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Original Article

Effects of Isolated Oligohydramnios on Obstetric and Perinatal outcomes in Dhaka National Medical College Hospital

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Abstract:

Background: Oligohydramnios are thought to be associated with increased maternal and fetal morbidities.

Objective: To assess the obstetric and perinatal outcomes in case of isolated oligohydramnios.

Materials and Methods: This study was conducted in the Obstetrics and Gynaecology department in Dhaka National Medical College Hospital from 1st July' 2015 to 31st December' 2015. Pregnant women at or beyond 34 weeks of gestation admitted for labour and delivery with low amniotic fluid index (AFI) ≤ 5cm, having no risk factors (group I) were compared with those with an AFI more than 5 cm (Group II) . The mode of delivery and perinatal outcomes were compared to women having normal amniotic fluids.

Results: A total 435 pregnant women were included in this study. Among them 67 pregnant women were in Group I and 368 women were in Group II. There were no demographic characteristics differences between the two groups .But there was significant difference in the gestational age of the mother. In group I 46% women delivered at 34-36 weeks of pregnancy . Regarding mode of delivery, caesarean section rate was more (P<.01) in group I than group II. There was no significant difference in meconium staining of liquor between the two groups. Regarding perinatal outcomes there were no significant differences between the two groups such as Apgar score, resuscitation, NICU admission and mortality of babies. But there was significant difference in the birth weight of the babies. About 66% of the babies in group I had birth weight ≤ 2.5 kg, which was significant .

Conclusion: Isolated oligohydramnios has no major effect on perinatal outcomes except low birth weight babies. However, caesarean section rate was increased in isolated oligohydramnios group.

Key Words: Oligohydramnios, Amniotic fluid index, Perinatal outcomes.

Introduction

Every fetus is surrounded by a protective covering of amniotic fluid. It cushions fetus from physical trauma, moreover allows fetus lung growth and maturity.[1,2] By the second trimester, amniotic fluid is being produced primarily through fetal urine production as well as transudation from maternal serum and is resorbed through fetal swallowing. Significant amounts of amniotic fluid are also produced and resorbed from the amniotic cavity by the placenta.[3,4] Amniotic fluid volume (AFV) is an indirect indicator of fetal well being. There are various ways of assessing AFV. In 1985, a four quadrant method by ultrasonogram for assessing amniotic fluid index (AFI) was described.[5] Using that technique, an AFI of 8.1-20 cm is defined as normal ; AFI between 5.1-8cm is moderate or borderline oligohydramnios and AFI of 5 cm or less as severe oligohydramnios.

Oligohydramnios can develop in any trimester, although it is more common in third trimester.[6] The common etiological factors associated with oligohydramnios are premature rupture of membrane, congenital abnormalities of the fetus, placental insufficiency, post maturity, hypertension and pre-eclampsia etc.

It occurs in about 1% to 5% of pregnancies at term[7,8] and thought to be associated with increased maternal and fetal morbidities such as pulmonary hypoplasia, intrauterine growth restriction, compression of umbilical cord leading to fetal distress during labour. It is found to be associated with an increased rate of labour induction for fetal distress, low Apgar score and high perinatal morbidity and mortality. Labour induction also increases the use of Caesarean delivery, particularly for the primiparous woman with an unripe cervix.[9] However, some of the recent studies have shown no effect of

isolated oligoydramnios on perinatal outcome.[10]

This study was conducted to evaluate the effect of isolated oligohydramnios on the mode of delivery and its association with perinatal morbidity and mortality in our population.

Material and Methods

This comparative study was carried out in the department of Obstetrics and Gynaecology in Dhaka National Medical College Hospital from 1st July' 2015 to 31st December' 2015. Pregnant women at or beyond 34 weeks with no high risk factors admitted for labour and delivery were recruited in this study and were divided into two groups. Pregnant women with an AFI ≤ 5cm were included in group I and with those with AFI > 5 cm were included in group II. Pregnant women with diabetes mellitus, pre-eclampsia, cardiac disease, multiple pregnancies, premature rapture of membrane (PROM) were excluded from this study. AFI was estimated by ultrasonography on these women. All outcome variables of these pregnancies were recorded on printed proforma. Outcome variables included demographic characteristics, mode of delivery, presence of meconium, birth weight of babies, Apgar score at 1st min, need for neonatal resuscitation, admission and perinatal mortality. A written consent was taken from each patient. Data was analyzed by using SPSS version 17 and variables were analyzed with Chi-square test.

Results

During the six months study period, 435 patients were included in the study. Out of these, 67 had isolated oligohydramnios and served as group I (exposed) and the rest of the 368 women had normal liquor on ultrasound examination, served as group II (unexposed).

Table-I showed demographic characteristics in two groups, 69% women in group I and 70% women in group II were in the age of 21-30 years. Regarding Antenatal Check-up 63% in group I and 78% in group II had antenatal check-up. Majority of the women (58% in group I and 56% in group II) were primi gravidae. In group I 46% women delivered between 34-36+weeks of pregnancy. But in case of group II, majority of the women (50%) delivered at 37-39+ weeks of pregnancy.

Table-I : Demographic characteristics

Variables	Group I (n=67)	Group II (n=368)	Significance (P-value)
Maternal age			
<20 years	15 (22.38%)	77 (21%)	>.05
20-30 years	46 (68.68%)	259 (70%)	>.05
>30 years	06 (8.9%)	32 (9%)	
Antenatal Check up	42 (63%)	287 (78%)	>.05
Gravida			
Primi	39 (58%)	206 (56%)	>.05
Multi	28 (42%)	162 (44%)	
Gestational age			
34-36+ weeks	31 (46%)	68 (18.5%)	<.o5**
37-39 weeks	16 (24%)	184 (50%)	<.05**
40-42 weeks	20 (30%)	116 (31.5%)	>.05

Table-II: Mode of delivery

Mode of delivery	Group I (n=67)	Group II (n=368)	Significance (P-value)
LUCS	58 (87%)	263 (71%)	<.01*
Vaginal delivery	09 (13%)	105 (29%)	<.05**

Table-II showed mode of delivery in two

Groups. About 87% women in group-I and 71% women in group-II delivered by caesarean section. On the other hand there was less vaginal delivery in group-I than group-II (13% vs. 29%).

Table-III expressed presence of meconium in both groups after rupture of membrane or intraoperatively.

Table-III: Presence of meconium

Presence of meconium	Group-I (n=67)	Group-II (n=368)	Significance (P-value)
Present	22 (33%)	28 (24%)	>.05
Absent	45 (67%)	280 (76%)	>.05

Meconium stained liquor was observed in 33% cases in group-I and 24% cases in group-II.

Table-IV showed perinatal outcomes in both groups. About 66% of the babies had birth weight less than 2.5 kg in group-I as compared to 28% in group-II.

Table-IV: Perinatal outcomes

Variables	Group-I (n=67)	Group-II (n=368)	Significance (P-value)
Birth Weight			
<2.5 kg	44(66%)	103(28%)	
>2.5 kg	23(34%)	205(72%)	< .05**
Apgar Score at 1st min			
≥7	55(82%)	316(86%)	>.05
≤7	12(18%)	52(14%)	
Resuscitation	4(6%)	15(4%)	>.05
NICU admission	3(4.5%)	9(2.4%)	>.05
Mortality	2(3%)	9(2.4%)	>.05

Most of the babies were more than 2.5 kg birth weight in group-II. Other perinatal outcomes almost same in both groups such as Apgar score at 1st min, resuscitation (6% vs. 4%), NICU admission (4.5% vs. 2.4%), and perinatal mortality (3% vs 2.4%) of the babies.

Discussion

Assessment of the amniotic fluid volume during antenatal period is a vital indicator for determining potential risk during delivery. Our study has found that pregnancies with isolated oligohydramnios were not associated with adverse perinatal outcomes.

In the present study 69% of the women in the group I and 70% of the women in group II were in the age group of 21-30 years. Similar studies found the same results.[11,12,13] In this study 58% and 56% women in group II were primi gravida. Other studies showed 60% women were primi gravida.[14,15] Regarding gestational age in this study 46% of the women delivered between 34-36+ weeks of gestation in group I (this result was statistically significant) which is similar to other studies[15,16] but differ from another study.[12,13,17] This difference was iatrogenic. But in group II most of the women (50%) delivered at 37-39+ weeks of pregnancy which was similar to another study.[18]

Present study showed that there was more caesarean section rate (87%) in group I than group II. Different studies also found increased rate of Caesarean section among oligohydramnios group. Some studies observed more than two fold higher caesarean section rate in the isolated oligohydramnios group.[15,16,19,20] Other studies found that the overall Caesarean delivery rates were similar between women with oligohydramnios and control groups (24% vs. 19%).[12] Meconium staining of liquor is an indicator of fetal distress. The association of Oligohydramnios with meconium staining of liquor was also studied. In this study, there was no significant differences in the incidence of meconium staining of the liquor between the two groups. Another study found the same results.[21] There was significantly higher risk of meconium stained liquor in oligohydramnios group.[14,22,23]

Among the perinatal outcomes, we found a significantly higher number of low birth weight (<2.5 kg) babies in group-I than group-II which was statistically significant. These differences were actually due to iatrogenic termination of pregnancy at an earlier gestational age in the oligohydramnios group. Other studies reported that isolated oligohydramnios increased the likelihood of low birth weight babies.[5,24,25] But another study found 10% low birth weight babies.[26]

Like our study, other perinatal outcomes such as Apgar score at 1st min, resuscitation, NICU admission and mortality did not differ between the oligohydramnios and control groups[5,16,24] but not consistent with certain trials.[14,17,27]

Conclusion

Usually oligohydramnios is associated with a higher rate of pregnancy complications and increased perinatal morbidity and mortality. Now a days, oligohydramnios is being detected more often due to routinely performed obstetric ultrasonography.

This study concluded that, isolated oligohydramnios did not increase adverse perinatal outcomes, but caesarean section rate was higher in that group. Therefore, isolated oligohydramnios should not be an indication of labour induction or elective caesarean section.

The limitation of this study was small sample size. Therefore further study with larger sample size and for longer duration should be carried out in future.

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