

Pregnancy Outcome in Women Having Oligohydramnios in Gandaki Medical College Teaching Hospital, Pokhara, Nepal

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ABSTRACT

Background: Amniotic fluid index is one of the most commonly used methods of amniotic fluid volume assessment and is a predictor of adverse maternal and perinatal outcome.

Objectives: To compare the maternal and perinatal outcome in women with singleton term pregnancies having amniotic fluid index (AFI) ≤ 5 cm to those having AFI ≥ 5 to 20 cm.

Methods: This is a prospective, case-control study which was conducted at Gandaki Medical College Teaching Hospital over a period of one year from July 2017 to July 2018. It included 60 pregnant women at term pregnancy with amniotic fluid index ≤ 5 cm. The control group included 60 pregnant women at term pregnancy with amniotic fluid index ≥ 5 cm. The two groups were compared. Statistical analysis was done using the Chi-square test to calculate the P- value.

Results: There was a significantly higher incidence of overall cesarean rates due to fetal distress, low birth weight babies and adverse neonatal outcome like 5 minute Apgar score ≤ 7 , neonatal intensive care unit (NICU) admission rates, and meconium aspiration syndrome in the group with oligohydramnios as compared to the group with normal liquor volume.

Conclusion: Oligohydramnios adversely affects the perinatal outcome. However a favorable outcome can be expected by good antenatal and intrapartum surveillance and neonatal care.

Keywords

Amniotic fluid index, Pregnancy outcome, Term pregnancy.

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INTRODUCTION

Amniotic fluid surrounds the fetus everywhere except at its attachment with the body stalk in the mother's womb. Amniotic fluid index (AFI) as described by Phelan and co-workers, in 1987, remains one of the most commonly used methods of amniotic fluid volume assessment. The AFI is the sum of the single deepest pocket from each quadrant. The normal range for AFI that is most commonly used is 5 to 24 cm, with values above and below this indicating hydramnios and oligohydramnios respectively¹.

Oligohydramnios is defined as amniotic fluid volume more than two standard deviation below the mean for specific gestational age or volume reduced below the fifth percentile for particular gestational age². Late onset oligohydramnios has increased incidence of meconium stained liquor, abnormal fetal heart rate (FHR) tracing, low Apgar score, low birth weight, admission to NICU, birth asphyxia and cesarean section for fetal distress³. Clinical estimation of amniotic fluid volume is an important part of fetal assessment as variation in its amount has been related to a variety of pregnancy complications^{4,5}.

Oligohydramnios in pregnancy is related to increased maternal and fetal morbidity and mortality. Hence, this study was carried out to find the association of oligohydramnios with mode of delivery and perinatal outcome at term pregnancy in Western part of Nepal.

MATERIALS AND METHODS

This prospective study was conducted in Gandaki Medical College Teaching Hospital (GMCTH), Pokhara, Nepal over a period of one year from July 2017 to July 2018. A pregnancy outcome in 60 women with ultrasound diagnosis of oligohydramnios after 37 completed weeks of gestation was compared with 60 women with no oligohydramnios mother with same age and parity. All the pregnant women were admitted in maternity ward and those who fulfilled the study criteria were taken for the study purpose.

This study includes an analysis of mode of delivery, meconium passage, birth weight, Apgar score, neonatal intensive care unit admissions and neonatal deaths. Cases with AFI ≤ 5 , Single live intrauterine gestation with cephalic presentation, 37 completed weeks of gestation and intact membrane were included in the study. Cases AFI ≥ 5 , gestational age < 37 completed weeks, post-term, Associated fetal malformations, ruptured membranes, malpresentation and multiple gestation and high-risk pregnancy having placental insufficiency, diabetes, chronic renal disease, connective tissue disorders abruption, prostaglandin synthesises inhibitors therapy, angiotensinogen converting enzyme inhibitors therapy, uterine scar due to previous lower segment cesarean section (LSCS), myomectomy, hysterotomy were excluded from the study.

Ethical approval was granted by the institutional review committee of the GMCTH to conduct the study. Informed verbal consent was taken from the patient. A detailed history was taken and examination was done in patients with ultrasonography (USG). The ultrasound transducer was held perpendicular to the floor and parallel to the long axis of the pregnant women. The uterus was divided into four equal quadrants, the right and left upper and lower quadrants, respectively; sum of four quadrants is amniotic fluid Index. The oligohydramnios group (AFI < 5 cm) was compared with no-oligohydramnios group (AFI 5 - 20 cm). Variables like age and parity, mode of delivery, intrapartum complication, and fetal outcomes were noted. At birth, Apgar score, birth weight, and sex of the baby

were recorded. Neonates who were admitted in the ward and Neonatal Intensive Care Unit (NICU) were followed till discharge.

Data was collected and compiled in MS-Excel 2010 and analysed using Chi-square test to compare the categorical variables. The p-value < 0.05 was considered significant. All the analysis was carried out on SPSS software in 21.0 version.

RESULTS

During one year duration, 60 patients who completed 37 weeks of gestation with AFI < 5 cm and met inclusion criteria were included in the oligohydramnios group. These patients were compared with 60 patients in no-oligohydramnios group (AFI 5 to 20 cm) after matching age group and parity. Both groups were followed to document the mode of delivery and neonatal outcome (Table 1).

Table 1: Maternal age and parity

Maternal age	Study group		Control group		p-value
	No.	%	No.	%	
Teenage	12	20	12	20	1
20 to 30 years	48	80	48	80	
Parity					
Primigravida	9	15	9	15	1
Multigravida	51	85	51	85	

From Table 1, it was observed that 20% of women with oligohydramnios were in the teenage group and 80% were in age group between 20 – 30 years. By parity 15% were primigravida followed by 85% multigravidas.

Table 2: Colour of liquor

Color of liquor	Study group		Control group		p-value
	No.	%	No.	%	
Liquor clear	30	50	52	86.7	< 0.001
Thin meconium stain liquor	22	36.7	6	10	0.001
Moderate meconium stain liquor	5	8.3	1	1.7	0.209
Thick meconium stain liquor	3	5	1	1.7	0.611

In presence of oligohydramnios, the occurrence of moderate and thick meconium stained were more, but statistically the difference between study and control group was non-significant (Table 2).

Table 3: Mode of delivery

Mode of delivery	Study group		Control group		P value
	No.	%	No.	%	
Normal delivery	11	18.3	54	90	<0.001
Vacuum delivery	6	10	2	3.3	0.272
Cesarean section	43	71.7	4	6.7	<0.001

As regards to mode of delivery, it was observed that 71.7% had cesarean and 18.3% had normal delivery in oligohydranios group. There was statistically significant difference (p<0.001) between study and control group (Table 3).

Table 4: Neonatal outcome

		Study group		Control group		p-value
		No.	%	No.	%	
Apgar score in 5 minute	>7	49	81.7	58	96.7	0.008
	≤7	11	18.3	2	3.3	
Neonate weight	>2.5 gram	50	83.3	57	95	0.040
	≤2.5 gram	10	16.7	3	5	
Neonate admission	NICU	12	20	3	5	0.013
	Pediatric ward	3	5	0	-	0.244
	Baby with mother	45	75	57	95	0.002
	Perinatal death	0		0		

Oligohydranios was significantly associated with poor Apgar score, decreased neonate weight and increased neonate admission (Table 4).

DISCUSSION

The objective of the present study was to compare the maternal and perinatal outcome in women with singleton term pregnancies having amniotic fluid index (AFI) ≤5 cm to those having AFI ≥5 to 20 cm. Assessment of amniotic fluid volume during the antenatal period is an important marker of fetal well being and considered a helpful tool in determining who is at risk for adverse neonatal outcome⁶.

The present study assessed oligohydranios with mode of delivery, color of liquor and neonatal outcome. In our study, there was no significant difference in age with oligohydranios (p-value=1) which is similar to previous study⁷. Conversely, the incidence of oligohydranios was 85% in multigravida, which was in contrast to Jandial et al and Petrozella et al who noticed that the incidence of oligohydranios was 60.0% in primipara^{8,9,10}. However,

difference was statistically non-significant.

Regarding the color of liquor, our result is similar to that of Alchalabi et al where meconium staining of the amniotic fluid was significantly higher in the group with AFI <5 cm¹¹.

In this study, the rate of normal delivery was 18.30% in oligohydranios group and 90% in no-oligohydranios group. Various studies show different rates of cesarean deliveries in oligohydranios patients while comparing with no-oligohydranios group. In our study, the rate of cesarean section was higher in oligohydranios (71.7% vs. 6.7%) and difference was statistically significant. These results correlate with the results of the study carried out by Nazlima and Fatima who found that 71% of women underwent cesarean in oligohydranios group⁶.

Concerning the neonatal outcome, our study showed statistically significant low Apgar score in oligohydranios (18.3% vs. 3.3%) compared to no-oligohydranios group. Similar results were observed by several studies^{12,13,14,15,16}. On the contrary, Rainford et al noticed no significant differences in APGAR scores between the two groups¹⁷. The present study showed no significant differences in birth weight of babies (P=0.014 (>2.5 gm) and 0.013 (<2.5 gm). Results of this strongly correlate with studies done by Alchalabi et al and Gupta et al^{11,18}.

In the present study, there was no neonatal death in both study and control group. NICU admission was found to be significantly higher in oligohydranios (P = 0.013) group compared to no-oligohydranios group. Our result was similar to previous studies^{13,19,20}, but was in contrast other studies^{11,17,21}.

CONCLUSION

There are several adverse effects of oligohydranios at term pregnancy on the perinatal outcome. An AFI ≤5 detected at term is an indicator for poor pregnancy outcome. However, Antepartum fetal assessment tests, intensive intrapartum monitoring coupled with timely intervention, a competent neonatologist and neonatal intensive care unit facility can reduce maternal and fetal morbidity and mortality.

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