1 were 20%, parous of 2 was 11% and multiparous of 7%. Serum bilirubin of 0.2-0.6 mg/dl was observed in 40%, 0.6-1.0 mg/dl in 33%, 1.0-1.4 mg/dl was seen in 22%, and ≥1.4 mg/dl was seen in 5%. Aspartate aminotransferase of 0-100 IU/L was seen in 34%, 100-200 IU/L was seen in 39%, 200-300 IU/L was seen in 20% and ≥300 IU/L was observed in 7%. Alanine aminotransferase of 0-100 IU/L was seen in 47%, 100-200 IU/L was seen in 26%, 200-300 IU/L was seen in 22% and ≥300 IU/L was observed in 5%. Serum Alkaline Phosphatase of <200 IU/L was seen in 18%, 200-400 IU/L was seen in 34%, 400-600 IU/L was seen in 39% and ≥600 IU/L was observed in 9%.

**CONCLUSION**

Obstetric cholestasis is a symptom which arises mostly in the final months of pregnancy with pruritis. Increased maternal morbidity and perinatal mortality and morbidity was observed.

**KEYWORDS**

Obstetric Cholestasis, Pruritis, Intrahepatic Cholestasis of Pregnancy.

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## BACKGROUND

Obstetric Cholestasis (OC) is an uncommon pregnancy condition that affects your liver and makes you feel itchy, sometimes intensely. OC is also called intrahepatic cholestasis of pregnancy (ICP).[1]

One to two pregnancies in 1000 are affected by cholestasis. It is observed most commonly in women carrying multiples, those who have previous liver damage.

The main symptom of OC is itching, often on the palms of your hands and soles of your feet. Itching is a common problem in pregnancy, affecting 23 per cent of women, but only a few of these will have OC. The itching with OC can be particularly intense, and worse at night. There's no rash, although you might scratch so hard that you break your skin.[2]

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The prevalence of obstetric cholestasis is more in winters. Obstetric cholestasis is diagnosed when the total bile acids (TBA) or serum bile acids are measured at 10 micromol/L and above. Intrauterine foetal deaths (IUD), prematurity, foetal distress and post-partum haemorrhage are the potential risks. The aim of the study was to determine the outcome of pregnancy of both mother and foetus complicated by OC.

## MATERIALS AND METHODS

This study was a prospective, longitudinal study which was carried out in 105 patients with obstetric cholestasis (OC) from March 2016 to November 2017 in Father Muller Medical College, Kankanady, Mangalore. Inclusion Criteria was those patients who had pruritis, whose liver function test was deranged were taken into the study. All patients informed consent was obtained. The demographic data, risk factors history of intake of oral contraceptives, gallstones and family history of ICP was taken. The gestational age at which pruritis was observed was noted. Jaundice was also investigated. Complete blood profile, coagulation profile, and hepatic viral serology was investigated. Intrapartum complications were noted. The gestational age, the labour onset, delivery mode at the time of delivery was noted.

**RESULTS**

105 women were diagnosed with obstetrics cholestasis, but 5 women did not give the informed consent for the study. After 28 weeks, the symptom of ICP was pruritis.

| Age in Years | Number of Patients (%) |
|---|---|
| ≤20 | 10(10%) |
| 21-26 | 41(41%) |
| 27-31 | 30(30%) |
| >30 | 19(19%) |
| Total | 100(100%) |
| ***Table 1. Distribution of Patients According to Age*** | |

Table 1 shows that the number of patients who were less than or equal to 20 years were 10%, between 21-26 years were 41%, between 27-31 years were 30% and greater than 30 years were 19%.

Gestational age of less than 34 weeks was seen in 15 patients (15%), 34-36 weeks was seen in 30 patients (30%), 37-40 weeks was seen in 45 patients (45%) and more than 40 weeks was seen in 10 patients (10%).

| Parity | Number of Patients (%) |
|---|---|
| P-0 | 62(62%) |
| P-1 | 20(20%) |
| P-2 | 11(11%) |
| Multiparous | 7(7%) |
| Total | 100(100%) |
| ***Table 2. Distribution of Patients According to Parity*** | |

Table 2 shows that Parity of 0 women were 62%, Parity of 1 were 20%, parous of 2 was 11% and multiparous of 7%.

Neonatal outcomes were APGAR score of less than 7 at 5 minutes was seen in 12 patients, birth weight of less than 2500 grams was seen in 20 patients, intrapartum foetal distress was seen in 25 patients, meconium staining was seen in 30 patients, spontaneous preterm delivery was seen in 7 patients, intrauterine foetal death was seen in 3 patients, fresh still birth was seen in 3 patients. Out of 100 neonates, 40 neonates were admitted in NICU.

| Liver Function Tests (Serum Bilirubin) mg/dl | Number of Patients (%) |
|---|---|
| 0.2-0.6 | 40(40%) |
| 0.6-1.0 | 33(33%) |
| 1.0-1.4 | 22(22%) |
| ≥1.4 | 5(5%) |
| Total | 100(100%) |
| ***Table 3. Distribution of Patients According to Liver Function Tests*** | |

Table 3 shows that serum bilirubin of 0.2-0.6 mg/dl was observed in 40%, 0.6-1.0 mg/dl in 33%, 1.0-1.4 mg/dl was seen in 22%, and ≥1.4 mg/dl was seen in 5%.

| Aspartate Aminotransferase IU/L | Number of Patients (%) |
|---|---|
| 0-100 | 34(34%) |
| 100-200 | 39(39%) |
| 200-300 | 20(20%) |
| ≥300 | 7(7%) |
| Total | 100(100%) |
| ***Table 4. Distribution of Patients According to Liver Function Tests*** | |

Table 4 shows that aspartate aminotransferase of 0-100 IU/L was seen in 34%, 100-200 IU/L was seen in 39%, 200-300 IU/L was seen in 20% and ≥300 IU/L was observed in 7%.

| Alanine Aminotransferase IU/L | Number of Patients (%) |
|---|---|
| 0-100 | 47(47%) |
| 100-200 | 26(26%) |
| 200-300 | 22(22%) |
| ≥300 | 5(5%) |
| Total | 100(100%) |
| ***Table 5. Distribution of Patients According to Liver Function Tests*** | |

Table 5 shows that alanine aminotransferase of 0-100 IU/L was seen in 47%, 100-200 IU/L was seen in 26%, 200-300 IU/L was seen in 22% and ≥300 IU/L was observed in 5%.

| Serum Alkaline Phosphatase IU/L | Number of Patients (%) |
|---|---|
| <200 | 18(18%) |
| 200-400 | 34(34%) |
| 400-600 | 39(39%) |
| ≥600 | 9(9%) |
| Total | 100(100%) |
| ***Table 6. Distribution of Patients According to Liver Function Tests*** | |

Table 6 shows that Serum Alkaline Phosphatase of <200 IU/L was seen in 18%, 200-400 IU/L was seen in 34%, 400-600 IU/L was seen in 39% and ≥600 IU/L was observed in 9%.

**DISCUSSION**

In our study, number of patients who were less than or equal to 20 years were 10%, between 21-26 years were 41%, between 27-31 years were 30% and greater than 30 years were 19%. In Aloknanda and Rashne et al;[3] the maternal mean age was 24.7 years, in Neha Mahajan et al;[4] the maternal mean age was 24.79 years. Parity of 0 were seen in 62% in our study, Parity of 0 in Padmaja et al[5] was seen in 71.8%, in Neha Mahajan et al[4] was seen in 62.67%, in Singh et al 52% of patients had a parity of 0. About 75% of patients were having the OC symptoms in winter season and 25% of patients presented pruritis in summers. In Neha

Mahajan et al study,[4] 29.34% of the patients had an elevated bilirubin and LFT, whereas in our study, in our study, 33% had an elevated bilirubin and LFT, Rashid and Mazhar were consistent with Neha Mahajan[4] results. In Rook et al study, the mean gestational age was 37 weeks, in Neha Mahajan[4] et al; the mean gestational age of women was 38 weeks, 4 days, in our study, mean gestational age was 37 weeks. In Neha Mahajan et al[4] study, the preterm delivery incidence was 10.67%, in Alsulyman et al[5] study, the preterm delivery incidence was 14%, in our study, the preterm delivery incidence was 15%. 30 patients had labour induction because of cholestasis of pregnancy in our study. In Aloknanda and Rashne et al[3] study, 68.75% had spontaneous labour onset, 12.5% had underwent labour induction of cholestasis of pregnancy in Heinonen and Saarikoski.[6] In our study, outcome of pregnancy was good in induced group i.e. 64% had vaginal delivery and 36% of LSCS, whereas in Aloknanda and Rashne study,[3] LSCS rate in induced group was 33.3% which was higher than spontaneous onset group. Due to meconium and foetal bradycardia, most of the patients had had undergone LSCS delivery in induced group and others had undergone vaginal delivery. 36% of patients had undergone LSCS in Kenyon and Girling et al study[7]. In Hani et al,[8] increased foetal asphyxia incidence was observed in all patients. In Keyon et al study, 14% were NICU admission. 40% of patients had poor perinatal outcome in our study which was consistent with Rook et al[9] study, in which 33% of the patients had foetal complication with intrahepatic cholestasis of pregnancy, whereas in Padmaja et al[10] study, 17.8% of patients showed meconium staining. 18% of neonates required admission in NICU as they had meconium aspiration and consistent prematurity.

In study done by Naureen Anjum et al,[11] a comparison was made between early versus late term delivery, the risk of caesarean delivery was higher in early term delivery group (before 38 weeks) as compared to late term delivery group (after 38 weeks). No difference in postpartum haemorrhage and drop in haemoglobin was observed between the two groups. In both the groups, obstetric cholestasis was not associated with adverse perinatal outcome such as intrauterine death (IUD), low Apgar Scores, respiratory distress and neonatal intensive care admission. In many cases, neonatal jaundice was observed in babies born after 38 weeks. In Samik Medda et al study,[12] obstetric cholestasis incidence was observed in 9.9%, 43.0% of the cases were diagnosed in late gestational age of 28 to 32 weeks, whereas in our study it was similar i.e. late gestational age of 37-40 weeks was seen in 40% of the cases. Maternal morbidities were due to sleep disturbance (60/100), chances of operative delivery were increased in 66%, Neonatal morbidities were due to foetal distress, prematurity (22%), low birth weight (32/100), and meconium staining of amniotic fluid was observed in 42%. Due to active and early intervention, maximum number of patients delivered at 37 to 38 weeks whereas in our study meconium staining was observed in 30/100 patients, neonatal morbidities were due to intrapartum foetal distress (25%), intrauterine foetal death (3%) and fresh still births (3%). In a study done by Sita Pokhrel et al,[13] foetal complications were seen in majority of cases that included meconium aspiration syndrome 26 (32.5%), intrapartum foetal distress 21 (26.25%) and requirement of: intensive care 38 (48.75%). There were 7 perinatal and 3 neonatal deaths which was almost similar to our study that is intrapartum foetal distress was seen in 25 patients, meconium staining was seen in 30 patients, spontaneous preterm delivery was seen in 7 patients, intrauterine foetal death was seen in 3 patients, fresh still birth was seen in 2 patients. Out of 100 neonates, 40 neonates were admitted in NICU.

In a study done by Turunen K et al,[14] the risk for hospital stay of 10 days or more was eightfold (OR 8.41), for gestational weeks less than 37 at delivery sevenfold (OR 7.02), for induction threefold (OR 3.26), for baby's low weight at birth almost twofold (OR 1.86), and for Caesarean section one and a half fold (OR 1.47). The possibility of the incidence of multiple pregnancy was two and a half fold (OR 2.49, 95%). ICP was not associated with mother's age, the baby's risk of stillbirth, or low Apgar scores.

## CONCLUSION

OC is a symptom which arises mostly in the final months of pregnancy with pruritis. Increased maternal morbidity and perinatal mortality and morbidity were observed.

Perinatal outcome can be improved by monitoring closely in the antenatal period and labour induction in 37-38 weeks.

## REFERENCES

[1] Pusl T, Beuers U. Intrahepatic cholestasis of pregnancy. Orphanet J Rare Dis 2007;2:26.
[2] Reyes H, Sjövall J. Bile acids and progesterone metabolites in intrahepatic cholestasis of pregnancy. Ann Med 2000;32(2):94-106.
[3] Alokananda R, Rashne TJ, Roshan B. Cholestasis of pregnancy. J Obstet Gynaecol India 2005;55(3):247-250.
[4] Mahajan N, Afzal A, Lone MI. Outcome of pregnancy complicated by obstetric cholestasis: a prospective study. International Journal of Scientific Study 2017;5(3):271-274.
[5] Alsulyman OM, Ouzounian JG, Ames-Castro M, et al. Intrahepatic cholestasis of pregnancy: perinatal outcome associated with expectant management. Am J Obstet Gynecol 1996;175(4 Pt 1):957-960.
[6] Heinonen S, Saarikoski S. Reproductive risk factors of fetal asphyxia at delivery: a population based analysis. J Clin Epidemiol 2001;54(4):407-410.
[7] Kenyon AP, Girling JC. Obstetric cholestasis. In: Studd J, ed. Progress in obstetrics and gynaecology. Edinburgh: Churchill Livingstone 2005:37-56.
[8] Al Shobaili HA, Hamed HO, Al Robaee A, et al. Obstetrical and fetal outcome of a new management strategy in patients with intrahepatic cholestasis of

pregnancy. Arch Gynaecol Obstet 2011;283(6):1219-1225.
[9] Rook M, Vargas J, Caughey A, et al. Fetal outcome in pregnancies complicated by IHCT in a Northern California Cohart. PloS One 2012;7(3):e28343.
[10] Padmaja M, Gupta JK, Bhaskar P, et al. A study of obstetric cholestasis. J Obstet Gynaecol India 2010;60(3):225-231.
[11] Anjum N, Babar N, Sheikh S. Maternal and neonatal outcome in obstetric cholestasis: a comparison of early versus late term delivery. Pak Armed Forces Med J 2015;65(4):464-468.
[12] Medda S, Sengupta S, Palo U. A study of outcome of pregnancy complicated by obstetric cholestasis. International Journal of Reproduction, Contraception Obstetrics and Gynecology 2018;7(3):996-1001.
[13] Pokhrel S, Ghimire A, Jha GS, et al. Feto-maternal outcomes in intrahepatic cholestasis in pregnancy in a tertiary care centre in Eastern Nepal. Journal of Nobel Medical College 2016;5(8):20-25.
[14] Turunen K, Sumanen M, Haukilahti RL, et al. Good pregnancy outcome despite intrahepatic cholestasis. Scand J Prim Health Care 2010;28(2):102-107.