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Study of Maternal and Foetal Outcome in Normal term Pregnancy with Isolated Oligohydramnios

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Abstract:
Objectives: *To study the maternal and foetal outcome in normal term pregnancy with isolated oligohydramnios.*
Methods: *This was a prospective study conducted in the department of obstetrics and gynaecology at BGS Global Medical college, Bangalore over a period of one year from January 2015 to December 2015. A total of 100 patients of gestational age >37 weeks matched for age and parity were studied, of which the study group had 50 women with an AFI less than 5 and the control group had 50 women with an AFI more than 5 .The mode of delivery and the perinatal outcome was compared between the two groups. Chi square test was used for statistical analysis.*
Results: *Non stress test (NST) was reassuring in 39 patients (78%) in the study group and 46 patients (92%) in the control group (p value <0.05) and was found to be statistically significant. In the study group, 16 of the 50 patients (32%) had normal vaginal delivery, 9 patients (18%) had instrumental delivery and 25 patients (50%) underwent caesarean section, whereas 34 of the 50 patients (68%) had normal vaginal delivery, 2 patients (4%) had instrumental delivery and 14 patients (28%) delivered by caesarean section in the control group (p value <0.05). This difference was statistically significant. Apgar score <7 was seen in 9 patients (18%) win the study group and in 6 patients (12%) in the control group (p value >0.05). The difference was not statistically significant. 22 babies (44%) in the study group had birth weight <2.5 kg, whereas 10 babies (20%) in the control group had birth weight <2.5 kg (p value <0.05). This difference was statistically significant. 6 babies in the study group (12%) were admitted to the neonatal intensive care unit (NICU), whereas 4 babies (8%) in the control group had NICU admission (p value >0.05). The difference was not statistically significant. All the babies were stable at the time of discharge. There were no babies needing ventilatory support and no perinatal deaths in either the study or control groups.*
Conclusion: *Isolated oligohydramnios without any complicating factor is not associated with adverse perinatal outcome, though the babies may have a lower birth weight.*
Keywords: *isolated oligohydramnios, amniotic fluid index, intrauterine growth restriction.*

Introduction

Amniotic fluid in adequate quantity is essential for the growing foetus as it provides cushioning effect for the foetus injury, supplies nutrition to the foetus and promotes growth and in utero movement of the foetus. The quantitative measurement of amniotic fluid volume plays a major role in ante partum foetal surveillance. Amniotic fluid is the product of complex and dynamic foetal and placental physiologic processes.

Oligohydramnios is defined as amniotic fluid volume less than the 5th percentile for that gestational age[1], single largest pocket or maximum vertical pocket of less than 2 cm^2 or amniotic fluid index (AFI) of less than 5 cm[3,4]. It affects 2.4% of pregnancies between 36-40[3,4] weeks and 12% of pregnancies at 41 weeks or later[5]. Oligohydramnios in third trimester may be responsible for malpresentation, umbilical cord compression and foetal distress. Many studies have reported increased caesarean delivery rate[7], fetal distress and adverse perinatal outcome[8] with oligohydraminos. However, RADIUS trial database, by Zhang and colleagues[9] reported that isolated oligohydramnios was not associated with adverse perinatal outcome. Due to these conflicting reports, we decided to study the maternal and foetal outcome in a normal term pregnancy with isolated oligohydraminos.

Material and Methods

This was a prospective study conducted in the department of obstetrics and gynaecology at BGS Global Medical college, Bangalore over a period of one year from January 2015 to December 2015. A total of 100 patients of gestational age >37 weeks matched for age and parity were studied, of which the study group had 50 women with an AFI less than 5 and the control group had 50 women with an AFI more than 5 .

Inclusion criteria

1. AFI less than or equal to 5 (for study group)
2. Single live intrauterine gestation with cephalic presentation
3. 37-40 weeks of gestation
4. Intact membranes

Exclusion criteria

1. Rupture of amniotic membranes
2. Multiple gestation
3. Gestational age <37 or >40 weeks
4. High risk pregnancy eg: Preeclampsia, Gestational diabetes, previous caesarean section

All antenatal low risk patients with gestational age of 37-40 weeks attending the OBG outpatient department at BGS Global Medical college were subjected to a routine ultrasound examination. Amniotic fluid index was measured using the technique described by Phelan *et al*3. Patients were then grouped according to their amniotic fluid index into the study (AFI<5) or control group (AFI>5).

Complete obstetric and medical history, physical examination and baseline investigations were done after taking a written informed consent from all the patients. On admission, non stress test (NST) was done in both the study and control groups. If NST was non reassuring, emergency caesarean section was done. If NST was reassuring, patient was assessed for labour progression. If patient was not in labour or had an unfavourable cervix, she was induced with prostaglandin E2 (dinoprostone) gel intravaginally. A maximum of 3 doses of dinoprostone were used 6 hours apart for induction. Once the patient went into active labour, artificial rupture of membranes (ARM) was done at 3 cm dilatation and colour of liquor was noted. WHO (World Health Organisation) Partogram was plotted to know the progress of labour. All cases were monitored by continuous electronic foetal monitoring. Oxytocin drip was started if contractions were inadequate. If there were late decelerations, persistent bradycardia or persistent tachycardia, patients were taken up for

emergency caesarean section. All newborns were attended by the paediatrician. The birth weight and agar score at 1 and 5 minute were noted. If the agar score was low or the baby had respiratory distress, the baby was admitted to the neonatal intensive care unit (NICU). The various outcomes recorded were NST, induced or spontaneous labour, colour of liquor, mode of delivery, agar score, NICU admission, need for ventilator support and prenatal deaths. Chi square test was used for statistical analysis.

Results

The study included 100 women with singleton pregnancies with cephalic presentation with gestational age between 37-40weeks with 50 women (AFI <5) included in the study group and 50 women with AFI>5 included in the control group.

Table 1: Demographic Characteristics in the study and control group

Characteristics	Study group (AFI<5) n=50	Control group (AFI>5) n=50
Average Age in years	23.34	22.92
Primigravida	27 (54%)	29 (58%)
Multigravida	23 (46%)	21 (42%)
Average Gestational age in weeks	39.1	39.6

The above table shows that both the study and control groups are comparable in age, parity and gestational age.

Table 2: Comparison of labour outcome in both the study and control groups

Outcome	Study group (AFI<5) n=50	Control group (AFI>5) n=50
Non stress test		
Reassuring	39 (78%)	46 (92%)
Non Reassuring	11 (22%)	04 (8%)
Mode of Delivery		
Normal vaginal	16 (32%)	34 (68%)
Instrumental delivery	09 (18%)	02 (4%)
Caesarean section	25 (50%)	14 (28%)
Colour of Liquor		
Clear	40 (80%)	41 (82%)
Meconium stained	10 (20%)	09 (18%)

Non stress test (NST) was reassuring in 39 patients (78%) in the study group and 46 patients (92%) in the control group (p value <0.05) and was found to be statistically significant.

In the study group, 16 of the 50 patients (32%) had normal vaginal delivery, 9 patients (18%) had instrumental delivery and 25 patients (50%) underwent caesarean section, whereas 34 of the 50 patients (68%) had normal vaginal delivery, 2 patients (4%) had instrumental delivery and 14 patients (28%) delivered by caesarean section in the control group (p value <0.05). This difference was statistically significant.

In the study group 10 patients (20%) with oligohydramnios had meconium stained liquor on ARM as compared to 9 patients (18%) in the group with normal liquor volume (p value >0.05). The difference between the two groups was not statistically significant.

Table 3: Comparison of neonatal outcome in the study and control groups

Outcome	Study group (AFI<5) n=50	Control group (AFI>5) n=50
APGAR Score		
Less than 4	01 (2%)	00
4-7	08 (16%)	06 (12%)
More than 7	41 (82%)	44 (88%)
Birth weight less than 2.5kg	22 (44%)	10 (20%)
NICU admission	06 (12%)	04 (8%)
Babies requiring Ventilatory support	00	00
Perinatal deaths	00	00

Apgar score <7 was seen in 9 patients (18%) win the study group and in 6 patients (12%) in the control group (p value >0.05). The difference was not statistically significant. 22 babies (44%) in the study group had birth weight <2.5 kg, whereas 10 babies (20%) in the control group had birth weight <2.5 kg (p value <0.05). This difference was statistically significant. 6 babies in the study group (12%) were admitted to the neonatal intensive care unit (NICU), whereas 4 babies (8%) in the control group had NICU admission (p value >0.05). The difference was not statistically significant. All the babies were stable at the time of discharge. There were no babies needing ventilatory support and no perinatal deaths in either the study or control groups.

Discussion

The mean maternal age in our study is 23.34 years. Studies by Chauhan *et al.*, 1997; Jun zhang *et al.*, 2004 and Everett *et al.*,1992 found that mean maternal age were 23.6±6.5years, 23.4±.4 years and 23.8 ± 5.7 years respectively. In (Casey *et al.*,2000) study it was 23.9 years and in Krishna jagatia *et al.*, 2013 study 23.9 years.

In our study the incidence of primiparity is high 54% in study group and 58% in control group when compared to multiparity which is comparable with Bhat s et al study in which is 54%.[8] · In Donald d *et al.*, 2011 the incidence of oligohydraminias in primigravida was 60%.

The mean gestational age in the study was 39.1weeks which is comparable to similar studies by Jun zhang *et al.*, 2004; Casey *et al.*, 2000;Evertt *et al.*, 1992 and Iffath *et al.*, 1991 which found out that the mean gestational age were 38.1 ± 3.3 weeks, 37.5± 2weeks, 34.3±2.1 week and 36.3± 2 weeks respectively .This indicates oligohydramnias is more common in third trimester. In the study group, 16 of the 50 patients (32%) had normal vaginal delivery, 9 patients (18%) had instrumental delivery and 25 patients (50%) underwent caesarean section which is comparable to other studies.

In our study, low APGAR scores and NICU outcomes were not statistically significant in the study and control groups. Zhang *et al* and colleagues in their study showed that isolated oligohydramnios was not associated with an increased perinatal morbidity.

Conclusion

Oligohydramnias is being detected more frequently these days due to routine usage of ultrasonography. Isolated oligohydramnios without any complicating factor is not associated with adverse perinatal outcome, though the babies may have a lower birth weight.

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