

Perinatal Outcome Associated with Oligohydramnios in Pregnancy

Abinaya. D¹, Aravind. M², Sukanya Mukherjee³, R. Sankareswari⁴, S. Revwathy⁵

¹Post Graduate, Department of Obstetrics and Gynecology Trichy SRM Medical College Hospital and Research Centre, Irungalur, Trichy

²Assistant Professor, Department of Radiodiagnosis, Trichy SRM Medical College Hospital and Research Centre, Irungalur, Trichy

³Associate Professor, Department of Obstetrics and Gynecology, Trichy SRM Medical College Hospital and Research Centre, Irungalur, Trichy

⁴Professor and Head of the Department, Department of Obstetrics and Gynecology, Trichy SRM Medical College Hospital and Research Centre, Irungalur, Trichy

⁵Professor and the Dean, Department of Obstetrics and Gynaecology Trichy SRM Medical College Hospital and Research Centre, Irungalur, Trichy

Abstract

Background: Oligohydramnios is defined as amniotic fluid index less than or equal to 5cm or single deep pocket less than 2 cm. Prognosis of oligohydramnios depends on its underlying causes. Oligohydramnios is associated with high rate of pregnancy complications and increased perinatal morbidity. Timely diagnosis and further management will give better maternal and perinatal outcome. This study aims to study the perinatal outcome associated with oligohydramnios in term pregnancy. **Material and Methods:** This is Retrospective study conducted in Trichy SRM Medical College Hospital and Research Centre. During the study period 50 patients admitted in labour room with oligohydramnios are included in the study. The details are collected from Medical records section. Maternal abdomen is divided into four quadrants taking the umbilicus, symphysis pubis and the uterine fundus as the reference points. The vertical diameter of the largest amniotic fluid pocket in each quadrant was measured by holding the transducer probe perpendicular to the foot. **Results:** It has been noted that there is increased rate of induction of labour, cesarean rates in oligohydramnios. There is also low apgar score at 1 minute and increased NICU admission for neonate born to oligohydramnios mother. It has also been observed an increase in number of low birth weight babies and meconium stained liquor in oligohydramnios patients. In our study preterm deliveries are increased in oligohydramnios patients although there is no significant p value. Oligohydramnios has a major influence over mode of delivery. About 65.3% of Emergency LSCS and 66.7% of instrumental delivery were due to oligohydramnios. **Conclusion:** Assessment of liquor status is an important aspect in antenatal care especially in Term patients. Diagnosis of oligohydramnios may enable us to give required care and appropriate management for those patients.

Keywords: Oligohydramnios, maternal morbidity, low apgar, NICU admission.

Corresponding Author: Dr. Sukanya Mukherjee, Associate Professor, Department of Obstetrics and Gynecology, Trichy SRM Medical College Hospital and Research Centre, Irungalur, Trichy

Introduction

Amniotic fluid serves various roles in pregnancy. The main function of amniotic fluid is to protect the fetus. During the antenatal period, it serves as a shock absorber, regulates temperature, permits the foetus' growth and unrestricted movement, and prevents adhesion

between the fetal body and the amniotic sac. During labour process the amnion and chorion are combined to form a hydrostatic wedge which helps in dilatation of cervix, it also guards against umbilical cord compression. Its bacteriostatic properties prevent infection, and it also acts the part where it is the primary source of fetal Nutrients. Abnormalities of amniotic fluid volume may result either from fetal pathology or from placental pathology indicating a problem either with fluid production or its circulation. Amniotic fluid volume may be measured using either of two semi-quantitative techniques, the single deepest pocket of fluid or the amniotic fluid index (AFI) Oligohydramnios is defined as amniotic fluid index less than or equal to 5 cm or single deep pocket less than 2 cm. (American College of Obstetricians and Gynecology, 2016). 1 to 2 percent of pregnancies are complicated by oligohydramnios. In multifetal pregnancies, a single deepest pocket below 2 cm is taken as oligohydramnios.

Aim and Objective

The Objective of this study is to determine the perinatal outcome associated with oligohydramnios in third trimester of pregnancy in low risk antenatal women.

Material and Methods

This is a retrospective study conducted in Trichy SRM Medical college hospital and research centre. During the period of June 2021 to February 2022, 50 singleton pregnancy who attended Trichy SRM medical college and research institute are enrolled in the study. The details needed for the study are collected from the medical records department. Ethical approval was taken from institutional ethics committee before starting the research process.

Inclusion Criteria:

All singleton pregnancy with intact membranes who attended Trichy SRM antenatal OPD and labour ward between 32-40 weeks of gestation by good dates are taken and they were divided into two groups. One group with AFI less than or equal to 5 and the second group with AFI more than 5.

Exclusion Criteria:

Patients with

Multiple pregnancy

Post term pregnancy

Previous cesarean section

Maternal Medical disorders

Tumors complicating pregnancy

Patients with fetus having congenital anomalies like renal agencies, polycystic kidneys.

Amniotic fluid index which was measured by radiologist or consultant obstetrician is taken for the study purpose.

After the Patient was placed in supine position transabdominal ultrasound was carried out with curvilinear transducer probe to measure amniotic fluid index. Maternal abdomen is divided into four quadrants taking the umbilicus, symphysis pubis and the uterine fundus as the reference points. The vertical diameter of the largest amniotic fluid pocket in each quadrant was measured by holding the transducer probe perpendicular to the foot. These four measurements were summed in centimeter and the result obtained has been recorded as the amniotic fluid index (AFI). Univariate and multivariate analysis were done using SPSS package. P value <0.05 is considered significant.

Results**Table No 1: AFI and Gestational Age**

AFI	Gestational Age		Chisquare value	P-value
	Preterm	Term		
Oligohydramnios	6(54.5%)	19(54.5%)	0.117	0.733
Normal	5(54.5%)	20(51.3%)		

Table No 2: AFI and Mode of Delivery

AFI	Mode of delivery				Chisquare value	p value
	Emergency LSCS	Elective LSCS	Instrumental	Labour naturalis		
Oligohydramnios	17(65.3%)	2(40%)	2(66.7%)	4(25%)	6.9949	0.072
Normal	9(34.7%)	3(60%)	1(33.3%)	12(75%)		

Table No 3: AFI and APGAR

AFI	APGAR		Chi square value	P-value
	Low	Normal		
Oligohydramnios	16(69.6%)	9(33.3%)	6.527	0.010
Normal	7(30.4%)	18(66.7%)		

Table No 4: AFI and NICU admission

AFI	NICU admission		Chi square value	P-value
	Yes	No		
Oligohydramnios	16(76.2%)	9(31.1%)	9.930	0.001
Normal	5(23.8%)	20(68.9%)		

Table No 5: AFI and Birth weight

AFI	Birth weight		Chi square value	P-value
	LBW	Normal		
Oligohydramnios	19(69.6%)	6(30.4%)	11.5385	<0.001
Normal	7(74.1%)	18(25.9%)		

Table No 6: AFI and Induction

AFI	Induction		Chi square value	P-value
	Yes	No		
Oligohydramnios	14(73.7%)	11(31.1%)	6.8761	0.008
Normal	5(26.3%)	20(25.9%)		

Table No 7: AFI and Meconium stained liquor

AFI	Meconium stained liquor		Chi square value	P-value
	Yes	No		
Oligohydramnios	8(72.7%)	17(43.5%)	2.9138	0.087
Normal	3(27.3%)	22(56.5%)		

In our study preterm deliveries are increased in oligohydramnios patients although there is no significant p value. Oligohydramnios has a major influence over mode of delivery. About 65.3% of Emergency LSCS and 66.7% of instrumental delivery were due to oligohydramnios.

There was also increased rate of induction of labour and meconium stained liquor in oligohydramnios group. 73.7% of mothers of induced labour had oligohydramnios. Statistically significant (p value 0.008) association was found between reduced AFI and induced labour. Of the mothers with low AFI, 69.6% gave birth to LBW babies. And the association between AFI and Low Birth Weight was found to be significant p value <0.001. Also 76.2% of NICU admission is associated with oligohydramnios patient with p value of 0.001 and 69.6% babies born to oligohydramnios mother had low apgar score.

Discussion

Amniotic fluid volume has an influence in the perinatal outcome. Oligohydramnios had various complications including intrauterine growth retardation, increased induction of labour, meconium aspiration syndrome, birth asphyxia, increased operative delivery, low birth weight, low apgar score at 5 minutes, increased rate of NICU admission. Most cases of oligohydramnios are due to premature rupture of membrane. When amniotic fluid volume is abnormally decreased from the early second trimester, it may often reflect fetal anomalies that preclude normal urination, or it may represent placental abnormalities severe enough to impair perfusion. When amniotic fluid volume becomes abnormally decreased in the late second or in the third trimester, it may often be associated with fetal-growth restriction, or with a placental abnormality, or with a maternal complication like preeclampsia or vascular disease. In all cases of oligohydramnios ruptured membranes should be excluded, and targeted sonography should be performed to assess for fetal and placental abnormalities.

The umbilical cord compression during labor is common with oligohydramnios which increases the risk for caesarean delivery for fetal distress and 5 minute Apgar score less than 7 (Chauhan, 1999),^[1] Isolated oligohydramnios associated with higher rates of induction were found in the studies of Ashwal E et al,^[2] Elsandabese D et al,^[3] and Rainford M et al.^[4] Cosey et al,^[6] Chauhan et al,^[1] Magann et al.^[5] there was no significant relation of age and parity with oligohydramnios. The NICU admission rates in our study were significantly higher in the group with oligohydramnios patients. Higher NICU admission rates were also observed in the similar studies of Chate P et al,^[7] and Ashwal E et al.^[2]

Conclusion

Oligohydramnios has adverse perinatal outcome. Assessment of amniotic fluid volume has become an integral component of fetoplacental assessment and surveillance of pregnancies that are considered to be at risk of adverse pregnancy outcome. Recognition of foetus at risk, balancing the fetal risk against the risk of neonatal complications from immaturity, and determining the optimal time and mode of intervention are cornerstones of modern obstetrics.

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