

Study of "Association of Oligohydramnios with Pregnancy Outcome"

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Abstract

Background- The amniotic fluid that bathes the foetus is necessary for proper growth and development. Oligohydramnios associated with meconium staining of the amniotic fluid, fetal heart conduction abnormalities, poor tolerance of labor, lower Apgar score and foetal acidosis. *Objective-*To find out if Oligohydramnios is associated with: - High incidence of adverse pregnancy outcome and adverse foetal outcome if possible.*Material and Methods:-* A descriptive prospective study carried out over a period of 6 months(July 2018 to December 2018) on the patients admitted and delivered at our MDM hospital Department of obstetrics and gynecology, Dr. S.N. Medical College, Jodhpur. An ultrasound examination was done to monitor fetal well being and arrear amniotic fluid index and it was measured by Phelan's technique outcome measured by student test.*Results-* Present study conducted on 200 patients of Oligohydramnios and 200 control normal AFI subject. On comparison study population have more meconium stained liquor more LSCS, low apgar score, increase IUGR and NICU admissions. *Conclusion :-* Oligohydramnios is one of the indications of poor prenatal outcome. It is associated with foetal heart rate abnormalities, umbilical cord compression ,meconium staining of amniotic fluid, poor tolerance of labour, low apgar score due to foetal acidosis.

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I. Introduction

The amniotic fluid that bathes the fetus is necessary for proper growth and development. It cushions the fetus from physical trauma, permits fetal lung growth and provides a barrier against infection. Normal amniotic fluid levels vary, however, the average volume increases with gestational age, peaking at 800-1000 ml which coincides with 36-37 weeks gestation. The condition of inadequate fluid, oligohydramnios results in poor development of lung tissue and can result in fetal death. ⁽¹⁾

Amniotic Fluid is primarily produced by fetal urine in latter half of the pregnancy, therefore the absence or reduction of the fetal urine production or blockage in the urinary tract can result in oligohydramnios. ⁽²⁾ However, rupture of the membranes is the most common cause of oligohydramnios.

Amniotic fluid volume is evaluated by visually dividing the maternal abdomen into 4 quadrants. The largest vertical pocket of fluid is measured in centimetres. The total volume is calculated by addition of four values. Oligohydramnios is defined sonographically as an amniotic fluid index(AFI) of less 8 cm or the absence of a fluid pocket 2-3 cm in depth. ⁽³⁾

Causes:Fetal urinary tract anomalies such as renal agenesis, polycystic kidneys or any urinary obstructive lesion. Maternal problems including placental vascular insufficiency, premature rupture of membranes or chronic leakage of amniotic fluid. The major maternal complication from this is chorioamnionitis. The incidence of this varies in the literature and has been reported anywhere from 21-74%. The earlier this occurs in pregnancy causes increased risk to the fetus. Thus, increasing the risk of neurologic complications, pulmonary hypoplasia and in severe cases, respiratory failure, Maternal use of prostaglandin synthase inhibitors or angiotensin- converting enzyme (ACE) inhibitors. Post maturity syndrome in infants when a pregnancy extend beyond 42-weeks.

Complications-Lung affection leads to pulmonary hypoplasia, which leads to death from severe respiratory insufficiency. Marked deformation of the fetus because of intrauterine constraint (Potter syndrome). Primary complications are those of fetal distress prior to or during labor. Also there is an increased risk of fetal infection in the presence of prolonged rupture of the membranes.

II. Material and Method

A descriptive prospective study carried out over a period of 6 months on the patients admitted and delivered at our MDM hospital, Department of obstetrics and gynaecology, Dr. S.N. Medical College, Jodhpur. **INCLUSION CRITERIA:-** All diagnosed oligohydramnios cases through ultrasonography finding gestational

age more than 28 weeks. Oligohydramnios is defined sonographically as an Amniotic Fluid Index (AFI) less than 8 cm or the absence of a fluid pocket 2 cm in depth.

Study was conducted to observe outcome of labour in form of perinatal morbidity and maternal outcome in form of vaginal or caesarean section.

III. Results

Present study conducted on 200 patients of Oligohydramnios and 200 control normal AFI subject.

Table 1: Distribution of Studied Population According to Parity

PARITY	Study Group		Control Group	
	No	%	No	%
PRIMI	108	54%	114	57%
MULTI	92	46%	86	43%

$X^2 - 3.056$
 $p-0.080$

Most of the patients were primiparous in this study, 54% in study group and 57% in the control group. This difference was found to be statistically non-significant.

Table 2: Distribution of Gestational Age at Diagnosis

Gestational age	Study		Control	
	No	%	No	%
28-32 weeks	4	2	0	0
>32-37weeks	96	48	30	15
>37-40 weeks	66	33	154	77
>40 weeks	34	17	16	8

Most pregnancies in study group were delivered before 37 completed weeks. (48%) In control group, most pregnancies were delivered by 37 completed weeks. (77%) Comparatively more pregnancies were continued till term in control group. The incidence of postdated pregnancies are more in study group. (17%)

Table 3: Distribution of High risk Pregnancy

High risk	case	control
Pre eclampsia	35 (17.5)	29(14.5)
Postdated	33(16.5)	16(8.0)
Breech	22(11)	3(1.5%)
uncomplicated	80(40)	122(61)
previous lscs	30(15)	30(15)

$X^2 - 29.633$
 $P - <0.0001$

Most pregnancies were uncomplicated in both study and control group. In study group pre eclampsia was 17.5%, postdated pregnancy was 16.5%, previous LSCS was 15%. In control group pre eclampsia was 14.5%, Postdated pregnancy was 8%, previous LSCS was 15%. This difference was statistically significant

Table 4: Distribution According to Mode of Onset of Labour

Onset of labour	Study		Control	
	No	%	No	%
I	87	43.5%	60	30.0%
S	113	56.5%	140	70.0%

$X^2 - 7.271$

P - 0.007

Labour occurred spontaneously in 56.5% of study group and 70% of control group. Labour was induced in 43.5% of study group and 30% of control group. This difference was not found to be statistically significant

Table 5: Distribution According to Mode of Delivery

Mode of delivery	Study		Control	
	No	%	No	%
LN	75	37.5%	123	61.5%
LSCS	99	49.5%	47	23.5%
RPT	26	13.0%	30	15.0%

$X^2 - 30.443$

P - 0.000 < 0.05

Majority of deliveries in study group were LSCS (49.5%), with repeat LSCS (13%) and labour normal was only 37.5%. In control group, labour normal was 61.5% and LSCS was only 23.5% with repeat LSCS 15%. This difference was found to be statistically significant

Table 6: Indication for caesarean section

Indication for LSCS	Study		Control	
	No	%	No	%
Breech	13	10.4%	3	3.89%
CPD	11	8.8%	29	37.66%
FD	67	53.6%	22	28.57%
FI	17	13.6%	14	18.18%
IUGR	13	10.4%	7	9.09%
Others	4	3.2%	2	2.59%

$X^2 - 30.157$

P - 0.000 < 0.05

Among study group, the most common indication for LSCS is fetal distress - 53.6%. In control group, only 28.57% of patients underwent LSCS for fetal distress. This difference was found to be statistically significant.

Table 7: Weight Distribution of the Newborn

Baby weight	Study		Control	
	No	%	No	%
Below 2kg	48	24%	16	8.0%
2 to 2.5kg	36	18%	29	14.5%
2.5 to 3kg	97	48.5%	115	57.5%
above 3kg	19	9.5%	40	20%

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$X^2 - 25.757$

$P - 0.000 < 0.05$

Among the study group 24% babies were <2kg, whereas in control group only 8% babies were <2kg. This difference was found to be statistically significant.

Table 8: Distribution of The Newborn According to Apgar score

Apgar	Study		Control	
	No	%	No	%
Below 4	7	3.5%	0	.0%
4 to 7	23	11.5%	5	2.5%
above 7	170	85%	195	97.5%

$X^2 - 20.284$

$p - 0.000 < 0.05$

APGAR score was above 7 in 85% patients in study group and 97.5% patients in the control group. This difference was found to be statistically significant.

Table 9: Distribution of neonatal Outcome According to NICU admission

NICU ADMISSION	NUMBER	%
STUDY	70	35%
CONTROL	37	18.5%

$X^2 - 13.065$

$P - 0.000 < 0.05$

35% of babies in study group were admitted in NICU, but only 18.5% of babies in control group were admitted in NICU. This difference was found to be statistically significant.

Table 10: Outcome of baby.

Neonatal Outcome	Study Group		Control Group	
	No	%	No	%
HEALTHY	152	76%	184	92%
IUGR	37	18.5%	15	7.5%
DEATH(IUGR)	8	4%	0	
STILL BIRTH	2	1%	1	.5%
DEATH(PRETERM)	1	.5%	0	

$X^2 - 21.689$

$P - 0.000$

18.5% of babies in study group were IUGR, but only 7.5% of babies in control group were IUGR. This difference was found to be statistically significant.

IV. Discussion

In the present study, the highest percentage of women in the oligohydramnios and control groups (54.0% & 57.0% respectively) were Para one. This is partially in agreement with that of Ghike et al., (4) who observed that the majority of the women in both the groups were either nulliparous or Para one.

According to the present study findings, the rate of vaginal delivery was higher in the control group (61.5%), compared to the study group (37.5%). Conversely, the rate of CS was higher in oligohydramnios group compared to control group (62.5% vs. 38.5% respectively). This is in coherence with Hanafy (5) who reported that there is statistically significant increase in the rate of C.S in oligohydramnios group compared with those in the control group (40.0% vs.20.0% respectively).

In addition, Kahkhaie et al.,(6) observed that CS was done in 20.2 % in oligohydramnios group and 8.6% in control group. Moreover, Voxman et al.,(7)

study in low AFI as a predictor of adverse perinatal outcome found an increased rate of CS in oligohydramnios group (14.7%) because of fetal distress.

Concerning fetal outcomes, the present study showed significantly better Apgar score among babies with normal amniotic fluid index than those with oligohydramnios. This is similar to Chate et al., (8) who noticed that the Apgar score of the study group was less than 7 in 30% at 1st minute, and 16% at 5th minute

The current study has also demonstrated that, the mean birth weight of the two studied groups was (2.513Kg vs 2.773) statistical significant difference. This finding is comparable with Conway et al., (9)

The current study findings revealed that Statistical significant difference was noted between the two groups ($p=0.000^*$) as regards admission to neonatal intensive care unit (NICU). As 35.0% of neonates in the oligohydramnios group had been admitted to NICU compared to 18.5% in the control group. This is consistent with the studies of Johnson et al., (10)

V. Conclusion

From this study, we conclude that oligohydramnios is a high risk pregnancy and proper antepartum care, intensive fetal surveillance and intrapartum care are required in patient with oligohydramnios. Every case of oligohydramnios needs careful antenatal evaluation, parental counseling, individualization, decisions regarding time and mode of delivery.

Continuous intrapartum fetal monitoring and good neonatal care are necessary for better perinatal outcome.

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