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Perinatal outcome in term pregnancy with oligohydramnios

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Abstract
Background: Oligohydramnios is a clinical condition characterized by amniotic fluid index (AFI) of 5cm or less. Oligohydramnios is associated with increased pregnancy related complications, congenital anomalies and perinatal mortality. There is an inverse relationship between the amniotic fluid index (AFI) and the adverse perinatal outcome. Recognition of the foetus at risk for death or damage in utero, balancing the fetal risk against the risk of neonatal complications from immaturity and determining the optimal time and mode of intervention is therefore very important to prevent perinatal mortality and morbidity.
Objective: This prospective case control study was done with the aim to analyze the fetal outcome in low risk pregnant women with oligohydramnios at term.
Material and Methods: 100 antenatal women were assessed in Maharshi Markandeshwar Institute of Medical Sciences and Research, Mullana, Haryana. Proper history was taken and clinical examination was done. AFI was measured and perinatal outcome was compared between the two groups with AFI <5 and >5.
Results: Pregnant women were divided to two groups. 25 pregnant women with AFI ≤ 5cm with low risk pregnancies at term were included in group A and 75 women with AFI ≥ 5cm and ≤ 20cm were included in group B. The two groups were similar with regard to maternal age, parity and mean gestational age. Women in the oligohydroamnious group had increased rate of cesarean sections (40%). Fetal distress was observed in 28.8% women in oligohydroamnios group and 14.55% in the control group. 32.1% of the group A women delivered low birth weight babies while the incidence of low birth weight babies in the control group was 17.33%. 36.2% of women in Group A underwent induction of labour. 18.66% of women in control group underwent induction of labour. 2 babies in oligohydroamnios group had APGAR Score <7 at 1 minute, while 3 babies in control group had APGAR Score < 7 at 1 minute. 1 baby in each group had APGAR Score< 7 at 5 minutes. 8.2% of the babies in oligohydroamnios group were admitted in NICU. While, no baby in control group required NICU admission.
Conclusion: Oligohydramnios is associated with high rate of pregnancy related complications and increase in perinatal morbidity and mortality. Thus, AFI measurement must be done in all term pregnancies in order to improve the perinatal outcomes.

Keywords: Oligohydramnios, amniotic fluid index (AFI), perinatal

Introduction
Amniotic Fluid (AF) is an important part of pregnancy sac and helps in the fetal development. Amniotic Fluid has a number of prominent functions like it protects the fetus from trauma, maintains body temperature and helps in the development of musculoskeletal system by permitting fetal movements. It also helps in providing essential nutrients to fetus [1]. Amniotic fluid volume is related to gestational age. It measures about 50 ml at 12 weeks, 400 ml at 20 weeks, 800 ml at 28 weeks and reaches peak of 1 litre at 36-38 weeks. Thereafter, the amount diminishes till at term it measures about 600-800 ml [2].
Oligohydramnios is described as a condition with decreased amniotic fluid volume relative to the gestational age [3]. It is a severe and common complication of pregnancy and the incidence of this is reported to be around 1 to 5% of total pregnancies [4]. It is a condition where the liquor amnii is deficient in amount to the extent of less than 200 ml at term. Sonographically, it is defined when the maximum vertical pocket of liquor is less than 2 cm or when amniotic fluid index (AFI) is less than 5 cm [4]. Pre-eclampsia, intrauterine growth restriction (IUGR) and post-dated pregnancies are the commonest causes of reduced amniotic fluid during the third trimester of pregnancy due to chronic placental insufficiency and reduced fetal renal circulation [2].

The common clinical features are smaller symphysiofundal height, fetal malpresentation, and undue prominence of fetal parts and reduced amount of amniotic fluid [5]. Oligohydramnios is associated with increased maternal morbidity in terms of increase rate of induction of labour, prolonged labour and caesarean section due to malpresentation. It is also associated with adverse perinatal outcomes such as preterm delivery, low birth weight, fetal distress in labour, meconium passage, low Apgar score, neonatal resuscitation and NICU admissions [5]. The sequelae from long standing oligohydramnios includes pulmonary hypoplasia, potter's syndrome, club foot, club hand and dislocation of hip [4].

There is an inverse relationship between the amniotic fluid index (AFI) and the adverse perinatal outcome. This study was thus done to determine the adverse perinatal outcomes due to oligohydroamnios.

Aims and Objectives

The purpose of this study was to assess low amniotic as a predictor of perinatal outcome in low risk pregnancies at term.

Material and Methods

This case control prospective study was done in Maharshi Markandeshwar Institute of Medical Sciences and Research, Mullana, Haryana between October 2013 to November 2015 Pregnant women were divided to two groups. 25 pregnant women with AFI ≤ 5cm with low risk pregnancies at term were included in group A and 75 women with AFI ≥ 5cm and ≤ 20cm were included in group B.

Inclusion criteria were women with singleton, term, non anomalus pregnancies with intact membranes.

Exclusion criteria: Women with previous cesarean section, post term pregnancies, previous perinatal loss and medical disorder like diabetes milleitus, hypertension and cardiac disease were excluded from the study. Both groups were matched for age, parity, gestational age and intact membranes. All women were followed up until delivery. Pregnancy and perinatal outcome were thus recorded using the various statistical formulae.

Results

During the study period, there were 25 patients with AFI ≤ 5cm and 75 patients with AFI > 5 cm. Maximum numbers of women were in the age group 25-35 year (48.8 %). 52 % of the women in oligohydramnios group were primigravida. Cesarean section was done in 40 % in group A and 12% in control group. Fetal distress was observed in 28.8% women in oligohydroamnios group and 14.55% in the control group. 32.1% of the group A women delivered low birth weight babies while incidence of low birth weight babies in the control group was 17.33%. 36.2% of women in Group A underwent induction of labour. 18.66% of women in control group underwent induction of labour. 2 babies in oligohydroamnios group had APGAR Score <7 at 1 minute, while 3 babies in control group had APGAR Score < 7 at 1 minute. 1 baby in each group had APGAR Score< 7 at 5 minutes. 8.2% of the babies in oligohydroamnios group were admitted in NICU. While, no baby in control group required NICU admission.

Table 1: Relation of perinatal outcome in oligohydramnios women at term

Perinatal Outcome	Oligohydroamnios Group (N=25) %	Control Group (N= 75)%
Cesarean Section	10 (40%)	9 (12%)
Fetal Distress	7 (28.8%)	11 (14.55%)
Low Birth Weight< 2.5 KG	8 (32.1%)	13 (17.33%)
Induction of Labour	9 (36.2%)	14 (18.66%)
Apgar Score< 7 AT 1 Minute	2 (8.2%)	3 (4.4%)
Apgar Score< 7 AT 5 Minutes	1 (4.2%)	1 (1.3%)
Admission to NICU	2 (8.2%)	0 (0%)

Discussion

Estimation of amniotic fluid volume is an integral part of antenatal surveillance [6]. Relationship between sonographically detected oligohydramnios and perinatal morbidity, and mortality has been well established by Manning and Platt [7]. Garmel *et al*. supported that 67 % of women with Oligohydramnios were nulliparous [8] and Charu *et al*. Supported that 66 % of women were nulliparous [9]. Our study had 52% of the women being primigravidas. Chauhan *et al*. [10] concluded that AFI < 5cm is associated with increased risk of Caesarean section, fetal distress and low APGAR Scores at 1 and 5 minutes. Our study also states the same, with Cesarean section done in 40 % women with oligohydroamnios. Fetal distress was observed in 28.8% women with oligohydroamnios in our study. Golan *et al*. [11] reported a low APGAR score at 5 minute in 4.6 babies which is similar to our study with 4.2% of the babies with low APGAR Score at 5 minutes of birth. Casey *et al*. [12] reported that 5.9% of the babies with oligohydroamnios required NICU admissions. While, our study showed that 8.2% of the babies required NICU admissions.

Conclusion

To conclude, oligohydramnious is associated with high rate of pregnancy related complications and increase in perinatal morbidity and mortality. Therefore, AFI assessed antepartum and intrapartum would help to identify women who need increase ante partum surveillance. Women with oligohydroamnios must be treated timely in order to improve perinatal outcomes and prevent perinatal mortality and morbidity.

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