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Research Article

Pregnancy outcome after diagnosis of oligohydramnios at term

Preshit Chate*, Meena Khatri, C. Hariharan

Department of Obstetrics & Gynecology, Jawaharlal Nehru Medical College, AVBRH, Sawangi, Meghe, Wardha, Maharashtra-442002, India

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***Correspondence:**

Dr. Preshit Chate

Email- dr_preshitchate@hotmail.com

ABSTRACT

Background: To study the perinatal outcome in oligohydramnios (AFI < 5) at term & find out incidence of relation of maternal high risk factors.

Methods: A Prospective case control study consists of an analysis of pregnancy outcome in 50 cases with diagnosis of oligohydramnios by ultrasound after 37 completed weeks of gestation compared with 50 controls with no oligohydramnios.

Results: The selected outcomes showed significant variations in both groups. There were increased chances of FHR decelerations, Thick meconium, low Apgar score at 5 min. ,birth weight <2.5 kg, admission to NICU, congenital anomalies & neonatal mortality(statistically not significant).

Conclusions: An amniotic fluid index of < 5 cm detected after 37 completed weeks of gestation is an indicator of poor perinatal outcome. Determination of AFI can be used as an adjunct to other fetal surveillance methods. It helps to identify those infants at risk of poor perinatal outcome.

Keywords: Perinatal outcome, Oligohydramnios, AFI < 5 cm

INTRODUCTION

Amniotic fluid index (AFI) of ≤ 5 cm defines oligohydramnios as, originally described by Phelan et al.¹

The purpose of taking group of women with oligohydramnios at term pregnancies are because the etiology, management and the outcome is different in late onset oligohydramnios compared to early onset oligohydramnios.

Some studies show that amniotic fluid index is a poor predictor of adverse outcome²⁻⁵ and some authors have not confirmed the association of adverse perinatal outcome with oligohydramnios.⁶⁻⁹ Thus this study is conducted to find out the value of oligohydramnios in perinatal outcome and maternal outcome in pregnancies beyond 37 completed weeks.

Aim and objectives for the study were to study the perinatal outcome in oligohydramnios (AFI ≤ 5) at term & to find out incidence of relation of maternal high risk factor in oligohydramnios.

METHODS

A prospective case control study conducted in the Department of Obstetrics & Gynaecology at Acharya Vinoba Bhave Rural Hospital, Sawangi, Wardha over a period of 24 months (August 2010 to July 2012). All the cases that were available up to the study period were assigned for the study.

This study consists of an analysis of pregnancy outcome in 50 cases with diagnosis of oligohydramnios (with AFI ≤ 5 cm) by ultrasound after 37 completed weeks of gestation compared with 50 controls without oligohydramnios (AFI 5.1-20 cm) and matched for other variables like age, parity and gestational age. Cases were selected according to following inclusion and exclusion criteria. The inclusion criteria for the study purpose was: Thirty seven completed weeks of gestation, amniotic fluid index of ≤ 5 cm, intact membranes, singleton pregnancy with cephalic presentation, pregnancy induced hypertension. Following patients were excluded from the study: gestational age less than 37 completed weeks,

associated fetal malformations, ruptured membranes, malpresentation and multiple gestation.

After selection of cases, detailed history including (obstetric history, menstrual history, past history, family history, personal history) was taken and complete examination (general examination, systemic examination, abdominal examination and pelvic examination) was done. Clinical evidence of oligohydramnios was looked for and confirmed by ultrasound examination. Various outcome measures recorded were gestational age at delivery, colour of amniotic fluid, FHR tracings, mode of delivery, indication for cesarean section or instrumental delivery, Apgar score at one minute and five minutes, birth weight, admission to Neonatal Intensive Care Unit (NICU), perinatal morbidity and perinatal mortality. The results were statistically analysed using parameters like mean, standard deviation and chi square test.

Table 1: Outcome parameters in the study vs. control group.

Outcome Parameters	Study Group (n = 50)		Control Group (n = 50)		p value /Significance
	No.	%	No.	%	
Non Reactive NST	19	38	10	20	0.04 (S)
Thick Meconium Stained Liquor	23	46	08	16	0.001 (S)
LSCS	32	64	11	22	0.0001 (S)
APGAR score < 7 - 1 min.	15	30	09	18	0.40 (NS)
- 5 min.	08	16	03	06	0.40 (NS)
Birth Weight ≤2.5kg	31	62	14	28	0.009 (S)
Admission to neonatal ward	21	42	06	12	0.0007 (S)
Neonatal Death	01	02	00	00	0.31 (NS)
S-Significant, NS-Not Significant					

DISCUSSION

The various outcome results are comparable to results of similar studies done both in India and abroad. Amniotic fluid volume is known to be reduced with advancing gestational age after 40 weeks.

Hypertensive disorders which cause chronic placental insufficiency lead to oligohydramnios. In the oligohydramnios group 8.0% had mild or severe preeclampsia compared to 38.46% and 31% of oligohydramnios group in study by Chandra P. et al and Sriya R. et al. Abruption placenta was seen in 7.69 % in study by Chandra P. et al and present study reported 2%. Fetal distress was seen in 42 % cases in present study and 36.11 % was seen by Sriya R. et al, 48 % by Casey et al and 80% by Guin et al. The non reactive, non stress test rates are high in women with AFI <5 cm. The rate of non reactive NST is 38% in present study.

The occurrence of meconium stained amniotic fluid is high in women with AFI < 5 cm. The thick meconium stained liquor was noted in 46% in study group in present

RESULTS

This study is performed in 50 pregnant women with amniotic fluid index of ≤5 cm and has completed 37 weeks of gestation and is compared with 50 pregnant women with amniotic fluid index between 5 cm and 20 cm.

Selected outcomes showed significant difference in both the groups. In presence of oligohydramnios, the occurrence of non reactive NST, thick meconium stained liquor, development of fetal distress, the rate of LSCS, low 5 minute Apgar score, low birth weight, perinatal morbidity and mortality are more. In our study the low 5 min Apgar score, perinatal morbidity and mortality number is high but statistically the difference in study and control groups is nonsignificant (Table 1).

study. Various studies show different rates of LSCS rate in pregnant women with amniotic fluid index of <5 cm. The LSCS was done in 64% in present study which is compared with the situations in other studies.

Grubb and Paul¹⁵ did not observe such association [no significant increase in intervention for fetal distress, either caesarean or operative vaginal delivery in patients with oligohydramnios (AFIs of 20mm to 49mm) when compared to those with normal amniotic fluid volume (AFI of 50mm or more)]. Similarly Chauhan et al^{16,17} failed to find an increased risk of cesarean delivery for fetal distress or low APGAR scores in patients with oligohydramnios (Table 2).

APGAR score <7 in percentage in study group was 30% at 1 min. and 16 % at 5 min. which is comparable to other studies. The mean birth weight is less in oligohydramnios group. The occurrence of low birth weight is 62.0% which is comparable with other Indian studies (Chandra P et al 61.53% and Sriya R et al. 58.38%). The high incidence of low birth weight may be because of chronic placental insufficiency causing fetal growth restriction.

42% of newborns were admitted in NICU for various morbidities like jaundice, septicaemia, IUGR, poor sucking reflex, birth asphyxia etc. The incidence of

congenital anomalies was 6 % in our study and 8.5 % in study by Guin et al 2011 with oligohydramnios group (Table 3).

Table 2: Comparison of cases in different studies according to antepartum complications, NST pattern, colour of liquor and percentage of LSCS.

	Chandra P et al ¹⁰ (2000)	Casey et al ⁵ (2000)	Sriya R et al ¹¹ (2001)	Umber et al ¹² (2009)	Guin et al ¹³ (2011)	Visvalingam G. et al ¹⁴ (2012)	Present Study (2012)
Antepartum Complications							
• Hypertensive Disorders	38.46%		31.00%		3.5 %		8.0%
• Abruptio Placenta	7.69%						2%
• Fetal Distress		48%	36.11%		80 %		42%
Non Reactive NST	69.23%		41.55%	52.7%			38%
Thick Meconium Stained Liquor	23.7%		38.88%	6%			46%
Percentage of LSCS	76.92%	51%	43.05%	32%	42.8%	75.6%	64%

Table 3: Comparison of neonates in different studies according to low APGAR Score, Birth weight < 2.5 Kg and Admission to NICU.

Studies	Occurrence of Apgar Score < 7 in percentage		Occurrence of Birth Weight < 2.5 Kg in Percentage	Admission to NICU in Percentage
	1 min	5 min		
Casey et al 2000	-	-	35%	7%
Chandra P et al. 2000	-	23.07 %	61.53%	46.15%
Sriya R. et al. 2001	38.88 %	9.72 %	58.38%	88.88%
Umber A. et al. 2009	8 %	6 %	36.3%	7%
Guin et al 2011	39 %	-	-	-
Present Study	30 %	16 %	62%	42%

The limitations of study include: Exactly satisfied inclusion and exclusion criteria. The use of backup surveillance methods like scalp blood sampling and acoustic stimulation and amnioinfusion would have altered the outcome.

CONCLUSIONS

An amniotic fluid index of ≤ 5 cm detected after 37 completed weeks of gestation is an indicator of poor perinatal outcome. In presence of oligohydramnios, the occurrence of non reactive NST, thick meconium stained liquor, development of fetal distress, the rate of LSCS, low 5 minute Apgar score, low birth weight, perinatal morbidity and mortality are more. Determination of AFI can be used as an adjunct to other fetal surveillance methods. It helps to identify those infants at risk of poor

perinatal outcome. Determination of AFI is a valuable screening test for predicting fetal distress in labor requiring cesarean section.

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Ethical approval: The study was approved by the Institutional ethics committee

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