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Original Research Article

A clinical study of feto-maternal outcome in pregnancies with oligohydramnios

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ABSTRACT

Background: The amniotic fluid that surrounds the fetus serves several roles during pregnancy. Oligohydramnios is diagnosed when ultrasonographically the AFI is less than 5cm/5th percentile. It affects 3-5% of all pregnancies. Assessment of amniotic fluid volume is a helpful tool in determining who is at risk for potentially adverse obstetric and perinatal outcome.

Methods: Pregnant women with oligohydramnios reporting to Cheluvamba Hospital, attached to Mysore Medical College and Research Institute, Mysore from December 2012- June 2014 were included in the clinical study of maternal and fetal outcome. All singleton, non-anomalous, low risk pregnancies with AFI \leq 5cm with intact membranes and gestational age between 28-42 weeks were included in the study. Various outcomes such as mode of delivery, meconium staining, Apgar at 1 and 5 minutes, birth weight and NICU admissions were assessed.

Results: A total of 130 cases of isolated oligohydramnios were assessed. 55.4% had vaginal delivery. 13.8% underwent elective LSCS and 30.8% had emergency LSCS. 18.5% had meconium stained liquor, 4.6% babies had APGAR of <7 at 5 minutes. 17.7% had birth weight of <2.5 kg and 6.9% of babies required NICU admission.

Conclusions: The present study was conducted to know the feto-maternal outcome in pregnancies with oligohydramnios. The study showed that isolated oligohydramnios had no adverse maternal or perinatal outcome.

Keywords: Abnormal liquor volume, Isolated oligohydramnios

INTRODUCTION

The amniotic fluid that surrounds the fetus serves several roles during pregnancy. It creates space for musculoskeletal development, promotes normal fetal lung development and helps to avert compression of the umbilical cord.¹ Amniotic fluid volume is the sum of inflow and outflow of fluid into amniotic space and as such reflects fetal fluid balance. The amniotic fluid volume at each week of pregnancy is variable. It increases from 20 ml at 10 weeks to 770 ml at 28 weeks, remains at a steady state till 39 weeks after which it decreases dramatically. The average amniotic fluid volume in 3rd trimester is 700-800 ml. Clinical assessment of amniotic fluid volume including bimanual

palpation, symphysiofundal height is unreliable. Diagnosis is usually done by ultrasound. Definition of increased or decreased amniotic fluid volume are based on sonographic criteria.² Oligohydramnios is diagnosed when ultrasonographically the AFI is ≤ 5 cm or 5th percentile, or a single deepest pocket of <2 cm. It affects 3-5% of the pregnancies.² It is associated with high risk adverse perinatal outcome like fetal distress, meconium staining, low APGAR and neonatal resuscitation, NICU admission, however it is a poor predictor. It is often used as an indicator for delivery. This assessment is a helpful tool in determining the risk of potentially adverse obstetric and perinatal outcome. The objective of the study is to examine the obstetric and perinatal outcome in pregnancies with oligohydramnios.

METHODS

The present study was conducted in the Department of Obstetrics and Gynecology, Cheluvamba Hospital, MMCRI, Mysore, during the period of December 2012-June 2014. Data was collected using a pretested proforma meeting the objectives of the study by convenience sampling method.

The patients who were diagnosed to have oligohydramnios, of gestational age 28-42 weeks were included in the study. Selection of cases were based on detailed history like duration of amenorrhea, fetal movements, past obstetric history, medical history regarding hypertension, diabetes mellitus and renal disease were recorded.

On clinical examination presence of anemia, pedal edema, blood pressure was recorded. Routine examination of cardiovascular and respiratory system was made. Per abdomen and per vaginal examination were done. All cases were subjected to routine blood investigations like blood grouping, Rh typing, HIV, HbsAg, VDRL, GTT, urine routine and microscopy. Detailed USG examination was done and AFI was measured using Phelan's four quadrant ultrasound technique¹⁴. The largest vertical pocket free of fetal parts and umbilical cord loops in each quadrant was measured and AFI was taken as a sum of 4 quadrants in cm. AFI between 5-24 cm is normal. AFI \leq 5cm is considered oligohydramnios. A total of 130 cases of isolated oligohydramnios were studied during this period.

The following outcomes were assessed

- Mode of delivery
- Meconium staining
- Apgar at 1 and 5 minutes
- Birth weight
- NICU admissions

Eligibility criteria

Inclusion criteria

- Pregnant women with gestational age between 28-42 weeks with intact membranes.
- AFI \leq 5 cm as determined by ultrasonography.
- Singleton pregnancy.

Exclusion criteria

- Premature rupture of membranes.
- Post term pregnancies.
- High risk pregnancies- like diabetes mellitus, hypertension, renal disease, pre-eclampsia etc.
- Congenital anomalies of the fetus.

RESULTS

Table 1 shows the gestational age at the time of diagnosis of isolated oligohydramnios. Most of the patient (54.6%) were between 37-40 years of age.

Table 1: Period of gestation.

Oligohydramnios			
POG	<37	Count	8
		% of GRP	6.15%
	37-40	Count	71
		% of GRP	54.6%
	41-42	Count	51
		% of GRP	39.2%
Total	Count	130	
	% of GRP	100.0%	

Table 2: Mode of delivery.

Oligohydramnios			
MOD	VD	Count	72
		% of GRP	55.4%
	Em LSCS	Count	40
		% of GRP	30.8%
	El LSCS	Count	18
		% of GRP	13.8%
Total	Count	130	
	% of GRP	100.0%	

The table 2 shows the mode of delivery in cases of isolated oligohydramnios. 55.4% had a normal vaginal delivery, 30.8% underwent emergency LSCS and 13.8% underwent elective LSCS.

Table 3: Characteristic of liquor.

Oligohydramnios			
Liquor	C	Count	106
		% of GRP	81.5%
	M	Count	24
		% of GRP	18.5%
Total	Count	130	
	% of GRP	100.0%	

Table 3 depicts that majority of cases (81.5%) had normal colour of liquor and only 18.5% had meconium staining.

Table 4: APGAR scores.

		At 1 minute	At 5 minutes
APGAR	<7	Count	31
		% of GRP	23.8%
	>7	Count	99
		% of GRP	63.3%
Total	Count	130	
	% of GRP	100.0%	

APGAR scores of babies born. 95.4% of babies had an APGAR of >7 at 5 minutes of birth.

Table 5: Birth weight.

		Oligohydromnios	
Birth Weight	<2.5	Count	23
		% of GRP	17.7%
	2.5-3	Count	88
		% of GRP	67.7%
	3- 3.5	Count	16
		% of GRP	12.3%
	3.5+	Count	3
		% of GRP	2.3%
Total	Count	130	
	% of GRP	100.0%	

Table 5 shows the birth weight in these cases. Majority of the babies (67.7%) had a birth weight between 2.5-3 kgs.

DISCUSSION

In this clinical study, 130 women with isolated oligohydramnios, with gestational age 28-42 weeks were analyzed for maternal and perinatal outcome. Maximum no of patients (66.9%) belonged to 20-24 years' age group and oligohydramnios was more common in primigravidas (66.2%).^{3,4}

Table 6: Maternal and perinatal outcome in oligohydramnios.

Outcome	Oligohydramnios (n=130)
Induction of labour	75.5%
Vaginal delivery	55.4%
LSCS	
Emergency	30.8%
Elective	13.8%
Meconium stained liquor	18.5%
Preterm delivery	12.3%
Apgar <7 at 5 min	4.6%
Birth weight <2.5 kg	17.75%
NICU admission	6.9%
PNM	3.07%

Table 7: Comparative study for induction of labour in oligohydramnios.

	Bachhav et al ⁵	Jaindal et al ¹⁰	Present Study
Percentage of Induction	86	58	75

Induction rate in the present study was high, 75%, out of which 26.5% underwent emergency LSCS. Similar high rates of induction were seen in other studies as well. In a study by Bachhav et al, labour was induced in 86% of women of which 61% underwent LSCS.⁵ In a study by

Jindal et al, 58% were induced out of which 42% underwent LSCS.⁶⁻⁹

In present study, high rate of induction of labour was performed among women with isolated oligohydramnios.¹⁰⁻¹² This is similar to that reported by others, where 50% of low risk women with reduced amniotic fluid volume underwent induction of labour.¹³

Table 8: Comparative study for indications for emergency LSCS in oligohydramnios.

	Foetal distress (%)
Umber A et al ⁹	32
Bachhav et al ⁵	24
Jandial C et al ¹⁰	42
Nazlima et al ¹¹	58
Present Study	31

In the present study, fetal distress in the form of FHR variability, meconium stained liquor was the indication for emergency LSCS in 31% of cases. Similar observations were made by Umber et al (32%), Bachhav et al (24%) and Jindal et al (42%).^{5,9,11} Whereas Nazlima et al observed that 58% of emergency LSCS was for fetal distress.

Table 9: Comparative study for perinatal outcome in oligohydramnios.

	Nazlima et al ¹¹	Umber et al ⁹	Present study
APGAR <7 at 5 Min	26.9%	6%	4.6%
<2.5 kg	65.3%	36%	17.7%
>3.5 kg	-	2.7%	2.3%
NICU admission	19.2%	7%	6.9%
PNM	2.4%	-	3.07%

An APGAR score of <7 was seen in 26.9% of babies in Nazlima et al, 12% of babies by Jindal et al. in the present study only 4.6% of babies had APGAR<7 at 5 minutes similar to Umber et al.^{5,9,11}

17.7% of the babies were less than 2.5 kg compared to 64% by Bachhav et al and 65.3% by Nazlima et al. 2.3% were more than 3.5 kg, comparable to Umber et al (2.7%).^{5,11}

NICU admission was seen in 6.9% of babies, comparable to Umber et al (8.1%). Perinatal mortality was 3.07% similar to that found by Nazlima et al (2.4%).^{9,11}

CONCLUSION

The study showed that isolated oligohydramnios had no adverse maternal and perinatal outcome.

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