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Pregnancy Outcome after Diagnosis of Oligohydramnios

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Abstract: ***Background: To determine the outcome of maternal and fetal wellbeing after diagnosis of oligohydramnios at term pregnancy. Methods: 50 female pregnant patients aged between 18 to 27 yrs were screened with history of oligohydramnios by ultra sound scanning after 37 completed weeks, compared with 50 controls with no oligohydramnios. Results: The meage age of study group were 22.7 years and of control group is 22.4yrs respectively. Majority of the patients were primigravid as in both study and control group. The mean gestational age was 39.5wks in study groupand 39.4 wks in control group. The amniotic fluid index was measured by four quadrant semi quantitative technique in ultrasound and those with AFI<5cm were considered as oligohydramnios, and those with AFI between 5cm &20Cm were considered. The occurrence of nonreactive nst was more in study group compared to control group. The incidence of meconium stained liquor was more(52%) in study group compared to control group(26%).the induction of labour was more common in study group(46%)than control group(24%),which is statistically significant. The efficacy of AFI as a screening test to predict fetal distress is more significant with positive predictive value of 57% and negative predictive value is 80%.the mean birth weight was 2.5 kg instudy group compared to 2.75kg in control which is statistically significant.34% of the new borns were admitted to nicu in study group compared to 14% of control group. Conclusions: In the presence of oligohydramnios, the occurrence of non reactive NST, meconium stained liquor, Development of foetal distress are very high. and .the rate of lscs,. the low 5 min apgar score, low birth weight and perinatal morbidity are high compared to controls without oligohydramnios.***

Keywords: oligohydramnios, amniotic fluid index, NST. apgar, low birth.

1. Introduction

Amniotic fluid which surrounds developing fetus in amniotic sac provides several benefits to the fetus .despite decades of investigations, the regulation of amniotic fluid volume and composition remains incompletely understood. This results in part from the complexities inherent in the amniotic fluid dynamics, an enigmatic interaction of several sites of amniotic fluid secretion and excretion. The source of amniotic fluid is maternal plasma, diffusion of extra cellular fluid through fetal skin, fetal urine and fetal lung secretions.

Progressive improvement in ultrasonographic technique has made it possible to assess the amniotic fluid relatively accurately. Although subjective and semi quantitative methods of estimating amniotic fluid volume remains controversial.

However, the technique of four quadrant method of calculating amniotic fluid index (AFI) described by phelan et al in 1987 is accepted by most authors.

Amniotic fluid index of < 5cm defines oligohydramnios as described by phelan et al .many studies show that oligohydramnios is associated with variety of ominous pregnancy outcomes such as fetal distress, low birth weight, perinatal morbidity, and increased incidence of caesarean section.

However, some studies show that amniotic fluid index is a poor predictor of adverse outcome and even the existence of an entity like islolated term.oligohydramnios has been questioned by some authors. Thus this study is conducted to find out the value of oligohydramnios in determining perinatal outcome at term and caesarean section rate in pregnancies beyond 37 completed weeks.

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

Numerous factors have been evaluated with respect to the effect of amniotic fluid Including inter observer and intra observer variation, transdusar pressure, fetal movements transducer type , number of gestation , and fetal presentation. Various methods have been described for ante partum and intrapartum fetal surveillance like NST, CST, VAST, BPP, DOPPLER VELOCIMETRY, FHR tracing, fetal stimulation test and fetal scalp ph estimation.

This study is conducted to find out the value of oligohydramnios in determining perinatal outcome at term and caesarean section rate in pregnancies beyond 37 weeks .of gestation. The present study was prospective study carried out on 100 patients at vanivilas hospital ,Bangalore. From oct-2015 to oct 2016.

2. Methodology

This is a prospective case control study done from Oct 2015 to Oct 2016 at BMCRI, VVH, Bengaluru. It consists of 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 oligo hydramnios and matched for other variables like age, parity, gestational age and any pregnancy complications.

There are some inclusion and exclusion criteria briefed below :

Inclusion criteria

1) 37 completed weeks of gestation.

2) Amniotic fluid index ,<5cm.
3) Intact membranes.
4) Singleton pregnancy with cephalic presentation.

Exclusion criteria
1) Gestational age less than 37 completed weeks
2) Premature ruptures of membranes
3) Associated fetal anomalies
4) Malpresentations
5) Multiple gestation

Only those women women who remembered their last date of menstrual period correctly with previous regular cycles and the gestational age calculated by clinical examination and ultrasound were corresponding, that is only good and excellent dates with 37 completed weeks were taken.

For all women.USG was done and AFI was calculated by four quadrant technique, NST was done for all patients. The management protocol was similar in both study group and control group .All were monitored by continuous electronic fetal heart rate monitoring in labour, each case was assessed as follows;
1) Spontaneous / induced labour
2) Mode of delivery
3) Indication of caesarean delivery
4) Colour of liquor
5) Placental calcification
6) Cord round the neck
7) Apgar score at 1and5 min
8) Birth weight of new born
9) Admission to nicu
10) Perinatal morbidity &mortality

3. Results

Table 1

	Study Group	*Control Group*
Bookedcases	33 66%	34 68%
Unbooked Cases	17 34%	16 32%

IN both the groups majority are booked cases.66% of cases were booked under study group where in control group it was about 68%. Only 34% were unbooked in study Group and 32% in control group.

Table 2: Age Distribution

Age(yrs)	*Study group*	*Control group*
16-20	15	16
20-25	29	29
26-30	6	5

The age distribution is shown in table 2. The mean age for study group was 22.7yrs the mean age for control group was22.4yrs .there was no difference in the mean age between the two groups statistically.

Table 3: Gravidity distribution

Study group	control group	
1st gravid	28	27
2nd gravid	0	19
3rd gravid	5	9
4th gravid	1	0

The mean gravidity is 1.54

Table 4: Gestational age distribution

Gestational age (inwks)	*Study group*	*Control group*
37-40 wks	20	23
>40wks	30	27

The mean gestational age for control group is 39 wks whereas for study group is 39.5 weeks.

Table 5: Distribution of antenatal complications

Antenatal complications	*Study group*	*Control group*
Mild preeclampsia	8	8
Severe preeclampsia	6	4
Post term pregnancy	1	0
Abruptioplacenta	1	1

This table shows distribution of antenatal complications in both study and control group the occurance of complications are similar .and are not statistically significant.

Table 6: Distribution of amniotic fluid index in study group

AFI(cms)	*Study group*	
2.1-3	19	38%
3.1-4	21	42%
4.1-5	10	20%

The mean AFI in study group is 3.4cm

Table 7: Distribution of amniotic fluid in control group

AFI(cms)	*Control Group*	
5-10	20	40%
10.1-13	23	46%
13.1-15	7	14%

The mean AFI IS 10.82 CMS.

Table 8: Distribution of nonstress test pattern

NST	*Study Group*	*Control Group*
Reactive	28(56%)	37(74%)
Eqvivocal	12(24%)	9(18%)
Nonreactive	10(20%)	4(8%)

The percentage of reactive cases was 56% in study group while in control group is 74%.

Table 9: Distribution of colour of the amniotic fluid

Colour of amniotic fluid	*Study group*	*Control group*
Clear	24(48%)	37(74%)
Meconium stained	26(52%)	13(26%)
Total	50(100%)	50(100%)

Among the study group meconium stained liquor was present 26 women while in control group it is in 13 women.

Table 10: INDUCED/spontaneous labour

	Study group	*Control group*
Induced	23 (46%)	12 (24%)
Spontaneous	27 (54%)	38 (76%)
Total	50 (100%)	50 (100%)

Among the study group the no of induced labour is 46% , while spontaneous labour is 54%.

Whereas in control group spontaneous labour is 76% which is very high compared to study group, also induced rate is only 24%.

Table 11: Distribution of intervention for fetal distress

Intervention for fetal distress	*Study group*	*Control group*
LSCS	19 38%	9 18%
forceps	03 6%	3 6%
total	22 44%	12 24%

Among the study group, intervention for distress was done in 22 cases (44%).

Among the control group, intervention for fetal distress was done in12 women (24%).

The difference of distribution of intervention for fetal distress between the two groups was not statistically significant.(p<1.0).

Table 12: Distribution of mode of delivery

Mode of delivery	*Study group*	*Control group*
Normal vaginal delivery	14 (28%)	36 (72%)
Cesarean section	21 (42%)	11 (22%)
Forceps delivery	05 (10%)	03 (6%)
Total	50 (100%)	50 (100%)

The study group cesarean delivery was more 42% compared to control group 22%.

The normal vaginal delivery is also less (28%) compared to control group (72%)

This is statistically significant.

Table 13: Distribution of LSCS for fetal distress

	LSCS	*Normal Vaginal Delivery*
Study group(AFI<5)	19	14
COTROL GROUP(AFI>5)	09	36

In study group, 19 women underwent lscs for fetal distress and 14 had normal delivery. Where as in control group 36 women had normal delivery and only 9 had cesarean delivery.

The determination of AFI,<5cmas a screening test in predicting fetal distress during labour has a sensitivity of 67.8%, specificity of 72%, positive predictive value of 57.5% and a negative predictive value of 80%.

Table 14: LSCS for Fetal Distress in Nonreactive NST

	Non reactive nst	*lscs for fetal distress*	*Percentage*
Study group	10	06	60%
Control group	04	02	50%

The occurrence of LSCS for fetal distress in study group is more 60%. While in control group it is 50%.

Table 15: LSCS for fetal distress in reactive NST

	Reactive NST	*LSCS for fetal distress*	*percentage*
Study group	28	08	28.5%
Control group	37	04	10.5%

This table shows lscs in reactive NST. Among the study group 28 women had reactive nst out of which 8women underwent lscs for fetal distress. Whereas, in control group, 37women had reactive NST out of which only 4 women underwent cesarean section.

Table 16: LSCS for fetal distress in equivocal NST

	Equivocal nst	*LScs for FD*	*percentage*
Study group	12	07	58.3%
Control group	09	03	33.3%

In this table 12 women had equivocal nst out of which 7 had to undergo lscs for fetal distress which was higher (58.3%). In control group only 3 women underwent lscs for fetal distress out of 9 equivocal nst.(33.3%).this is statistically significant.

Table 17: Distribution of placental calcifications and cord round the neck

	Study group	*Control group*
Placental calcification	13 26%	08 16%
Cord round the neck	09 18%	05 10%

In this table the cases having placental calcifications were26%, while cord round the neck were 18% among study group. In control group placental calcifications was seen in 16% of cases and cord round the neck in only 10% of the cases.

Table 18: Distribution of APGAR SCORE.

Apgar score	*Study group*	*Control group*
1MIN	16 (32%)	9(18%)
5MIN	5 (10%)	2 (4%)

The mean apgar score for study group at 1 min was 7.28.
The mean apgar score for control group at 5 min was 9.48.
The percentage of apgar score less than 7 at 5 min was 10% in study group compared to only 4% in control group.

Table 19: Distribution of birth weight

Birth weight in kg	*Study group*	*Control group*
1.5-2 kg	6 (12%)	0
2-2.25kg	26 (52%)	14 (28%)
2.5-3kg	11 (22%)	24 (48%)
3-3.5kg	4 (8%)	12 (24%)
>3.5kg	1 (2%)	0

The mean birth weight in study group was 2,58kg whereas incontrol group it is 2.77kg.
The occurrence of birth weight, <2.5kg was seen in 32 women in study group (64%)

The occurrence of birth weight <2.5kg was seen in 14 women (28%) among control group, which is statistically significant, (p<0.05).

Table 20: Distribution of admission to nicu

Study group	17	34%
Control group	07	14%

17 neonates was admitted to nicu in study group, while only 7neonates were admitted in control group. However, there was no mortality in our study.

4. Discussion

This is a prospective case control study of 50 pregnant women of more than 37 completed weeks of gestation with oligohydramnios compared with women having AFI more than 5cm. other variables like age, parity, gestational age were matched in both groups. This is done over a period of 13 months from oct-2015 to oct-2016 at Vanivilas hospital, Bengalore Medical College and Research Centre, Bengaluru.

The mean age of study group &control group were 22.7yrs and22.4yrs respectively.

Most of them were primigravida & the mean gravidity was1.66 in study groupand1.54 in control group, the mean gestational age was 39.5wks in study group and 39.4 weeks in study group.

32% of study group had antenatal complications like mild and severe pre eclampsia, post term pregnancy &abruption placenta.

The amniotic fluid index was measured by four quadrant semi quantitative technique in ultra sound and those with AFI <5 cm were considered as oligohydramnios and those with AFI between 5cm and20 cm were considered normal. The mean AFI in study group was 3.44cm &in control group it is 10.8 cm.

The induction of labour was more common in study group 46% than in control group 24%.this difference was statistically significant .($p<0.03$).

44% of women in study group developed fetal distress,38% of them were delivered by LSCS &6% by forceps. The difference of intervention for fetal distress between two groups was not statistically significant ($p<1.0$).

The efficacy of AFI as a screening test to predict fetal distress requiring lscs was of a sensitivity 67.8% of specificity 72%.

The mean apgar score at 1min&5min were 7.28 and7.46 respectively in study group whereas in control group it is 10%&4% respectively.

The percentage of aogar score less than 7 at 5 min was10% in study group and 4% in control group.

34% of neonates in study group were admitted to nicu compared to 14% of control group. The difference was statistically significant ($p<0.05$).

The results are consistent with most of the similar studies.

The mean birth weight was 2.5kg in study group and 2.75kg in control group .the difference in occurrence of low birth weight was statistically significant.

34% of neonates in study group was admitted to nicu compared to14% of control group which was statistically significant.
These results are consistent with most of the similar studies.

5. Conclusion

In presence of oligohydramnios, the occurrence of nonreactive NST, meconium stained liquor, development of fetal distress, the rate of LSCS, the low 5 min apgar score, low birth weight and perinatal morbidity and mortality are high compared to controls without oligohydramnious. Hence, an amniotic fluid index of <5cm detected after 37 completed weeks is an indicator of poor perinatal outcome.

Determination of AFI is valuable screening test for predicting fetal distress in labour requiring cesarean section. It has a sensitivity of 67.8% & specificity of 72% .it helps to identify those infants at risk of poor perinatal outcome.

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