

## Perinatal outcome associated with oligohydramnios in third trimester

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**Received:** 22 March 2016

**Revised:** 17 November 2016

**Accepted:** 18 November 2016

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### ABSTRACT

**Background:** We aimed to evaluate the effect of Oligohydramnios on fetal outcome in terms of fetal distress, Meconium staining of amniotic fluid, birth weight, Apgar score of newborn babies, NICU admission, early neonatal morbidity and mortality.

**Methods:** This was a prospective study of 156 antenatal patients booked at K. J. Somaiya medical college and research centre during the year January 2012 to December 2013 with gestational age between 30-40wks with AFI<5cms with intact membranes were analyzed for perinatal outcome.

**Results:** The Caesarian section rate for fetal distress was 41% in patients with Oligohydramnios. Meconium staining of amniotic fluid was found in 30.7% patients. APGAR score at 5 minutes <7 was found in 6 patients (3.8%).

**Conclusions:** Oligohydramnios has significant correlation with Caesarean section for fetal distress and low birth weight babies. Oligohydramnios is associated with high rate of pregnancy complication and increased perinatal morbidity and mortality. Oligohydramnios is a frequent occurrence demand careful evaluation, intensive parental counseling, fetal surveillance and proper antepartum and intrapartum care.

**Keywords:** AFI, Fetal distress, Oligohydramnios, Perinatal outcome

### INTRODUCTION

Prolonged Oligohydramnios increases the risk of Potter sequence which in addition to pulmonary hypoplasia includes fetal skeletal and facial deformities due to prolonged external compression and abnormal fetal development due to compression of uterine wall and adherent fetal parts. The Caesarian section rate for fetal distress was 41% in patients with oligohydramnios.<sup>1</sup> Oligohydramnios has significant correlation with Caesarean section for fetal distress and low birth weight babies.<sup>2</sup>

Management of Oligohydramnios in late pregnancy depends on clinical situation. In a pregnancy complicated by Oligohydramnios and fetal growth restriction, closed

fetal surveillance is important because of associated morbidity and mortality.<sup>3</sup> Delivery is recommended for fetal and maternal indications.

#### Aims and objective

To study the effect of Oligohydramnios on fetal outcome in form of:

1. Fetal distress
2. Meconium staining of amniotic fluid
3. APGAR score of new born babies
4. Birth weight
5. NICU admission
6. Early neonatal morbidity and mortality

## METHODS

A prospective hospital based study was carried out in a tertiary care hospital over a period of 2 yrs from January 2012 to December 2013. In this study 156 patients with gestational age from 30-40wks with Oligohydramnios AFI<5cms with intact membranes were analysed for perinatal outcome.<sup>4</sup>

### Inclusion criteria

1. Women with singleton, non-anomalous fetus with intact membranes
2. Gestational age 30-40wks

### Exclusion criteria

1. Women with premature rupture of membranes
2. Known fetal and chromosomal anomaly
3. Severe pre-eclampsia, postterm pregnancy

On admission a detailed history was taken, clinical examination was performed and gestational age assessed. AFI was determined by the Phelans technique using transabdominal sonography. AFI was measured by dividing the uterus into four quadrants. NST was performed for all patients. Parameters noted were MSAF, the mode of delivery, birth weight, Apgar score at 1 and 5 minutes. The ethical committee of institute had approved the study. Results were analysed with special emphasis on perinatal outcome by using percentage and proportion.<sup>5</sup>

## RESULTS

**Table 1: Age and oligohydramnios.**

	Number	Percentage
<b>Age group</b>		
20-25	102	65.3
26-30	36	23.0
>30	18	11.5

It was observed that 102 (65.3%) women with oligohydramnios were in age group of 20-25 years.

**Table 2: Parity and oligohydramnios.**

	Number	Percentage
<b>Parity</b>		
Primigravida	56	35.8
Multigravida	100	64.1

By parity 35.8% were primigravida. 64.1% were multigravida.

34.6% patients have AFI-4 and 1.9% patients have AFI-0.

**Table 3: Gestational age and oligohydramnios.**

	Number	Percentage
<b>Gestational age</b>		
30-34 weeks	59	37.8
34-37 weeks	74	47.4
37-40 weeks	23	14.7

**Table 4: Severity of oligohydramnios.**

	Number	Percentage
<b>AFI on admission</b>		
0	3	1.9
1	8	5.1
2	28	17.9
3	21	13.4
4	54	34.6
5	42	26.9

**Table 5: CTG on admission (N=156).**

	Number	Percentage
Normal	90	57.6
Abnormal	66	42.3

57.6% patients had CTG reactive at the time of admission and 42.3% patients had abnormal CTG. The rate of abnormal CTG was statistically significant.

**Table 6: Colour of liquor at the time of rupture of membranes.**

	Number	Percentage
Normal colour	108	69
Meconium stained colour	48	30.76

30.7% patients had meconium stained liquor.

**Table 7: Mode of delivery.**

	Number	Percentage
Vaginal delivery	92	58.9
Caesarean section	64	41.0

Caesarean for fetal distress was higher in women with Oligohydramnios. Caesarean section was performed in 41% of patients.

Birth weight <2.5kg were found in 65.3% patients and >2.5kg in 34.6%

**Table 8: Perinatal outcome.**

	Number	NICU admission
<b>Birth weight</b>		
< 2.5 kg	102 (65.38%)	10(6.4)
> 2.5 kg	54 (34.61%)	

**Table 9: Apgar score.**

	Number	NICU admission
<b>Apgar</b>		
<7 at 1 min	54(34.6%)	22 (14.1)
< 7 at 5 min	6 (3.8 %)	16 (10.2)
Meconium aspiration syndrome	16 (10.2%)	2 (1.2%)
Early neonatal death	2 (1.2%)	
Still birth	2 (1.2%)	

APGAR score at 1 minute was <7 in 34.6% and APGAR <7 at 5 minutes was found in 3.8%.

25.5% of babies were admitted in NICU. There was significant correlation to NICU admission. Duration of NICU stay was found in 6.4% for more than 10 days.<sup>6</sup>

## DISCUSSION

Assessment of amniotic fluid volume in antenatal period is helpful tool in determining the women who are at risk for potentially adverse perinatal outcome. Oligohydramnios is often used as an indicator for delivery so assessment of amniotic fluid volume in antenatal period is helpful tool in determining who is at risk for potentially adverse perinatal outcome.<sup>7</sup>

In a pregnancy complicated by Oligohydramnios and fetal growth restriction closed fetal surveillance is important because of associated morbidity and delivery is recommended for fetal or maternal indication.<sup>8</sup> In our study maximum number (65.3%) of women were in age group of 20-25yrs. 64.1% were multigravida. 47.4% women were presented at gestational age 34-37wks. Studies done by Cosey et al, Chauhan, Maganan et al there were no significant relations of age and parity with Oligohydramnios.<sup>6,9,13</sup>

In this study only 48 patients had meconium staining of amniotic fluid which was 30.76%. There was a significant relation between the meconium staining of amniotic fluid and Oligohydramnios.

58.9% patients had vaginal delivery. 41% patients underwent caesarean section out of which 42.3% had caesarean section for fetal distress. Chauhan et al found that AFI <5cm was associated with an increased incidence of caesarean section for fetal distress.<sup>10,13</sup> Anna et al found that 15.2% caesarean delivery among 341 oligohydramnios patients. Vosman also found increased caesarean section rate 14.7% for fetal distress in oligohydramnios group in Anna et al study and Vosman study caesarean section rate was high in oligohydramnios patients but not significantly high as it is found in this study probably due to less facility for fetal wellbeing monitoring during antepartum and intrapartum period. So

for the avoidance of adverse effect on perinatal outcome, in most cases caesarean section was done.

Sarno et al noted a significantly higher rate of fetal distress and low Apgar score in women with AFI <5cm. This is reported to be due to head and cord compression. Low APGAR score at 5 minutes was noted in 3.8% patients which is comparable to Golam et al study in which he found low APGAR in 4.6% babies.

The incidence of NICU admission was found to be 19% by Garmel et al which is in accordance to our results (25.5%).

Oligohydramnios has been recognised as a clinical hallmark of impending severe perinatal compromise. We have found 2 perinatal deaths (1.3%). Ja Youngs et al in recent study have concluded that in borderline AFI group, the presence of abnormal Doppler velocimetry measurement was related to adverse perinatal outcome and mandates close antenatal surveillance.

Antepartum measurement of AFI can help to identify women who need increased antepartum surveillance for pregnancy complications.<sup>11</sup> Caesarean section is mostly required for the cases with anhydramnios and intrapartum fetal heart rate abnormalities. Babies are relatively more prone for certain complications like intrapartum fetal distress, MSAF and birth asphyxia.<sup>12</sup>

## CONCLUSION

Oligohydramnios is being detected more often these days due to routinely performed obstetric USG. PIH and postdated pregnancies are the commonest causes of reduced amniotic fluid in 3<sup>rd</sup> trimester of pregnancy. The time and the mode of delivery of these cases depend on severity of Oligohydramnios and status of fetal wellbeing. Oligohydramnios is associated with high rate of pregnancy complication, increased perinatal morbidity and mortality.

Adverse perinatal outcome can be avoided by careful intrapartum fetal heart rate monitoring. Every case of oligohydramnios needs careful antenatal evaluation, parental counseling, individualized decision regarding timing and mode of delivery. Continuous intrapartal fetal monitoring and good neonatal care are necessary for better perinatal outcome. Due to intrapartum complications and high rate of perinatal morbidity and mortality the rate of caesarean sections are rising but decision between vaginal delivery and caesarean section should be balanced so that unnecessary maternal morbidity can be prevented.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Chaudhari KR, Chaudhari KR, Desai OM. Perinatal outcome associated with oligohydramnios in third trimester. *Int J Reprod Contracept Obstet Gynecol* 2017;6:72-5.