

# Pregnancy Outcome after Antepartum Diagnosis of Oligohydramnios Amniotic Fluid Index <5 CM at or beyond 34 Weeks of Gestation

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**Abstract:** *Oligohydramnios refers to amniotic fluid volume that is less than expected for gestational age. It is typically diagnosed by ultrasound examination and described quantitatively. This study is conducted to determine whether a low AFI in the absence of any high risk factors has any significant effect on obstetric outcome. This prospective case control study was conducted at Rajah Muthiah medical college hospital, Annamalai nagar over a period of 24 months. This study consists of an analysis of pregnancy outcome in 50 cases with diagnosis of oligohydramnios by ultrasound after 34 weeks of gestation compared with 50 controls with no oligohydramnios and matched for other variables like age, parity & gestational age. An amniotic fluid volume more than the two standard deviation below the mean for specific gestational age or volume reduced below 5th percentile for particular gestational age would define oligohydramnios. Volume less than 300ml at term would constitute oligohydramnios. The incidence varies from 0.5% to 5%.*

**Keywords:** amniotic index, ultrasound, oligohydramnios, pregnancy, apgar scor, fetal distress

## 1. Introduction

Amniotic fluid surrounds developing fetus in amniotic sac providing several benefits to the fetus. Despite decades of investigations, the regulation of amniotic fluid volume and composition remains incompletely understood. The purpose of taking group of women with oligohydramnios at or beyond 34 weeks of pregnancies is because of the fact that the etiology, management and the outcome is different in late onset oligohydramnios compared to early onset oligohydramnios. Appreciation of importance of amniotic fluid volume as an indicator of fetal status and oligohydramnios as an indicator of chronic fetal hypoxia is a relatively recent development. Progressive improvements in ultrasonographic techniques have made it possible to assess the amniotic fluid volume relatively accurately. A finding of diminished AFI is generally perceived as a sign of placental insufficiency. Apprehensions are expressed regarding such isolated oligohydramnios leading to increased obstetric interventions without improvement in perinatal outcomes.

## 2. Aim

- To find out if low amniotic fluid index has any clinical significance in low risk pregnancies.
- To study the adverse perinatal outcomes.

## 3. Materials & Methods

This study consists of an analysis of pregnancy outcome in 50 cases with diagnosis of oligohydramnios by ultrasound after 34 completed weeks of gestation compared with 50 controls with no oligohydramnios and matched for other variables like age, parity and gestational age.

This prospective case control study was done over a period of 24 months in Rajah Muthiah Medical College Hospital, Annamalai nagar from 2009 to 2011. The inclusion and exclusion criteria were formulated and patients without Oligohydramnios were used as controls and matched for other variables like age, parity and gestational age. The inclusion and exclusion criteria were as follow:

### Inclusion Criteria:

- AFI less than 5cm at or after 34 weeks of gestation
- Intact membranes
- Non anomalous baby
- All singleton pregnancies without antenatal complications.

### Exclusion Criteria

- Previous perinatal loss
- Recurrent missed abortion
- Medical disorders like preeclampsia, diabetes, heart diseases etc..
- Malpresentation and multiple gestations.

For all selected cases, thorough history was taken and complete examination was done. Clinical evidence of oligohydramnios was looked. The previous obstetric records and ultrasound reports were reviewed. Ultrasound examination was done and amniotic fluid index was calculated by four quadrant amniotic fluid volume measurement technique. All women in study and control group were followed up in labour, mode of delivery & babies were followed up for apgar, NICU admission.

## 4. Results

The mean age for study group was 24.1 years and that of control group was 23.1 years. There was no difference in the mean age between two groups statistically. There were 28

primi and 22 multigravida in study group and 27 primi and 23 multigravida in the control group. The mean gestation age was 37.04 and 38 weeks in the study group and control group.

#### Distribution of Amniotic Fluid Index

Study group		
AFI in cm	Number	Percentage
2-3	18	36
3.1-4	14	28
4.1-5	18	36
Total	50	100

Control group		
5-8	24	48
8.1-11	24	48
11.1-14	2	4
Total	50	100

The mean amniotic fluid in study group was 3.09 and in control group was 9.0

#### Non stress test pattern

NST	Study group		Control group	
	No	percentage	No	percentage
Reactive	24	48	40	80
Non-reactive	26	52	10	20
Total	50	100	50	100

There was significant difference between two groups (p<0.05)

#### Nature of amniotic fluid

Liquor	Study group		Control group	
	No	percentage	No	percentage
Clear	33	66	40	80
Meconium	17	34	10	20
Total	50	100	50	100

The difference between two groups was non-significant (P value – 0.1)

#### Induced Vs Spontaneous labour

Labour	Study group		Control group	
	No	percentage	No	percentage
Induced	29	58	12	24
Spontaneous	21	42	38	76
Total	50	100	50	100

The difference between two groups was statistically significant (P- 0.001)

#### Mode of delivery

Mode of delivery	Study group		Control group	
	No	Percentage	No	percentage
Normal vaginal delivery	9	18	24	48
LSCS	27	54	13	26
Forceps delivery	14	28	13	26

#### Intervention for Fetal Distress

Interventions	Study group		Control group	
	No	percentage	No	percentage
Instrumental delivery	13	26	11	22
LSCS	21	42	3	6
Total	34	68	14	28

The difference was statistically significant (P -0.01). This study shows AFI<5CM cases are going for LSCS quite high.

#### Apgar score < 7

Apgar score	Study group		Control group	
	No	Percentage	No	percentage
1 minutes	34	68	39	78
5 minutes	16	32	11	22

The difference in the occurrence of apgar score was not statistically significant

The mean birth weight was 2.52 kg in study group and 2.7kg in control group

#### Admission to Neonatal ward

Study group		Control group	
No	percentage	No	percentage
35	70	17	34

35 neonates were admitted for birth asphyxia, neonatal seizures, meconium aspiration. The difference in two groups was statistically significant (P<0.01). There were 4 early neonatal deaths in study group and no neonatal death in control group.

## 5. Discussion

The rate of non-reactive NST is 52% in present study which is similar to other studies conducted by Kumar et al & Sriya Ret al study. The ominous FHR decelerations noted in 46% in present study is similar to 48% and 36% in studies conducted by Casey et al. and Sriya et al. respectively. In our study meconium stained liquor was 34% which is similar to study conducted by Gupta et al, Chandra et al. In our study LSCS done for fetal distress was 42% which is similar to study conducted by Casey et al, Sriya et al. Oligohydramnios has been used as a screening test for development of fetal distress & subsequently during intrapartum period.

Parameters	Baron et al	Chandra p et al	Present study
Sensitivity	78%	76.92%	87.5%
Specificity	74%	73%	72.72%
Positive predictive value	33%	50%	70%
Negative predictive value	95%	99%	88.8%

The efficacy of oligohydramnios in predicting fetal distress and requirement of LSCS had a sensitivity of 87.5% and negative predictive value of 88.8%. But specificity and positive predictive value were poor. So this can be considered as a screening test for occurrence of fetal distress in intrapartum period requiring caesarean delivery.

In our study the rate of occurrence of Apgar score <7 group was 32% and it is similar to other studies. The rate of occurrence of birth weight <2.5 kg in present study is 31% and similar to other studies. In present study the rate of NICU admission was 70% & it is high compared to other studies. In our study there were 4 neonatal deaths while there was no neonatal death in other studies.

## 6. Conclusion

An amniotic fluid index < 5cm detected after 34 weeks is an indicator of perinatal outcome. Determination of AFI can be used as an adjunct to other fetal surveillance methods. Determination of AFI is a valuable screening test for predicting fetal distress in labour requiring caesarean section. It helps to identify those infants at risk of poor perinatal outcome. In presence of oligohydramnios the occurrence of non-reactive NST, abnormal FHR tracings during labour, thick meconium stained liquor, fetal distress, rate of LSCS, low 5 minute Apgar score, low birth weight, perinatal morbidity is high.

In our study compared to control group the occurrence of non-reactive NST, Induction of labour, occurrence of fetal distress and caesarean section for fetal distress, neonates admitted to NICU was high in case group (AFI < 5cm) and difference in two groups was statistically significant. The occurrence of thick meconium stained amniotic fluid was more than twice in oligohydramnios group compared to control group. Occurrence of caesarean section was high if oligohydramnios was associated with non-reactive NST.

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