

Maternal and Fetal Outcome in Term Patients with Borderline Oligohydramnios and Normal AFI: Prospective Comparative Study

Dr. Priya¹, Dr. Rekha N²

¹Junior Resident, Department of Obstetrics and Gynaecology, BGS Global Institute of Medical Sciences, Bengaluru, Karnataka, India

²Professor and Head of Department, Department of Obstetrics and Gynaecology, BGS Global Institute of Medical Sciences, Bengaluru, Karnataka, India

Abstract: *The study investigates the effects of borderline amniotic fluid index AFI on term pregnancies. Conducted at BGS global institute of Medical Sciences, Bangalore, this prospective comparative study involved 100 women, divided equally between those with borderline AFI 5 - 8 cm and Normal AFI. The research aimed to assess the mode of delivery and perinatal outcomes such as meconium-stained amniotic fluid, birth weight, Apgar scores, and NICU admissions, and more cases of meconium stained amniotic fluid. The study concludes that enhanced antepartum surveillance and monitoring are essential to mitigate adverse perinatal outcomes in pregnancies with borderline oligohydramnios.*

Keywords: Borderline AFI, term pregnancy, Perinatal outcomes, cesarean delivery, Neonatal care

1. Introduction

The Incidence of oligohydramnios 1 - 5% in term pregnancies and incidence in postdate pregnancies is 11% [1, 2]. The average volume of amniotic fluid varies with gestational age. Maternal conditions such as utero - placental insufficiency, preeclampsia, diabetes, chronic hypoxia, rupture of amniotic membranes, post - term gestation have been associated with oligohydramnios [1, 2]. Fetal Anomalies of the kidneys including congenital absence of renal tissue, obstructive uropathy or decreased renal perfusion also may be contributing factors [3]. Abnormally low amniotic fluid volume has been associated with adverse pregnancy outcomes - Fetal - IUGR, Stillbirth, Fetal distress, Meconium aspiration, NICU admission, Maternal - Increased operative interference. Amniotic fluid is one of the most important components of a healthy pregnancy, as it acts as a protective cushion for the fetus, prevents compression of the umbilical cord, and promotes fetal lung development [4]. Oligohydramnios is defined by an Amniotic Fluid Index (AFI) below 5 cms [5]. Oligohydramnios is in which the volume of amniotic fluid is abnormally low (< 500 ml) [6, 7].

2. Aims and Objectives

- 1) To study the mode of delivery / rate of operative interference in case of term pregnancy with borderline AFI.
- 2) To study Perinatal outcome in case of term pregnancies with borderline AFI.

Perinatal outcome assessed in terms of

- a) Rates of Meconium stained amniotic fluid
- b) Birth weight
- c) Apgar score at 5th minute <7
- d) NICU admission and neonatal death

3. Materials and Methods

The present study was undertaken at BGS global institute of medical sciences, Bangalore. This is a prospective comparative study done from 1 st July 2022 till 31st June 2023 for a duration of one year. Study involved analyzing & comparing mode of delivery and perinatal outcomes in women of term pregnancy with borderline AFI (5 - 8 cm) and those with normal AFI. A Total of 50 women with borderline AFI & 50 women with normal AFI were included in the study. Women were followed up through their antenatal visits and their course of Labour was monitored with the help of CTG. All cases had spontaneous onset of Labour while at the time of admission which were allowed for spontaneous progression. No Labour inductions were needed for any of the study population. Only acceleration with syntocinon was done when the women entered into active phase of Labour. Partograms were plotted for all cases and effective monitoring of Labour was done.

Inclusion Criteria

- 1) Age of the mother 18 - 35 years
- 2) Gestational Age: 37 - 40 weeks
- 3) Singleton Gestation with cephalic presentation
- 4) AFI 5 - 8 cm as cases & AFI 8 - 24 cm as control
- 5) Intact membranes with borderline AFI

Exclusion Criteria

- 1) Gestational Age <37
- 2) Associated fetal malformation
- 3) Ruptured membrane
- 4) Intrauterine death
- 5) Severe PIE, IUGR

Statistical analyses were performed using IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp. Results on continuous measurements were presented on Mean±SD & categorical as Frequency (Percentage). Inferential statistics like the Chi - square test/Fischer Exact

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test and Independent t - test were applied to check the difference between the groups. The significance of the level adopted was 5%

4. Results

Table 1: Comparison of mothers' age between the two groups:

Age [years]	Normal AFI		Borderline AFI		P value
	Frequency	%	Frequency	%	
<20	5	2	4	8	0.934
20 - 24	24	48	26	52	
25 - 29	17	34	15	30	
30 - 34	4	8	5	10	
Total	50	100	50	100	

The result of comparison between maternal's age is not significant

Table 2: Comparison of gestational age (weeks) between the two groups:

Gestational Age [Weeks]	Normal AFI		Borderline AFI		P value
	Frequency	%	Frequency	%	
37 - 38	6	12	6	12	0.823
38 - 39	10	20	15	30	
39 - 40	7	14	5	10	
40 - 41	25	50	22	44	
41 - 42	2	4	2	4	
TOTAL	50	100	50	100	

Table 2 states gestational ages between two groups. The result was not statistically significant [P>0.05]

Table 3: Comparison of gravida between the two groups

Gravida	Normal AFI		Borderline AFI		Total		P value
	NO.	%	NO.	%	NO.	%	
1	27	13.5	30	15	42	28.5	0.940
2	16	8	14	7	30	15	
3	5	2.5	4	2	9	4.5	
4	2	1	2	1	4	2	
Total	50	50	50	50	100	100	

The table - 3 shows comparison between two groups in respect to their gravida The results was not statistically significant between two groups [P>0.05]

Table 4: Comparison of mode of delivery between the two groups:

Mode of delivery	Normal AFI		Borderline AFI		Total		Results
	No.	%	No.	%	No.	%	
Vaginal delivery	40	40	20	20	60	60	0.001*
LSCS	10	10	30	30	40	40	
Total	50	50	50	50	100	100	

Table 4 compares mode of delivery between groups. Normal deliveries between the groups were 40 and 20. LSCS of both groups 10 and 30. Differences in between groups was statistically significant [P<0.05].

Table 5: Comparison of MSAF between the two groups:

MSAF	Normal AFI		Borderline AFI		Total		P value
	No.	%	No.	%	No.	%	
-	42	42	30	30	72	72	0.014*
+	8	8	20	20	28	28	
Total	50	50	50	50	100	100	

Above mentioned table - 5 compares MSAF between two groups. The difference between them is statistically significant [P<0.05]

Table 6: Comparison of birth weights of babies between the two groups:

Birth Weight [KG]	Normal AFI		Borderline AFI		P value
	Frequency	%	Frequency	%	
2.0 - 2.5 Kg	4	8	12	16	0.007*
2.5 - 3.0 Kg	26	52	32	64	
3 - 3.5 Kg	20	40	8	20	

The birth weights between two groups were compared in above table - 6. The result is statistically significant [P<0.05]

Table 7: Comparison of APGAR score between the two groups:

APGAR Score	Normal AFI		Borderline AFI		P value
	Frequency	Percentage	Frequency	Percentage	
5	0	0	1	2	0.014*
6	1	2	8	16	
7	3	6	9	18	
8	28	56	22	44	
9	18	36	10	20	
Total	50	100	50	100	

APGAR Score at 5 Minutes	Borderline AFI	Normal AFI	P value
<7	9 [18%]	1 [2%]	0.011*

Table 7 shows APGAR score between two groups. Babies of borderline AFI was low when compared to normal AFI Results are statistically significant [P<0.05].

Table 8: Comparison of NICU wards admissions between the two groups

NICU admission	Normal AFI		Borderline AFI		Total		Results
	No.	%	No.	%	No.	%	
-	44	44	35	35	79	79	0.049*
+	6	6	15	15	21	21	
Total	50	50	50	50	100	100	

*statistically significant p<0.05

Table 8 shows NICU admission between two groups. NICU admissions between the two groups were statistically significant [P<0.05].

5. Conclusion

From the present study, it may be concluded that Borderline Oligohydramnios, when compared with normal liquor volume is associated with increased incidence of

- Caesarean delivery
- Low birth weight
- There is also higher likelihood of babies with low APGAR score at 5 minutes
- High NICU admissions
- Meconium stained liquor

Hence increased antepartum surveillance and better monitoring is mandatory in cases with borderline Oligohydramnios to avoid adverse perinatal outcomes.

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