

Pregnancy Outcome in Obstetric Cholestasis of Pregnancy with Active Management

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Aims: To study the maternal and perinatal outcome of pregnancies complicated with obstetric cholestasis with active management.

Methods: This is a cross-sectional, descriptive study done at the department of obstetrics and gynecological of Kathmandu Medical College Teaching Hospital for 24 months. All the cases of obstetric cholestasis that were managed by active management were enrolled as cases. Their demographic details, maternal and perinatal outcome were noted. Data was analyzed and presented as mean, percentage and frequency and presented as tables and figures.

Results: Total 84 cases of obstetric cholestasis were managed by active management during the study period. The mean age of the women were 26.59 years (21-34 years), the mean gestational age at diagnosis was 32.53 weeks (18 - 38 weeks). Diabetes mellitus was present in 17.85% and 15.47% had hypertensive disorder of pregnancy.

All the cases had complaint of pruritus and 89.25% of the case had itching over abdomen, 73.78% of the women had itching over palms and soles. The itching was severe enough to cause sleep disturbance in over 65% of the cases. Meconium staining of liquor was present in 17.85% of the cases; cesarean section rate was 60.69%. There were 3 cases (3.57%) of postpartum hemorrhage but none required blood transfusion. There were no cases of still birth or neonatal death. Over 10% of the neonate had Apgar score less than 7 at 5 minute and approximately one fourth of the newborn required NICU care.

Conclusions: Adverse pregnancy outcome associated with obstetric cholestasis can be minimized with active management of the cases.

Keywords: cholestasis, maternal, obstetric, outcome, perinatal

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INTRODUCTION

Pruritus in pregnancy is common, affecting 23% of pregnancies, of which a small proportion will have obstetric cholestasis.¹ Obstetric cholestasis (OC) also referred to as intrahepatic cholestasis of pregnancy is a liver disorder unique to pregnancy where there is liver dysfunction associated with pruritus.² It is a condition of third trimester in most instances but cases with early onset as early as first trimester have been reported.³ Affected pregnancies have an increased adverse maternal and perinatal outcome.^{2,4}

Obstetric cholestasis has a genetic predisposition that influences sensitivity to certain hormonal and environmental factors in the third trimester of pregnancy.⁵⁻⁷ Incidence of OC varies widely due to the genetic factor. In England, obstetric

cholestasis affects 0.7% of pregnancies in multiethnic populations¹ and 1.2 – 1.5% of women of Indian-Asian or Pakistani-Asian origin,⁸ 0.32 – 0.58% of pregnancies in Scandinavian countries⁹ and up to 24% of indigenous (Araucanian Indian) pregnancies in Chile, although the rate has now fallen to around 1.5 to 4%.¹⁰

The condition may reoccur in subsequent pregnancies.⁵ Recent studies have shown its association with gestational diabetes.¹¹ The incidence is increased in women who are seropositive for hepatitis C, which may be associated with early onset disease.¹² While there are enough data from western countries and our neighboring countries on obstetric cholestasis, there are scarce data from Nepal. Moreover, till date there is no data from Nepal on pregnancy outcome in obstetric cholestasis with active management. This study was done to find out maternal and perinatal outcome of pregnancy complicated with obstetric cholestasis with active management at Kathmandu Medical College.

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METHODS

This is a cross sectional, descriptive study done at the department of obstetrics and gynecology of Kathmandu Medical College Teaching Hospital (KMCTH) for 24 months (January 2014- December 2015). All the admitted women diagnosed with obstetric cholestasis who delivered at the hospital were enrolled with informed consent irrespective of their age, parity and gestational age. Obstetric cholestasis was diagnosed if the pregnant lady had persistent pruritus in association with abnormal liver function in the absence of other liver disease. Cases with other causes of pruritus during pregnancy like hepatitis and liver involvement due to pre-eclampsia were excluded. Abnormal liver function was defined as abnormal value of one or more of liver enzymes alanine aminotransferase (ALT) or aspartate aminotransferase (AST) and serum bilirubin. Cases were managed according to the hospital protocol which included topical emollients, antihistamines, ursodeoxycholic Acid (UDCA) up to 1200 mg per day. Liver function test like liver enzymes and prothrombin time (PT), INR (international normalized ratio) were repeated weekly till delivery; close fetal assessment was also done by alternate day non stress test (NST); and weekly assessment was done for the amniotic fluid volume and fetal growth by ultrasonogram. Elective delivery was planned after 38 weeks of gestation. Induction of labor was done for the cases with no contraindication to vaginal delivery. The demographic, clinical and laboratory parameters were recorded. Details of delivery like mode of delivery, indications of emergency cesarean section, color of amniotic fluid, Apgar score at 1 min and 5 min, birth weight, need for Neonatal intensive unit (NICU) care were noted. Maternal outcome like incidences of ante partum hemorrhage, post partum hemorrhage, need for blood transfusion was also noted.

Data was entered in Microsoft excel spread sheet for statistical analysis. Data is presented as mean, percentage and frequency and presented as tables and figures.

RESULTS

During the twenty four months of study period total 84 cases of obstetric cholestasis were managed at the KMCTH. The mean age of the women was 26.6 years (21-34 years). The mean gestational age at which OC was diagnosed was 32.5 weeks with range between

18 weeks to 38 weeks. Two cases were diagnosed in second trimester, one case as early as 18 weeks (Table 1).

Table-1: Demographic characteristics

Variables	Mean±SD
Mean age	26.59±2.87
duration of pregnancy(weeks)	37.8±1.27
number of pregnancy	2.1±1.12
Period of gestation at diagnosis(weeks)	32.53±4.68

Obstetric cholestasis was complicated with diabetes mellitus in 15 (17.85%) and had hypertensive disorder of pregnancy in 13 (15.47%). All the cases had complaint of itching by 89% over the abdomen, 74% over palm and sole, 25% all over their body, and 14.3% over the breast in addition to itching either over palms and soles or abdomen. The itching was severe enough to cause sleep disturbance in 55 (over 65%) of the cases.

The mean level of AST, ALT, and ALP were 145.61IU/L (N=60-290), 148.15IU/L (50-322), and 289.42IU/L (86-745) respectively. Mean total serum bilirubin level was 1.37 mg/dl (0.8-2.2 mg/dl). Of the 84 cases of OC 51 cases (60.69%) delivered by Cesarean section and rest of the 33 cases (39.27%) delivered by vaginal delivery (Table 2).

Table-2: Intrapartum events

Variables	n (%)
Meconium staining of liquor	15(17.85)
Instrumental delivery	3 (3.57)
Caesarean section	51 (60.69)
FHR irregularities	12 (14.28)

Of the vaginal delivery, 11 cases (13.09%) were preterm delivery. Of the preterm, delivery 3 cases were preterm twin vaginal delivery and 8 cases were singleton preterm delivery. Nine cases (10.71%) went into spontaneous labor between 37 and 39 weeks and delivered vaginally. Forty three cases (51.19%) underwent induction of labour at 38 weeks of gestation as per the departmental protocol. Of the induced cases, 13 cases (30.23%) delivered vaginally whereas 30 cases (69.76%) had to undergo cesarean section. Indications for cesarean section was failed induction in 10 cases (33.33%), fetal distress in 12 cases (40%) and non-progress of labour in 8 cases (26.66%). There were 3 cases (3.57%) of postpartum hemorrhage but none of the cases required blood transfusion. Total 87 live neonates were born without any cases of still birth or neonatal death. Over 10% of

the neonate had Apgar score less than 7 at 5 minute and approximately one fourth of the newborn required NICU care (Table 3).

Table-3: Apgar score and neonatal unit admission

Variables	n(%)
Apgar score	
< 7 at 1 min	16(18.39)
< 7 at 5 min	9 (10.34)
Neonatal unit admission	20 (22.98)

DISCUSSION

Approximately one in four pregnant women suffers from itching of varying severity during pregnancy.¹ But only a small number of women develop obstetric cholestasis. There is no national study till date to show the prevalence of OC in Nepal. A study from eastern Nepal has found its prevalence to be 1.15%.¹³ This finding is similar to the findings from Indian population.^{14, 15}

Mean age of the cases with OC in this study is 26.59 years and advanced maternal age a predisposing factor for OC as shown by Heinonen & Kirkinen was not seen in this study.¹⁶ The finding is similar in another study from Nepal.¹³ More than 97% of the cases were diagnosed during third trimester in current study which is similar to the findings from other studies.¹³⁻¹⁵

Studies have shown association of gestational diabetes mellitus and pre-eclampsia with OC.^{11, 17} This study also showed higher prevalence of gestational diabetes mellitus and hypertensive disorder of pregnancy in association with OC.

All the women had pruritus of varying severity in the current study. The commonest site of pruritus was abdomen (89.25%) followed by palms and soles (73.78%) which is high in comparison to the findings of an Indian study which had the prevalence of itching over palms and soles to be 47%.¹⁸ Only in 24.99% of the women had itching all over their body and 14.28% also complained itching over breast. Studies have shown that the pruritus of obstetric cholestasis is typically worse at night with consequent sleep disturbances.^{1, 18} This finding is consistent with the findings of current study where 65% of the women complained about sleep disturbances.

Mean estimated gestational age at delivery was 37.8 weeks in current study which is comparable

to that reported by Ray et al and Padmaja et al.^{18,19} Prevalence of preterm delivery in this study was less than that shown by Ray et al (13%vs 23%). Induction rate of this study (51.19%) is comparable to the finding of Pokhrel et al and Turunen et al.^{13, 20} The cesarean section rate in the cases of OC in this study is 60.69% which is higher than the findings of Pokhrel et al and the reason behind could be routine early induction at 38 weeks with almost one third of the cases landing up with cesarean section for failed induction in current study.¹³ However the cesarean section rate is less in comparison to that of Padmaja et al (60.69%vs 93.3%).¹⁹

The prevalence of postpartum hemorrhage (PPH) was only 3.57% in this study which is low in comparison to the findings of Pokhrel et al which may be due to the lack of adequate antenatal care and low socioeconomic status of the cases stated in the study by Pokhrel et al.¹³ Obstetric cholestasis is associated with fetal risk which includes preterm delivery (25% versus 6.5%), NICU admission (12% versus 5.6%), intrauterine fetal death (1.5% versus 0.5%).^{21, 22}

The prevalence of preterm delivery in current study is slightly over 13% which is less in comparison to the findings of other studies.^{21,22} Total 87 live neonates were born without any cases of still birth or neonatal death in the current study. This can be attributed to the active management of the cases done in current study. Over 10% of the neonate had Apgar score less than 7 at 5 minute which is comparable to the finding of Pokhrel et al and Ray et al.^{13, 14} Incidence of meconium staining of liquor was also low in this study in comparison to the findings of Pokhrel et al which can be attributed to early induction of labour. Approximately one fourth of the newborn required NICU care in this study which is low in comparison to the study in Pokhrel et al.¹³ The reason for low incidence of NICU admission could be early induction and delivery and low incidence of meconium staining of liquor.

CONCLUSIONS

Obstetric cholestasis is associated with increased risk of perinatal morbidity and mortality which can be minimized with active management of the cases by early induction of labour. However, early induction of labour may increase maternal morbidity by increasing cesarean section rate.

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