MATERNAL AND PERINATAL OUTCOME IN PREGNANCIES WITH OLIGOHYDRAMNIOS AT TERM

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ABSTRACT

BACKGROUND

The assessment of amniotic fluid volume is an integral part of antepartum surveillance. The reduction in the amniotic fluid volume carries an increased risk of intrapartum complications in high-risk pregnancy. It was found that the relationship between sonography detected oligohydramnios and perinatal morbidity and mortality. The sonographic diagnosis of oligohydramnios is usually based on an AFI ≤ 5 cm or on a single deepest pocket of amniotic fluid ≤ 2 cm (American College of Obstetricians and Gynecologists). The diagnosis may also be based on an AFI below the 5th or 2.5th percentile, determined by a gestational age specific nomogram. Women with oligohydramnios are found to have abnormal or nonreactive FHR tracing at intrapartum, increased risk of meconium-stained amniotic fluid, increased risk of foetal distress and increased risk of operative interference. Antepartum assessment of Oligohydramnios will help to identify women who need increased intrapartum surveillance. However, some studies shows isolated oligohydramnios should not be the only parameter for predicting perinatal outcome. By this way, the present study carried out to find out the oligohydramnios can be used as a predictor of adverse perinatal outcome in pregnancies near term. The objective of this study was to find out the maternal and perinatal outcome in pregnancies with oligohydramnios at term.

MATERIALS AND METHODS

This prospective and observational study was conducted at Mahatma Gandhi Memorial Govt. Hospital, KAPV Govt. Medical College, Trichy over 6 months from November 2016 - April 2017 on the impact of oligohydramnios on maternal and perinatal outcome. In this study, 300 pregnant women with singleton pregnancy with gestational age between 34 - 40 weeks admitted for safe confinement were included. We have excluded other causes of oligohydramnios such as PROM, foetal anomaly, malpresentation, GDM and multiple gestation. A total of 300 patients were assigned into 2 groups.

Study Group I- 75 patients of AFI ≤ 5.

Control Group II - 225 patients of AFI > 5. A detailed obstetric history at the time of admission, the age, parity, height, weight, any previous history of oligohydramnios, bad obstetric history, any medical illness or any surgical illness was taken. Non-stress test at admission was made. High risk factors like evidence of anaemia, gestational hypertension if any is present or past pregnancy was noted. A detailed general examination, obstetric examination, CVS examination and RS examination was made. All cases are subjected to ultrasonic estimation of amniotic fluid volume. The patients are subjected for pelvic examination for Bishop's scoring and pelvic assessment. The careful antepartum surveillance was made in cases of oligohydramnios, CTG recording and intrapartum monitoring, planning the mode of delivery, the careful observation for occurrence of meconium-stained amniotic fluid for patients in labour, birth weight of the baby, APGAR scoring at 1 min or 5 mins under the guidance of paediatrician, NICU admission for babies at distress and maternal monitoring of vitals, number of uterine contractions and operative interference for delivery. The following data were collected- the age, obstetric score, risk factors at delivery such as PIH, post-datism, IUGR, BOH, idiopathic, mean gestational age at delivery, non-reassuring CTG pattern, ultimate mode of delivery, meconium-stained amniotic fluid, birth weight, APGAR at 1 min and 5 mins and admission at NICU.

RESULTS

In this study, 300 pregnant women with singleton pregnancy with gestational age between 34 - 40 weeks admitted for safe confinement were included. We have excluded other causes of oligohydramnios such as PROM, foetal anomaly, malpresentation, GDM and multiple gestations.

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CONCLUSION

Oligohydramnios as amniotic fluid index < 5 (3) is a threatening condition to foetal health, for which some treatment are available and some are under evaluation. AFI measurement in antepartum or intrapartum period help to target the women who need increased antepartum surveillance to improve maternal and perinatal outcome and such women were managed in an inpatient special unit to combat the complications, which can occur in the intrapartum period so that maternal and perinatal complications can be avoided. This is the ultimate aim of every obstetrician and paediatrician for ensuring healthy mother and healthy baby for our MCH services.

KEYWORDS

Oligohydramnios, Non-Reassuring CTG Pattern, Meconium-Stained Amniotic Fluid, Maternal Outcome and Perinatal Outcome.

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Study Group I

75 patients of AFI ≤ 5.

Control Group II

225 patients of AFI > 5.

Variables	Group I AFI ≤ 5 n = 75	Group II AFI > 5 n = 225	P value
Age (mean ± SD)	23.4 ±3.2	24.6 ± 3.2	0.0052
Mean gestational age	37.85 ± 1.37	37.25 ± 0.5	0.0001
Nulliparity	48 (64%)	124 (55.1%)	0.17702
G2, 3	22 (29.3%)	94 (41.78%)	0.05486
> G3	5 (6.6%)	7 (3.1%)	

Table 1

Table 1 shows characteristic of pregnant mother of Group I, AFI of ≤ 5 including age of the mother, obstetric score, mean gestational age at delivery. Mean age of the patients of Group 1 was 23.4 ± 3.2. With regard to patient's mean gestational age at delivery was 37.85 weeks. Among 75 pregnant women in Group 1, 48 patients (64%) were nullipara; 22 patients (29.3%) were in the obstetric score of gravida 2, 3. Patient of 5 (6.6%) were gravida 3; 225 patients in Group 2- AFI > 5 were found to have mean maternal age of 24.6 years, mean gestational age at delivery was 37.25 weeks. Among 225 pregnant women in Group 2, 124 patients (55.1%) were nullipara, 94 patients (41.78%) were in the obstetric score of gravida 2, 3. Patient of 7 (3.1%) were of gravida 3.

With regard to age of the patient, unpaired 'T' test was P value and statistical significance:

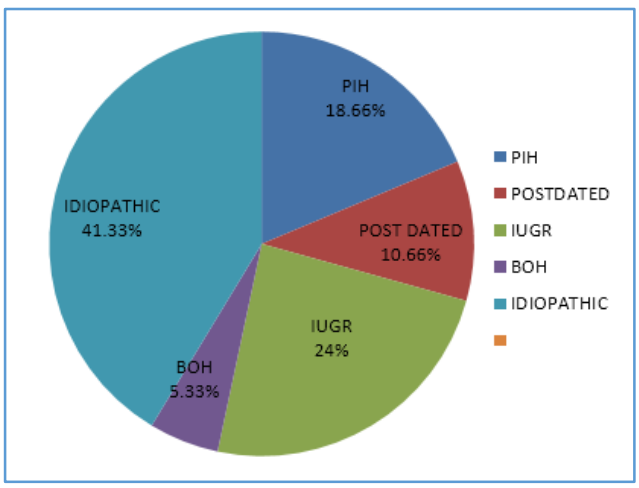
The two-tailed P-value equals 0.0052. By conventional criteria, this difference is considered to be statistically significant.

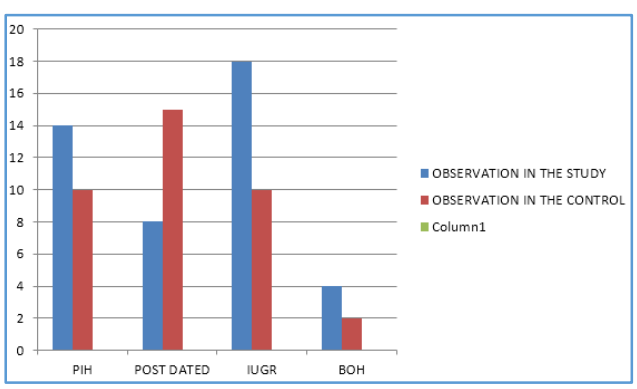
With regard to mean gestational age of the patient, unpaired 'T' test was P value and statistical significance:

The two-tailed P value is less than 0.0001. By conventional criteria, this difference is considered to be extremely statistically significant.

In relation to nulliparity (Z test for proportion), Z score is 1.3479. P value is 0.17702. The result is not statistically significant @ p < 0.05.

In relation to obstetric score of G2, G3 (Z test for proportion), Z score is -1.9165. P value is 0.05486. The result is not statistically significant @ p < 0.05.





Maternal and Perinatal Outcome

Variables	Group I, AFI ≤ 5, n = 75	Group II, AFI > 5, n = 225	P Value
Non-Reactive NST	22 (29.3%)	27 (12%)	0.000437
MSAF	25 (33.3%)	48 (21.3%)	0.035955
Total CS	52 (69.3%)	124 (55.11%)	
C.S (Foetal Distress)	20 (26.66%)	30 (13.33%)	0.00729
Baby Weight < 2.5 kg)	28 (37.33%)	37 (16.44%)	0.000143
APGAR 1 min < 5	20 (26.66%)	25 (11.1%)	0.001086
APGAR 5 mins < 5	9	7	0.003008
NICU	28 (37.33%)	26 (11.55%)	0.0001

Table 2. Maternal and Perinatal Outcome shows in Group I, AFI ≤ 5 of 75 Patients– as Nonreactive NST– 22 Patients (29.3%)

Meconium-stained amniotic fluid is seen in 25 patients-33.3%, total number of caesarean section in Group 1 accounts for 52 patients (69.3%) and caesarean section done for foetal distress in 20 patients (26.66%), birth weight of babies < 2.5 Kgs (low birth weight) was seen in 28 cases (37.33%), APGAR score at 1 min < 5 was seen in 20 babies (26.66%), APGAR score at 5 mins < 5 was seen in 9 babies, NICU admission in Group I was observed to be in 28 babies (37.33%).

Regarding Group II, AFI > 5 of 225 patients, the maternal and perinatal outcome observation was as follows: Non-reactive NST was observed in 27 patients (12%), meconium-stained amniotic fluid was seen in 48 patients (21.3%), total number of caesarean section in Group II was observed in 124 patients (55.11%), caesarean section done for foetal distress was seen in 30 cases (13.33%), low birth weight of < 2.5 Kgs was seen in 37 babies (16.44%). APGAR score at 1 min of < 5 was seen in 25 babies (11.1%), APGAR score at 5 mins was seen in 7 babies, NICU admissions in Group II was 26 babies (11.55%).

On computing non-reactive NST (Chi-square test), Chi-square test. The chi-square statistic is 12.3669. The p-value is 0.000437.

This result is significant at p < 0.05.

For MSAF, the chi-square statistic is 4.3993. The p-value is 0.035955.

This result is significant at p < 0.05.

For CS done for foetal distress, the chi-square statistic is 7.2. The p-value is 0.00729.

This result is significant at p < 0.05.

For birth weight < 2.5 kg, the chi-square statistic is 14.4615. The p-value is 0.000143.

This result is significant at p < 0.05.

For APGAR at 1 min, the chi-square statistic is 10.6754. The p-value is 0.001086.

This result is significant at p < 0.05.

For APGAR at 5 mins, the chi-square statistic is 8.8028. The p-value is 0.003008.

This result is significant at p < 0.05.

For NICU admission, the chi-square statistic is 25.3237. The p-value is 0.0001.

This result is significant at p < 0.05.

Risk Factors	Observation in the Study, AFI ≤ 5	Observation in the Control, AFI > 5
PIH	14 (18.66%)	10 (4.4%)
Post-Dated	8 (10.66%)	15 (6.66%)
IUGR	18 (24%)	10 (4.44%)
BOH	4 (5.33%)	2 (0.8%)
Idiopathic	31 (41.33%)	

Table 3

Group I of study group with AFI < 5 of 75 patients- the following risk factors were observed- PIH was observed in 14 patients (18.66%), Post-datism in 8 (10.66%), IUGR in 18 (24%), BOH in 4 patients (5.33%) and Idiopathic factors were in 31 patients (41.33%).

Group II of study group with AFI > 5 of 225 patients- the following risk factors were observed- PIH was observed in 10 patients (4.44%), Post-datism in 15 (6.66%), IUGR in 10 (4.44%) and BOH in 2 patients (0.8%).

DISCUSSION

Amniotic fluid serves several roles during pregnancy. It creates physical space for foetal movements, which is necessary for normal musculoskeletal development. It permits

foetal swallowing necessary for lung development. Amniotic fluid guards against umbilical cord compression and protects the foetus from trauma. It even has bacteriostatic properties. Amniotic fluid volume abnormalities may reflect a problem with fluid production or its circulation suggests underlying foetal or placental pathologies, which is associated with increased risk for adverse pregnancy outcome. Amniotic fluid volume increases from approximately 30 mL at 10 weeks to 200 mL by 16 weeks and reaches 800 mL by the mid 3rd trimester (Brace 1989, Magann 1997). In our study, 29.3% in the study group presented with oligohydramnios at term. This result while being statistically significant correlates with our study, where our p value 0.0001 which is considered to be statistically significant; 29.3% patients in our study group and 12% patients in the control group act as non-reactive NST. The above result is statistically significant, which is consistent with the results by Chandra et al[4] and Kumar et al.[5] While comparing the incidence of LSCS for foetal distress, the study and control group (26.66% vs 13.335%) in our study group is consistent in study by Jandial et al.[6]

In terms of neonatal morbidity in the form of birth weight < 2.5 kg, the study group against control group (37.33 vs 16.44) in our study was significant. While comparing the incidence of NICU admissions in our study (37.33% vs 11.55%), the result is significant at p < 0.005. Our findings correlates well with those of Jandial et al and Alchalabi et al[7] and Voxman.[8] The 1 min and 5 mins APGAR score < 5 was seen in 26.66% and 37.33% respectively in the study group. The same in the control group was seen as 11.1% and 7% babies respectively. The results of significance in our study, the findings correlated well with Alchalabi et al and Rainford et al.[9]

CONCLUSION

Oligohydramnios as amniotic fluid index < 5 is a threatening condition to foetal health, for which some treatment are available and some are under evaluation. AFI measurement in antepartum or intrapartum period help to target the women who need increased antepartum surveillance to improve maternal and perinatal outcome and such women managed in an inpatient special unit to combat the complications, which can occur in the intrapartum period so that maternal and perinatal complications can be avoided. This is the ultimate aim of every obstetrician and paediatrician for ensuring healthy mother and healthy baby for our MCH services.

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