



MATERNAL AND PERINATAL OUTCOME IN BORDERLINE OLIGOHYDRAMNIOS: A HOSPITAL-BASED STUDY

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Abstract:

Introduction: Amniotic fluid index (AFI) between 5.1 to 8 is termed as borderline oligohydramnios. Oligohydramnios has been linked with perinatal morbidity and mortality, however there are paucity of data on the effect of outcome of pregnancy among the isolated borderline oligohydramnios. This study studied the outcome of borderline oligohydramnios.

Methods: Pregnant women after 30 weeks period of gestation, with AFI 5-8 were included in the study. Pregnancy with hypertension, diabetes, heart disease, congenital anomalies in fetus, previous cesarean section or any uterine surgery were excluded from the study. Collected data were analyzed using descriptive statistics.

Results: 140 pregnancy were enrolled. The mean age(SD) of study population was 24.7(4.0) years. 60%. The mean(SD) gestational age at the presentation was 38.8(1.6) weeks, with range from 35.3 weeks to 42.5 weeks. Induction of labour was done in 80.2%, normal delivery was possible only in 42.1%. Meconium-stained liquor was present in 27.1%. The most common indication of cesarean section was Non-reactive Non-Stress Test (NRNST) among 51.9%. Postpartum Haemorrhage(PPH) was observed in 11.4%. There was no perinatal depression, the mean(SD) of birth weight was 2.9(0.4) kgs. 6.4% of the cases required nursery admission, among them the common causes of nursery admission were neonatal sepsis (45%) and various causes of respiratory-distress (55%). There was no neonatal or maternal death.

Conclusions: Borderline oligohydramnios was more among nulliparous with higher rate of caesarean section. However, adverse outcome like PPH, neonatal infection and respiratory distress are less frequent findings and there was no perinatal mortality.

Keywords: Borderline oligohydramnios, perinatal, maternal, neonatal, outcome.

Introduction:

Amniotic fluid has myriads of importance during pregnancy. It creates a physical space for fetal movement, which is necessary for normal musculoskeletal development. It permits fetal swallowing and fetal breathing which is responsible for gastrointestinal tract development and fetal lung development. It guards against umbilical cord compression. Amniotic fluid volume abnormalities may reflect fetal or placental pathology. These volume extremes may be associated with increased risk for adverse pregnancy outcome. Abnormally decreased fluid volume is termed oligohydramnios. Amniotic fluid volume evaluation is essential component of every second or third trimester sonogram. It is assessed by measuring either a single pocket or the amniotic fluid index (AFI). (1) AFI between 5.1 and 8 cm is termed as borderline Oligohydramnios. (2) Similarly, borderline Oligohydramnios is defined as AFI of 5.1-10 cm.(3,4) According to a meta-analysis, the incidence of borderline Oligohydramnios is about 6% to 44% in term pregnancy, with average incidence being 12%. (5)

Borderline Oligohydramnios is associated with higher rate of preterm delivery, cesarean delivery for non-reassuring Non-Stress Test (NST), fetal growth restriction, congenital anomalies, perinatal morbidity and mortality. However, some studies done in cases of abnormal liquor volume show

that amniotic fluid is poor predictor of adverse outcome.(6) Oligohydramnios is a common clinical condition in obstetrics. It may have direct relation with maternal and fetal outcome. Research in an institution helps to find out not only the status of quality of services but also determine the important cause of adverse outcomes and take measures to reduce it. So, identifying the clinico- epidemiological profile of the patient with Oligohydramnios and its effect on fetomaternal outcome may help to optimize management protocol. This study was carried out to find out the effect of borderline oligohydramnios on maternal and perinatal outcome.

Materials and Methods:

This study was conducted in B.P. Koirala Institute of Health Sciences, a referral center in Eastern Nepal. Pregnant women after 30 weeks period of gestation, with AFI 5-8 admitted in obstetrics ward was included in the study after obtaining the consent. While, pregnancy with hypertension, diabetes, heart disease, any congenital anomalies in fetus, previous cesarean section or any uterine surgery were excluded from the study. 140 cases were enrolled in the study period of 1 year from February 2018. The cases were admitted, investigated, monitored and managed as per hospital protocol. A history was taken at admission and all perinatal events occurred from admission till discharge to both mother and neonate was finally recorded in the

designed proforma, the data was extracted both from interview and records. The cases were followed till both mother and neonate were discharged from the hospital. The study was approved by Institutional Review Committee.

Data was entered and analyzed using MS Excel 2016 version. The important data, including population characteristics, mode of delivery, maternal outcome and neonatal outcome was summarized by using descriptive statistics.

Results:

During study period, 140 pregnant females with borderline oligohydramnios were enrolled. The mean age (SD) of study population was 24.7(4.0) years ranging from 20 to 38 years, and more than three quarter of them were less than 30 years. 60 percent of the patients were primigravida, 25% were second gravida. The mean (SD) gestational age at the presentation was 38.8 (1.6) weeks, with range from 35.3 weeks to 42.5 weeks. 52.1% had adequate ante natal checkups of more than 3 visits. AFI of 5.1 to 6 was measured in 20.7% and remaining percentage has AFI of 6.1. to 7.9.

Induction of labour was done in 80.2% and remaining had spontaneous onset of labour. Similarly, normal delivery was possible in 42.1% while Lower Segment Caesarean Section (LSCS) was required in remaining pregnancy. Meconium-stained liquor (MSL) was present in 27.1% of the total cases. The most common indication of LSCS was Non-reactive Non-Stress Test (NRNST) among 51.9%, the indications are summarized in **Table 1**. Maternal complication in form of Postpartum Haemorrhage was observed in 11.4%, while remaining did not suffered any complication.

Table 1: Indication for LSCS (N=81)

Indications	Frequency	Percent
NRNST*	42	51.85185
Failed Induction	22	27.16049
MSL	9	11.11111
Refused induction/CDMR ⁺	6	7.407407
Low Lying Placenta	2	2.469136

*Non-reactive Non-stress Test, ⁺ Caesarean done on Maternal Request

There was no perinatal depression observed in any of the delivered neonate with good APGAR score. The mean (SD) of birth weight was 2.9 (0.4) kgs with weight ranging from 2 to 3.9 kgs, 17.8% of the neonates were low birth weight. Ambiguous genitalia were observed in 2 cases. Nine (6.4%) of the cases required nursery admission, the causes of nursery admission are depicted in **Figure 1**. There was no neonatal or maternal death observed in this study.

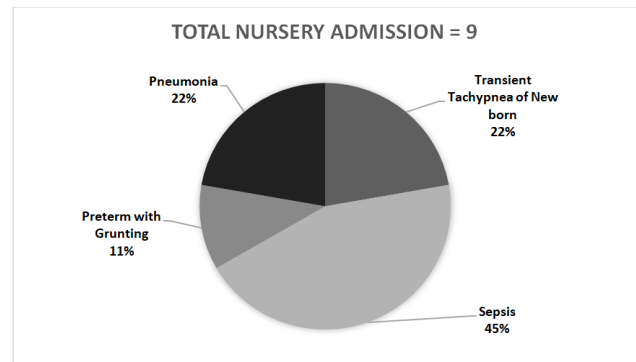


Figure 1: Indications for Newborn Admission

Discussions:

Borderline oligohydramnios always produces a dilemma of management and counselling among obstetricians. This study showed that borderline oligohydramnios was more common among nulliparous women (72%). The incidence of induction of labour was high (80%), 57.8% had LSCS and the main cause for LSCS was NRNST and 11.6% suffered from 11.4%. 6% of the baby was admitted in NICU with sepsis as the most common cause. Various studies have shown association of adverse perinatal outcome in case of borderline amniotic fluid index, and in most, findings, the incidence of maternal and fetal complications were reported more often in cases with borderline Oligohydramnios than in those with normal AFI.(5,7)

In a study done by Jagatia et al, the incidence of oligohydramnios was more among primipara which was similar to our study. They found in their study that, 51% of caesarean section were for fetal distress, which was the main reason for LSCS and 31% of patient with oligohydramnios had meconium-stained liquor. In our study also the main cause for LSCS was fetal distress as indicated by NRNST, although 27% had MSL, the indication for CS among MSL was present in only 11.1%. (8) In another study, among pregnancy with AFI<5, non-reassuring Fetal heart rate was observed in 6%, which was much higher in our study, while the percentage of neonatal requiring NICU admission was 20% whilst 6% in our study.(9) The rate of NICU admission was also very high recorded up to 43%.(10) Similarly another study on oligohydramnios wit AFI < 5 showed that incidence of MSL (29.1%), fetal distress (7.9%) and premature placental separation (4.2%). Asphyxia occurred in 11.5% and cesarean section was performed in 35.2% of these pregnancies. The overall rate of fetal malformations was 11% and that of lethal malformations 4.8%. The neonatal death has been reported at 6.3% in deliveries of oligohydramnios patients.(11) In our study only 2 cases had congenital problem in the form of ambiguous genitalia, the relatively low adverse outcome in our group was because this study only included borderline oligohydramnios.

Alike our study, in one of the studies among borderline oligohydramnios, 62.7% of nulliparous were affected at a

mean gestational age of 37.4 weeks, caesarean section was conducted among 37.2%, abruptio was observed in 3.9%, NRNST was seen in 27.4% and MSL in 25.4%, however there was twice the percentage of NICU admission in comparison to our study and also neonatal death was observed in 3.9%.(12) In another comparative study done by Giri A, borderline Oligohydramnios was associated with increased incidence of meconium stained liquor (31% vs 15%), cesarean delivery (33.3% vs 17%) when compared to normal AFI.(13) In similar other study at Alzahra hospital, preterm delivery and labor induction in women with borderline AFI were higher than those in normal group ($p=0.01$ and $p=0.001$). There were no significant differences between the two groups in terms of high blood pressure, preeclampsia, diabetes and neonatal respiratory distress. The borderline AFI group had higher rate of neonatal complications such as Apgar score of less than 7 ($p=0.004$), IUGR (0.0001), LBW (0.001), and crucial need to NICU (0.003).(14) This study enrolled the adequate number of sample, however being a descriptive study in could not draw an inference among borderline oligohydramnios, oligohydramnios and pregnancy with normal amniotic fluid, further studies comparing such groups are warranted.

Conclusions:

This study concluded that among nulliparous woman the borderline oligohydramnios is more, there is higher rate of caesarean section among such pregnancy. However, adverse outcome like PPH, neonatal infection and respiratory distress are less frequent findings. As well as, neonatal and maternal mortality was absent. An inference could be drawn that close monitoring of borderline oligohydramnios is required to prevent perinatal morbidity and mortality.

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