

A study of perinatal outcome in isolated oligohydramnios in a tertiary care hospital

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Abstract

Aim and Background: To investigate the perinatal outcome at a tertiary care institution in isolated oligohydramnios. In Isolated Oligohydramnios, to Understand the Perinatal Outcome. compare the maternal and perinatal outcomes between isolated oligohydramnios and pregnancies where the amniotic fluid volume (AFI) is within a normal range (AFI5cm). to learn how frequently isolated oligohydramnios occur.

Methods: Patients were the subjects of a prospective case-control research on the perinatal outcome in isolated oligohydramnios with AFI 5 cm.

Results: In this study, 100 cases of isolated oligohydramnios were diagnosed through clinical examination and ultrasonography in the third trimester. These cases were compared to 100 controls, who had normal AFI and were matched for age, parity, and gestational age. The two groups did not significantly differ in terms of parity, gestational age, or maternal age.

Conclusions: Most of the participants in our study were in the 20 to 30 year age range. The case group's mean age was 23.84 years, while the control group's was 24.26 years. Primi and Multi mothers were up 69% and 31% of the case group, respectively. Primi and Multi mothers made up 66% and 34%, respectively, of the control group.

Keywords: Perinatal outcome, isolated oligohydramnios

Introduction

Liquor Amnii is a fluid made by the amnion, which is a two-layer membrane made up of inner ectoderm and outer somatic mesoderm. It is important for the foetus to grow normally because it protects it from all kinds of shocks and stresses ^[1]. Its bacteriostatic properties keep infections from happening, and it is the main source of nutrients for the foetus. There are a lot of reasons why liquor amnii is going down. Isolated oligohydramnios is a condition in which there is no cause in either the mother or the baby ^[2]. This means that doctors shouldn't do anything that isn't necessary. The liquor amnii in the uterine cavity gives the foetus a good place to grow and thrive. It is almost the same as plasma fluid, but there are some small differences. Oligohydramnios can happen in about 1% to 5% of full-term pregnancies ^[3].

Table 1: Composition of amniotic fluid compared to plasma

	Amniotic Fluid	Plasma
Sodium	Similar	Similar
Chloride	Higher	Lower
Potassium	Similar	Similar
Urea	Lower	Higher
Glucose	Lower	Higher
Protein	Lower	Higher

Carbon dioxide	Lower	Lower
Creatinine	Similar	Similar

It gives the foetal muscles and bones the space they need to grow. It lets the foetus swallow, which is important for gut and intestinal development, and breathe, which is important for lung development. Amniotic fluid keeps the umbilical cord from getting too tight and protects the baby from harm. The amniotic fluid can stop bacteria from growing. The amount of amniotic fluid in the womb keeps the pressure of the amniotic fluid steady. This keeps less liquid from leaking out of the lungs, which is important for their development (nicolini, 1989). It keeps the embryo's core body temperature steady. Surfactants are made with the help of amniotic fluid ^[4, 5] Table 1 shows composition of amniotic fluid compared to plasma. The amount of amniotic fluid changes depending on how far along the pregnancy is. It goes from about 30 ml at 10 weeks to 200 ml at 16 weeks and 800 ml at the middle of the third trimester. The amount of amniotic fluid gets smaller after 40 weeks. At 42 weeks, the amount of amniotic fluid is about 400 ml. Oligohydramnios is the name for a drop in the amount of amniotic fluid, while Polyhydramnios is the name for an abnormally high amount of amniotic fluid ^[6, 7].

Methods and Subjects

A Prospective case control study on perinatal Outcome in isolated oligohydramnios with AFI ≤ 5 cm carried out in patients of modern government maternity hospital petlaburz Hyderabad Telangana during the period of...

Inclusion criteria

Cases

1. Primi and Multigravida, Age group 18-44 years.
2. Singleton pregnancy with well-established dates.
3. >28 weeks to <40 weeks gestation.
4. Cephalic presentation.
5. AFI <5 cm.
6. Intact membranes.

Controls

1. Primi and Multigravida, Age group 18-44 years.
2. Singleton pregnancy with well-established dates.
3. >28 weeks to <40 weeks gestational age.
4. Cephalic presentation.
5. AFI >5 cm.
6. Intact Membranes

Exclusion criteria

1. Cases with <28 weeks and >40 weeks gestation.
2. Rupture of amniotic membranes.
3. Hypertensive disorders.
4. Gestational diabetes mellitus.
5. Multifetal gestation.
6. Non cephalic presentation.
7. Congenital anomalies of fetus.
8. IUGR, IUD of fetus.
9. **Sample size:** 100.

10. **Cases:** 100 Controls History taking done regarding.

Any concomitant disease or foetal defects ruled out pregnancy complications. General conditions examined Pulse, BP, temperature, and respiration rate recorded. Examined systemically ^[8]. Examined obstetrically: Measure fundal height, uterine size, presentation, and amniotic fluid. Per vaginal or speculum exam to rule out membrane rupture. Required routine investigations. Unstressed Ultrasound for foetal health, biometry, or placental placement to rule out adnexal or uterine pathology ^[9]. Ultrasounds rule out foetal congenital anomalies. Phelan *et al.* amniotic fluid index (1987). The device is curvilinear. Maternal sagittal line in midline vertically and arbitrarily transverse line halfway between symphysis pubis and uterine fundus divide uterus into 4 quadrants ^[10]. The transducer should be parallel to the sagittal plane and perpendicular to the coronal plane. Deepest, structures-free amniotic fluid compartment seen and measured vertically. AFI is the total of 4 pockets. 100 patients with AFI < 5cm were selected. Patients' delivery methods are tracked. The babies' admission needs were monitored ^[11, 12].

Evaluation plan

Oligohydramnios complication Uncomfortable NST Transmission Meconium aspiration NICU admission. Study and control group protocols were similar. High-risk women were induced with dinoprostone gel or oxytocin. Women without risk factors could have spontaneous labour. All were monitored electronically during labour. At artificial membrane rupture, all women had clear and meconium-stained amniotic fluid. Those who developed significant variable decelerations, repetitive late decelerations, or other ominous FHR patterns with or without meconium stained liquor despite corrective measures like maternal position change, hydration, O₂ inhalation, and stopping oxytocin were delivered by LSCS or instrumental delivery. All neonates were visited by neonatologists, and endotracheal intubation was done in meconium-stained amniotic fluid. Induced vs. spontaneous labour, gestational age at delivery, nature of amniotic fluid, FHR tracings, mode of delivery, indication for caesarean section or instrumental delivery, Apgar score, newborn weight, neonatal unit admission, perinatal morbidity, and perinatal death were recorded ^[13, 14].

Results

100 patients with isolated oligohydramnios were compared to 100 controls with normal AFI and matched for age, parity and gestational age. Maternal age, gestational age and parity were similar between groups.

Maternal age distribution

Our study included mostly 20-to 30-year-olds. Case group averaged 23.84 years, control group 24.26. Statistically, two groups had the same mean age. Table 2 shows Age distribution of patients. P value 0.307.

Table 2: Age distribution of patients

Age (Years)	Group		Total
	Cases	Controls	
20 - 24	66	59	125
25 - 29	34	41	75
Total	100	100	200

p-value Chi Square Test: 0.307

Table 3: Mean age group

Group	Age (Years)	
	Mean	Std. Deviation
Cases	23.84	2.321
Controls	24.26	2.130

Gravidity distribution

In case group, primi mothers and multi mothers were 69%, 31% respectively. In control group, primi and multi mothers were 66%, 34% respectively. These are not statistically significant. Table 4 shows gravidity distribution.

Table 4: Gravidity distribution

Obstetric Formula	Group		Total
	Cases	Controls	
Primi	69	66	135
Gravida 2	20	20	40
Gravida 3	10	14	24
Gravida 4	1	0	1
Total	100	100	200

p-value: 0.63

Gestational age distribution

91% cases were term, whereas 11% cases were preterm. In controls, 95% were term and 5% were preterm. Gestational age distribution between controls and groups were not statistically significant. Table 5 shows Distribution of gestational age.

Table 5: Distribution of gestational age

Gestational Age (Weeks)	Group		Total
	Cases	Controls	
Preterm	9	5	14
Term	91	95	186
Total	100	100	200

p-value: 0.268

Table 6: Mean gestational age

Group	Gestational Age (Weeks)	
	Mean	Std. Deviation
Cases	38.05	1.389
Controls	37.81	1.127

The mean Gestational age in the case group is 38.05 and in the control group mean gestational age is 37.81. The difference between the two groups is not statistically significant. Table 6 shows mean gestational age.

Amniotic fluid index

Mean AFI in cases and control group is 3.98 and 8.62 respectively. It is statistically significant. P value <0.001. Table 7 shows Amniotic fluid index.

Table 7: Amniotic fluid index

Group	AFI (cm)		p-value (t-test)
	Mean	Std. Deviation	
Cases	3.98	1.092	<0.001
Controls	8.62	1.716	

Index type of delivery

The labour was induced in 55% women with Isolated Oligohydramnios and 40% women with normal AFI. The decision for induction or allowing for spontaneous labour was made

depending upon AFI, gestational age. The difference between two groups in this category was not statistically significant. Table 8 shows Type of delivery.

Table 8: Type of delivery

Labor	Group		Total
	Cases	Controls	
Spontaneous	38	58	96
Induction	55	40	95
Elective LSCS	7	2	9
Total	100	100	200

p-value: 0.009

Of 100 cases, 38 cases set into Spontaneous labor and of 100 controls 58 were in Spontaneous labor. Elective LSCS done in the cases and control groups were 7 and 2 respectively.

Type of induction

Among cases 32% were induced with PGE2 gel and 23% with syntocinon acceleration. In controls 18% were induced with PGE2 gel and 22% with syntocinon acceleration. The difference between two categories was not statistically significant.

Table 9: Type of induction

Type of Induction	Group		Total
	Cases	Controls	
PGE2 gel	32	18	50
Syntocinon Acceleration	23	22	45
Total	55	40	95

p-value Chi-square test: 0.204

Among 100 cases, 55 cases were induced. Among 100 controls 40 percent were induced with PGE2 gel and syntocinon acceleration as modes of induction. Table 9 shows Type of induction.

Non stress test pattern

The non-stress test showed Variable decelerations in 22% cases and 6% in control group. There was significant difference between two groups in occurrence of foetal distress. Table 10 shows Non stress test pattern. ($p < 0.05$).

Table 10: Non stress test pattern

Non Stress Test	Group		Total
	Cases	Controls	
Reactive	78	94	172
Variable Deceleration	22	6	28
Total	100	100	200

p-value 0.001

Mode of delivery

Caesarean section was done in 55% in cases and NVD in 45%. The corresponding values for NVD and LSCS in control group were 78% and 22% respectively. The difference was statistically significant ($p < 0.001$). This study shows that isolated oligohydramnios cases are going for LSCS quite high. Table 11 shows mode of delivery.

Table 11: Mode of delivery

Mode of Delivery	Group		Total
	Cases	Controls	
NVD	45	78	123
LSCS	55	22	77
Total	100	100	200

p-value <0.001

Spontaneous vs. induced normal vaginal delivery

Among 100 cases, 23% cases delivered through Spontaneous labor and 22% by induction. Among 100 Controls, 60% delivered by Spontaneous labor and 18% by Induction. The difference was statistically significant. Table 12 shows NVD: Spontaneous vs. induced delivery.

Table 12: NVD: Spontaneous vs. induced delivery

NVD	Group		Total
	Cases	Controls	
Spontaneous	23	60	83
Induction	22	18	40
Total	45	78	123

p-value 0.003

Elective and emergency LSCS

Among cases, 7% underwent Elective LSCS and 48% delivered by Emergency LSCS. Among Controls, 2% delivered by Elective LSCS and 20% by Emergency LSCS. The difference was not statistically significant. Table 13 shows list of Elective and Emergency LSCS

Table 13: List of Elective and Emergency LSCS

LSCS	Group		Total
	Cases	Controls	
Elective	7	2	9
Emergency	48	20	68
Total	55	22	77

p value 0.65

Indication for LSCS

In our study cases went for LSCS due to Non reassuring fetal heart rate were 17% and in control group LSCS due to 3% due to Non Reassuring Fetal heart rate. Whereas LSCS rate due to non-progression of labour was same in both groups (2%). Other causes in cases- MSL 18%, Severe Oligohydramnios 5%, Anhydramnios 2%, Cephalo Pelvic disproportion 4%. In controls-MSL 7%, Failed Induction 6%, Cephalo Pelvic disproportion 5%. Table 14 shows indication for LSCS.

Table 14: Indication for LSCS

Indication for LSCS	Group		Total
	Cases	Controls	
Anhydramnios	2	0	2
Severe Oligohydramnios	5	0	5

Cephalo Pelvic Disproportion	4	1	5
Failed Induction	7	6	13
MSL	18	7	25
Non Reassuring Fetal Heart Rate	17	3	20
Non Progression of Labor	2	2	4
Total	55	23	78

p-value: 0.022

Nature of amniotic fluid

The amniotic fluid was meconium stained in 28% and clear in 72% women in cases group. In control group, only 10% women had meconium stained amniotic fluid and 90% had clear amniotic fluid. The difference in occurrence of meconium stained amniotic fluid between two groups was statistically significant. Table 15 shows Nature of amniotic fluid. ($p < 0.001$)

Table 15: Nature of amniotic fluid

Color of Liquor	Group		Total
	Cases	Controls	
Clear	72	90	162
Meconium Stained	28	10	38
Total	100	100	200

p-value: 0.001

Birth weight

The occurrence of birth weight < 2.5 Kg was seen in 6% and 2% in cases group and control group respectively. The difference was not statistically significant. Table 16 shows Birth weight.

Table 16: Birth weight

Birth Weight (Kg)	Group		Total
	Cases	Controls	
< 2.5	6	2	8
2.5 & Above	94	98	192
Total	100	100	200

p-value: 0.149

Table 17: Mean birth weight

Group	Birth Weight (Kg)	
	Mean	Std. Deviation
Cases	2.83	0.297
Controls	2.89	0.209

The mean birth weight in the cases group is 2.83 and in the controls is 2.89 kgs. The difference between the two groups is not statistically significant. Table 17 shows mean birth weight.

APGAR at 1 min

Among cases APGAR 6, 7 and 8 were observed in 1, 10 and 89 respectively. Among Controls APGAR 7 and 8 were observed in 3 and 97 controls respectively (Table 18).

Table 18: Mean APGAR at 1 Min

Group	APGAR at 1min		p-value (t-test)
	Mean	Std. Deviation	
Cases	7.88	0.356	0.023
Controls	7.97	0.171	

In cases group Mean APGAR at 1 min is 7.88. In control group Mean APGAR at 1 min is 7.97. The difference is statistically significant between both groups for APGAR at 1 min (Table 19).

Table 19: APGAR at 1 min

APGAR at 1min	Group		Total
	Cases	Controls	
6	1	0	0
7	10	3	13
8	89	97	186
Total	100	100	200

p-value 0.0237

APGAR at 5 min

Among 100 cases, APGAR 7 was observed in 1 case. APGAR 8 and 9 were observed in 6 and 93 cases respectively. Among Controls, APGAR 8 and 9 were observed in 1 and 99 controls respectively (Table 20).

Table 20: APGAR at 5 min

APGAR at 5 min	Cases	Controls
7	1	0
8	6	1
9	93	99
Total	100	100

p-value 0.0314

Table 21: Mean APGAR at 5mins

Group	APGAR at 5mins		p-value (t-test)
	Mean	Std. Deviation	
Cases	8.92	0.307	0.031
Controls	8.99	0.1	

The mean APGAR at 5 mins for cases group is 8.92 and for control group is 8.99. The difference is statistically significant for APGAR at 5 mins. P value 0.0314 (Table 21).

NICU Observations

38% Neonates in cases group needed NICU observation. 6% of control group needed NICU observation. The difference in the two groups was statistically significant ($p < 0.001$) (Table 22).

Table 22: NICU observations

NICU Observation	Group		Total
	Cases	Controls	
Yes	38	6	44
No	62	94	156
Total	100	100	200

p-value: <0.001

NICU Admissions

9% neonates of study group were admitted to neonatal ward for various morbidities like Respiratory distress syndrome and meconium aspiration. Only 3% of control group were admitted to neonatal ward. The difference in the two groups was not statistically significant.

Table 23: NICU Admissions

NICU Admission	Group		Total
	Cases	Controls	
Yes	9	3	12
No	91	97	188
Total	100	100	200

p-value Chi-Square Test: 0.074

Among cases, 2 neonates were admitted in view of low birth weight, MSL 3 cases, and Respiratory distress syndrome-3 cases and in view of Birth Asphyxia 1 case. Among Controls: Number of Neonates admitted for Low birth weight 1, Meconium Aspiration 1 and Respiratory distress syndrome 1. The difference between the two groups was not statistically significant (Table 23).

Table 24: Reasons for NICU admission

Reason of NICU Admission	Group		Total
	Cases	Controls	
Low Birth Weight	2	1	3
Meconium Aspiration	3	1	4
Respiratory Distress Syndrome	3	1	4
Birth Asphyxia	1	0	1
Total	9	3	12

p-value: 0.931

Incidence of isolated oligohydramnios at our tertiary care centre

Isolated Oligohydramnios (AFI \leq 5cm) was detected in 354 patients, so incidence found was 1.04% of total admissions in two years (Table 25).

Table 25: Incidence of isolated oligohydramnios

Total admissions	Total deliveries	Cases of isolated Oligohydramnios
27708	23724	289

Discussion

Amniotic fluid volume is now recognised as an important marker of foetal well-being. When oligohydramnios is diagnosed, detailed examination of foetal anatomy, particularly renal tract must be under taken, and foetal growth parameters must be assessed to exclude foetal growth restriction^[15]. Many research have been done to link association of Isolated Oligohydramnios with bad perinatal outcomes and the occurrence of maternal and foetal problems were observed high in pregnancies with isolated oligohydramnios than those with normal AFI^[16]. Totally 200 pregnant women were participated in this investigation. In Group I: 100 pregnant individuals with isolated oligohydramnios In Group II: 100 pregnant women with normal AFI. In group I and II we compared age, parity, gestational age, any complication owing to isolated oligohydramnios, induction of labour, foetal distress in NST, mode of delivery, colour of liquor, newborn weight, Apgar score and NICU admission. Patients hospitalised with preterm rupture of membranes were excluded from research. Both the groups were similar with respect to mother age, parity and gravidity^[17].

In our study, the mean mother age was in the case group and in the control group. Maximum

were in the 20-24 year age group. The mean mother age group in other similar studies was observed as: Vishalakshi AL *et al.*, Sangeetha, *et al.* The age distribution between the two groups was not statistically significant in our analysis as well as other investigations. In our study the number of primigravidas in the case group were 69 (69%) and multiparas were 31 (31%). This was equivalent to the control group which included 66 (66%) primigravidas and 34 (34%) multiparas^[18]. Vishalakshi AL *et al.* studied 71 primigravidas and 29 multiparas. Comparable to the control group of 81 primigravidas and 19 multiparas. 67 Our investigation and Vishalakshi AL *et al.* found. s no statistically significant changes. In our study, the case group and control group had similar mean gestational ages: 38.05 and 37.81 weeks. Sangeetha *et al.* found that the study group's mean gestational age was 39.4 weeks and the control group's was 39.5 weeks^[19]. Vishalakshi AL *et al.* found that the average gestational age in the study and control groups was 38.55 weeks. Our investigation and others found no statistical difference^[20].

AFI was measured using a four-quadrant method. Case group AFI was 3.98 cm while control group was 8.62 cm. Sangeetha *et al.* found that the study group's mean AFI was 3.55 cm while the control group's was 9.25 cm. Vishalakshi AL *et al.* found a significant difference between study group (mean=4.13) and control group (mean=10.48) AFI with a p value 0.0001. Our study and others found a significant difference^[21]. NST, FHR decelerations on Cardiotocography, type of amniotic fluid, induction rate, mode of delivery, LSCS for foetal distress, Apgar score at 1 min and 5 min, birth weight, neonatal ward admission, and perinatal mortality are studied. Comparing case and control groups, induction of labour makes no difference. All patients not in labour at 40 weeks were induced in both groups, and those with AFI 5cm went into spontaneous labour. Most were induced by PGE2 gel. Some patients received only oxytocin. 55 (55%) women with AFI 5 cm and 40 (40%) with AFI >5 cm had labour induced^[22]. AFI, gestational age, NST, and cervical favorability determined whether to induce or allow spontaneous labour. Statistically, two groups differed in this category. Vishalakshi AL *et al.* found that 63% of cases and 47% of controls were induced^[23]. The study group had more inductions than the control group. 14 (28%) study group women and 1 (2%) control group women had labour induced. Study group ladies were induced more than control group women. 28 (56%) women with AFI 5 cm and 18 (36%) women with AFI >8 cm had labour induced in the Sangeetha study. Our study and others found a significant difference^[24].

In a study of 138 pregnancies with isolated oligohydramnios at term managed by induction of labour, Danon D *et al.* (2007) showed that the caesarean section rate was considerably greater in the induced group than the spontaneous labour group. Pregnancies with isolated oligohydramnios at term aren't at higher risk of perinatal problems, although inducing labour increases the rate of caesarean birth. Women with AFI 5cm had high nonreactive non-stress test rates. Present investigation found 22% non-reactive NST^[25]. The control group has 6% nonreactive NST. In a research by Kavitha *et al.*, 10 (20%) study group women had nonreactive nonstress tests, compared to 2 (4%) control group women. Non-reactive pattern was significantly different across groups. 21% of the study group and 4% of the control group had non-reassuring NST, according to Vishalakshi AL *et al.* Study group NST was substantially less reassuring than control group NST. Our study and others found a significant difference. In a comparable study by Sangeetha *et al.*, 5 (10%) women with AFI 5 cm had non-reactive NSTs, compared to 1 (2%) in the control group. Non-reactive and reactive NST patterns didn't differ between groups^[26]. In our investigation, NST indicated variable decelerations in patients with AFI 5cm, which was statistically significant. Kavitha et colleagues found that variable deceleration was the most prevalent foetal heart rate anomaly. 14 (28%) study women had variable deceleration, while 5 (10%) had late deceleration. In the control group, no women showed variable or late deceleration. Variable deceleration differed between groups. Variable decelerations were the most common FHR anomaly in a research by Sangeetha *et al.* 2% of study women had late deceleration^[27]. Control group showed no FHR decelerations. FHR was seen in control group women with low AFI. Statistically, FHR decelerations didn't differ between groups^[28].

In our study, 28 (28%) women had meconium-stained amniotic fluid and 72 (72%) did not. In the control group, 10% had meconium-stained amniotic fluid and 90% had clean fluid. Meconium-stained amniotic fluid was significantly different across groups. Vishalakshi AL *et al.* found meconium-stained amniotic fluid in 27% of study participants and 9% of controls. Meconium staining differed statistically. 14% of patients had thick meconium staining, compared to 3% of controls. In a research by Sangeetha *et al.*, 9 (18%) of 41 (82%) women had meconium-stained amniotic fluid. Only 4 (8%) women in the control group had meconium-stained amniotic fluid, while 46 (92%) did not. Meconium-stained amniotic fluid was not significantly different across groups. 99% of women with low AFI and extended deceleration had meconium-stained amniotic fluid, according to Grubb *et al.* AFI 5cm is associated with meconium-stained amniotic fluid. In the present study, 28% of patients had meconium-stained urine, similar to prior investigations. 18% of patients had meconium-stained liquid, 17% had a non-reassuring foetal heart rate, 7% had failed induction, 4% had cephalopelvic disproportion, 5% had severe oligohydramnios, and 2% had anhydramnios. Among controls, caesarean section was done for meconium-stained liquor in 7%, unsuccessful induction in 6%, cephalopelvic disproportion in 5%, non-reassuring foetal heart rate in 3%, and non-progressing labour in 2%. Statistically, two groups differ ^[29].

Vishalakshi Colleagues *et al.* found that caesarean sections were performed for meconium-stained fluid in 22% of cases, failed induction in 2%, cephalopelvic disproportion in 9%, foetal discomfort in 18%, maternal request in 2%, and cessation of dilatation in 8%. Among controls, caesarean section was done for meconium-stained liquor in 6%, failed induction in 2%, cephalopelvic disproportion in 7%, foetal distress in 3%, maternal request in 2%, and dilation arrest in 5%. In the Sangeetha *et al.* study, 11 (22%) study group women delivered via LSCS compared to 2 (4%) control group women. In this category, two groups differed statistically. In Kavitha *et al.*'s study, 56% of women had caesarean sections and 2% had instrumental deliveries. In the control group, 4 (8%) had caesareans and no instrumental vaginal deliveries. Preterm birth rates were unchanged. Significant difference in caesarean rate. Our study and others found a significant difference. In our study, the case group averaged 7.88 at 1 minute and the control group 7.97 ^[30].

In a research by Yenigul *et al.*, the mean APGAR at 1min was 8.9 and 9.1 in the case and control groups. Statistically, the two groups differed. Pradhan *et al.* found a statistically significant difference between the 1 min APGAR scores of 36% in the study group and 10.9% in the control group. Our study and others found a significant difference. In a similar study, the mean APGAR score at 1 minute was 7.75 in the study group and 7.82 in the control group. Statistically, nothing changed. Our five-minute APGAR score was 8.92 and 8.99 for the control group. The results were identical to Vishalakshi AL *et al.*'s study, in which the mean APGAR at 5mins was 8.91 and 8.92 ^[31].

In this study, 38 (38%) study group neonates were in NICU, compared to 6 (6%). statistically significant. NICU monitoring rates were statistically significant, but not linked with perinatal morbidity or mortality. One neonate died of Birth Asphyxia in our study, but none in the control group. Mushtaq, *et al.* observed similar results. Mushtaq *et al.* found 1 stillbirth (0.68%) in their study group. The baby's chord was doubled and knotted. One neonate died in Chandra *et al.* Casey *et al.* found no mortality due to good NICU facilities ^[32].

Conclusion

Our study included mostly 20- to 30-year-olds. Case group averaged 23.84 years, control group 24.26. Primi and multi mothers in case group were 69% and 31%. Primi and multi mothers in the control group were 66% and 34%. Case group mean gestational age is 38.05, control group is 37.81. Cases and controls have mean AFI of 3.98 and 8.62. 38% went into spontaneous labour, 55% were induced, and 7% had elective LSCS. 58% were in spontaneous labour, 40% were induced, and 2% had elective LSCS. 22% of cases and 6% of controls had variable non-stress decelerations. 55% of cases were Caesarean and 45% were NVD. p0.001 In 28% of cases, the amniotic fluid was meconium-stained. Only 10% of women in the control group had meconium-stained amniotic fluid.

The average birth weight of patients is 2.83 kg and controls are 2.89 kg. Mean APGAR at 1 and 5 minutes for cases is 7.88 and 8.92. Control group APGAR at 1 and 5 minutes is 7.97 and 8.99. 38% of patients needed NICU observation. 6% of control group needed NICU. 9% of case group neonates were admitted to NICU and 3% of control group. In low-risk pregnancies, an AFI 5 cm indicates a poor result.

In our study, despite an increased incidence of non-reactive NST, abnormal FHR tracings during labour, thick meconium stained liquor, foetal distress, LSCS, low 5 min Apgar score, NICU admission and observation, and thick meconium stained liquor and NST changes, perinatal morbidity and mortality were not significantly increased.

Except for non-reactive NST, increased LSCS rates, and NICU observation rates, no other indicators differ statistically between study and control groups. AFI can supplement other foetal monitoring measures. AFI can predict foetal distress in labour necessitating caesarean section. It's 84.6% sensitive, 94% negative, 54% specific, and 22% positive. The report recommends no delivery route. Continuous foetal heart rate monitoring is preferable for spontaneous labour. At the onset of foetal distress, oligohydramnios should be terminated by caesarean or instrumental vaginal delivery. Antepartum oligohydramnios requires foetal monitoring. Isolated oligohydramnios doesn't affect birth outcomes. Increases chance for induction and Caesarean section. Due to unfavourable outcomes in patients with AFI 5cm and a lack of evidence and specific delivery decision, intensive observation and antepartum and intrapartum foetal surveillance are required.

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