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Original Research Article

MATERNAL AND FETAL OUTCOME IN PATIENTS WITH LOWAMNIOTIC FLUID INDEX

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ABSTRACT

Background: The aim is to compare the maternal and fetal outcome in women with singleton pregnancies having amniotic fluid index AFI ≤ 5cm, to those having AFI 6-20cm matched with age and parity.

Materials and Methods: This is a prospective comparative study conducted on 100 pregnant women with 50 women with AFI≤ 5cm. and 50 women with AFI 6-20 cm. between gestational age 32-42 weeks. The two groups are matched with age and parity. This is done over aperiod from October 2017 to September 2019 in the department of Obstetrics and Gynaecology in Kamineni Institute of Medical Sciences, Narketpally.

Results: In the present study mean age in the study group was 23.18±3.22 years and in the control group was 23.3±3.27 years. The present study includes 62% were primipara and 38% were multipara in both study group and control group. Both study group and control group are matched with parity. In the present study non reactive NST was seen in 36% in study group when compared to 14% in control group, this difference is statistically significant ($p<0.05$). In the present study 90% of cases underwent LSCS in study group when compared to 60% in control group, this difference is statistically significant ($p<0.05$). In the present study emergency LSCS in study group (64.4) when compared to control group (40%), this difference is statistically significant($p<0.05$). The present study shown fetal distress as an indicator of LSCS was 33.3% in study group and 16.6% in control group, this difference is not statistically significant($p>0.05$). APGAR score ≤7 at 5 min was 16% in study group and 4% in control group, this difference is statistically significant ($p<0.05$). In the present study newborns admitted in NICU was34% in study group and 16% in control group, this difference is statistically significant ($p<0.05$). In the present study, 34% of newborn babies admitted in NICU due to different reasons in study group, birth asphyxia was present in 6% of newborns, meconium aspiration syndrome was present in 4% of newborns, respiratory distress syndrome was present in 14% of newborns, very low birth weight was present in 10% of newborns. In control group 16% of newborns admitted in NICU, 2% had meconium aspiration syndrome, 6% had respiratory distress syndrome, 8% had hyperbilirubinemia.

Conclusion: From this study, it can be concluded that oligohydramanios 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, counselling, individualization, decisions regarding time and mode of delivery. Continuous intrapartum fetal monitoring and good neonatal care are necessary for better perinatal outcome.

Keywords: Amniotic fluid index, NST, oligohydramnios, antepartum care, LSCS, NICU.

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 partly from the complexities inherent in the amniotic fluid dynamics, an enigmatic interaction of several sites of amniotic fluid secretion and excretion. Appreciation of importance of amniotic fluid volume as an indicator of fetal status and oligohydramnios is an indicator of chronic fetal hypoxia is a relatively recent development.[1-4]

Oligohydramnios is a complication in approximately 4.5% of all pregnancies and severe oligohydramnios is a complication in 0.7% of pregnancies. Oligohydramnios is more common in pregnancies beyond term, as the amniotic fluid volume normally decreases at term. It complicates as many as 12% of pregnancies that last beyond 41 weeks.[5,6]

Amniotic fluid index of ≤ 5 cm defines oligohydramnios as originally 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 mortality 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 isolated term oligohydramnios has been questioned by some authors.

Progressive improvement in ultrasonographic techniques have made it possible to assess the amniotic fluid volume relatively accurately. Although subjective and semi-quantitative methods of estimating amniotic fluid volume ultrasonographically are in use, the best technique 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 of the authors. Numerous factors have been evaluated with respect to the effect on amniotic fluid index including interobserver variation, transducer pressure, maternal hydration, fetal movements, transducer type, fetal presentation and number of gestation.

Various methods have been described for antepartum and intrapartum fetal surveillance like NST, CST, FAST, BPP, VAST, Doppler velocimetry, fetal stimulation test and fetal scalpblood pH estimation. All methods have their own merits and demerits.

This study was conducted to find out maternal and fetal outcome in patients with low amniotic fluid index between gestational age 32- 42 weeks.

Aim of the study

To compare the maternal and fetal outcome in women with singleton pregnancies having amniotic fluid index AFI ≤ 5cm, to those having AFI 6-20cm matched with age and parity.

Objectives of the study

- To study the correlation between gestational age and amniotic fluid index
- To study the effect of high risk pregnancies on amniotic fluid index.
- To study the incidence of caesarean section in patients with low Amniotic fluid index.
- To study the effects of low amniotic fluid index on fetal outcome in form of fetal distress, low APGAR scores, low birth weight, NICU admission, neonatal complications.

MATERIALS AND METHODS

This is a prospective comparative study conducted on 100 women, 50 women with AFI≤5 cm compared with AFI 6-20 cm matched with age and parity. This study was conducted from October 2017 to September 2019 in the department of Obstetrics and Gynaecology in Kamineni Institute of Medical Sciences, Narketpally. The study is approved by institutional Ethics Committee. Consent is taken from the patients for the participation in the study. Oligohydramnios is defined as amniotic fluid index ≤ 5 cm. the amniotic fluid volume is considered normal if amniotic fluid index is between 6 to 20cm. Those with ruptured membranes and other complications like multiple pregnancy and fetal malformations which could alter the results were excluded from the study. For each case a control was taken with similar parity and age but amniotic fluid index between 6 to 20cm.

Inclusion Criteria

1. Singleton pregnancy
2. Gestational age between 32-42 weeks.
3. No fetal anomalies detected in TIFFA SCAN.

Exclusion Criteria

1. Premature rupture of membranes.
2. Hydramnios
3. Multiple pregnancies
4. Patients with fetus having congenital anomalies.

A careful clinical history was taken from all the patients particularly about the age, booking status, previous obstetric history and obstetric complications, A thorough clinical examination including blood pressure, presence of pedal edema was done, By obstetric palpation gestational age, presentation, and amount of liquor noted. The fetal heart is monitored with intermittent auscultation and NST. The nature of amniotic fluid noted at artificial rupture of membranes and was classified as clear and meconium stained liquor. Those who developed significant variable decelerations and repetitive late decelerations or other ominous FHR pattern which persists inspite of corrective measures like change in maternal position, oxygen inhalation were delivered by LSCS or forceps delivery. All newborns were attended by neonatologist. Various outcome measures recorded were gestational age at delivery, nature of amniotic fluid, FHR tracings, mode of delivery, indication for caesarean section, APGAR

score at 1,5 minutes, birth weight, admission to neonatal ward, perinatal morbidity and mortality.

Method: An ultrasound examination was done to monitor fetalwell being and to access amniotic fluid index and it was measured by, Phelan's technique. A curvilinear transducer was used, the uterus was divided into four equal quadrants right and left upper and lower quadrants respectively through the maternal midline vertically between symphysis pubis and uterine fundus and arbitrary transverse line. Transducer placement was parallel to maternal sagittal plane and perpendicular to maternal coronal plane. Image frozen at the clear deepest pocket of amniotic fluid. This pocket wasmeasured using ultrasound callipers in a vertical direction. It is repeated in each of the four quadrants and summation of 4 values gives AFI. Patients are grouped according to their AFI, study group with AFI ≤ 5cm and control group with AFI ≥ 5cm.

Statistical Analysis: Results were recorded and tabulated, results were statistically analysed using parameters like mean, standard deviation and chi square test. Chi square test was applied to compare two proportions of the patients. The value of probability(P) < 0.05 was taken as significant. Those with P < 0.01, P < 0.005, P < 0.001 were taken as very significant, and those with P >0.05 were taken as not significant.

RESULTS

Table 1: Distribution of AFI According to Cases and Controls

Group	Cases	Mean	Std. Deviation	P-VALUE
Study group	50	4.25	1.23	0.00019(<0.05)**
Control group	50	11.06	2.88	

Table 2: distribution of cases according to age

Age(years)	Study group (n=50)	Control group(n=50)
16-20	12 (24%)	12 (24%)
20-25	28 (56%)	28 (56%)
25-30	9 (18%)	9 (18%)
30-35	1(2%)	1(2%)
Total	50 (100%)	50 (100%)
MEAN ± SD	23.18 ± 3.22	23.3 ± 3.27

Chi- square test value is = 0.000; P-value= 1.00(>0.05) Not significant.

In the present study, among study group mean age was 23.18±3.22 years and in control group was 23.3±3.27 years, most common age group between 20 to 25 years, study group and control group were matched with age.

Table 3: distribution of cases according to parity

Parity	Study group(n=50)	Control group(n=50)
Primipara	31(62%)	31(62%)
Multipara	19 (38%)	19 (38%)
Total	50 (100%)	50 (100%)

Chi- square test value is = 0.000; P-value= 1.00(>0.05) Not significant

In the present study, primipara were 62% and multipara were 38% in both study and control group. Both study group and control group were matched with parity.

Table 4: distribution of cases according to booking

Booked or Unbooked	Study group(n=50)	Control group(n=50)
Booked	22(44%)	34 (68%)
Unbooked	28(56%)	16(32%)
Total	50 (100%)	50(100%)

Chi- square test value is = 5.84; P-value= 0.01(<0.05) significant

In the present study total number of booked cases in study group were 44% and unbooked cases were 56%, and in the control group total number of booked cases were 68% and unbooked cases were 32%. And this difference is statistically significant.

Table 5: distribution of cases according to gestational age

Gestational age in weeks	Study group(n=50)	Control group(n=50)
32 -37 weeks	23(46%)	12(24%)
37 -40 weeks	22(44%)	34(68%)
>40 weeks	05(10%)	04(8%)
Total	50(100%)	50(100%)
MEAN ± SD	36.77± 2.4	38.31± 1.33

Chi- square test value is = 6.14; P-value= 0.04(<0.05) significant

In the present study, in study group, Mean gestational age in study group was 36.77±2.4 weeks . In control group Mean gestational age in control group was 38.31±1.33 weeks, and this difference is found to be statistically significant.

Table 6: distribution of cases according to risk factors

Risk factors	Study group	Control group	Total
PIH	11(68.7%)	5(31.3%)	16(100%)
Anemia	12(63%)	7(37%)	19(100%)
Post dated	5(56%)	4(44%)	9(100%)
IUGR	17(85%)	3(15%)	20(100%)

Chi- square test value is = 3.49; P-value= 0.322 (>0.05) Not significant.

In present study, out of 16 pregnancy induced hypertension cases, 11(68.7%) belongs to study group when compared to 5(31.3%) belongs to control group. Out of 19 anemia cases, 12(63%) belongs to study group when compared to 7(37%) belong to control group. Out of 9 post dated pregnancies, 5(56%) belongs to study group when compared to 4(44%) belongs to control group. Out of 20 IUGR cases, 17(85%) belongs to study group when compared to 3(15%) belongs to control group.

Table 7: distribution of cases according to NST

NST	Study group(n=50)	Control group(n=50)
Reactive	32(64%)	43(86%)
Non reactive	18(36%)	7(14%)
Total	50(100%)	50(100%)

Chi- square test value is = 6.453; P-value= 0.01(<0.05) significant.

In the present study, the reactive NST was 64% in study group and 86% in control group. The nonreactive NST was 36% in study group and 14% in control group. This difference is found to be statistically significant.

Table 8: distribution of cases according to colour of liquor

Colour of liquor	Study group(n=50)	Control group(n=50)
Clear	36(72%)	44 (88%)
Meconium stained	14 (28%)	6(12%)
TOTAL	50 (100%)	50 (100%)

Chi- square test value is = 4.10; P-value= 0.043 (<0.05) significant.

In the present study 28% had meconium stained liquor in study group when compared to 12% in control group. This difference is found to be statistically significant.

Table 9: distribution of cases according to mode of delivery

Mode of delivery	Study group(n=50)	Control group(n=50)
Spontaneous Vaginal Delivery	4(8%)	18(36%)
Forceps vaginal delivery	1(2%)	2(4%)
LSCS	45(90%)	30(60%)
Total	50 (100%)	50 (100%)

Chi- square test value is = 12.24; P-value= 0.002(<0.05) significant.

In the present study 90% delivered by LSCS in study group when compared to 60% in control group. This difference is found to be statistically very significant

Table 10: distribution of cases according to emergency or elective lower segment caesarean section

Emergency/ Elective LSCS	Study group (n=45)	Control group (n=30)
Emergency LSCS	29(64.4%)	12(40%)
Elective LSCS	16(35.6%)	18(60%)
TOTAL	45 (100%)	30(100%)

Chi- square test value is = 4.34; P-value= 0.035(<0.05) significant.

In the present study, in study group 64.4% were Emergency LSCS and 35.6% were Elective LSCS. In control group 40% were Emergency LSCS and 60% were Elective LSCS. This difference is found to be statistically significant

Table 11: distribution of cases according to fetal distress as an indication for lower segment caesarian section

Indications	Study group (n=45)	Control group(n=30)
Fetal Distress	15(33.3%)	5(16.6%)
Other Indications	30(66.7%)	25(83.4%)
Total	45(100%)	30(100%)

Chi- square test value is = 2.55; P-value= 0.109 (>0.05) Not Significant.

During labour, intrapartum cardiotocography was done and suspicious or pathological pattern interpreted as fetal distress.
In the present study, fetal distress as an indicator of LSCS in 15(33.3%) cases out of 45 cases in study group when compared to 5(16.6%) cases out of 30 in control group. But this difference is not statistically significant.

Table 12: distribution of cases according to indications for lower segment caesarean section

Indications	Study group (n=45)	Control group(n=30)
Fetal Distress	15(33.3%)	5(16.6%)
Previous LSCS	9(20%)	9(30%)
CPD	4(8.8%)	7(23.3%)
Failure to progress	3(6.6%)	4(13.3%)
Severe preeclampsia	6(13.3%)	1(3.3%)
Breech	3(6.6%)	1(3.3%)
IUGR	4(8.8%)	0
Others	1(2.2%)	3(10%)
Total	45 (100%)	30(100%)

Chi- square test value is = 7.535; P-value= 0.18 (>0.05) Not significant

In the present study, in study group most common indication for LSCS was fetal distress (33.3%), followed by previous LSCS (20%). In control group, most common indication for LSCS, was previous LSCS (30%), followed by CPD (23.3%).

Table 13: distribution of babies according to apgar score

APGAR score	Study group(n=50)	Control group(n=50)
APGAR SCORE at 5 min ≤7	8(16%)	2(4%)
APGAR SCORE at 5 min, 8 to 10	42(84%)	48(96%)
Total	50(100%)	50(100%)

Chi- square test value is = 4.04; P-value= 0.043(<0.05) significant

In the present study, in study group 16% of babies had APGAR score ≤7 at 5 min. when compared to 4% babies in control group.

In study group 84% of babies had APGAR score 8 to 10 at 5 min. when compared to 96% of babies in control group. This is found to be statistically significant

Table 14: distribution of babies according to birth weight

Birth weight	Study group(n=50)	Control group(n=50)
<2.5kgs	30 (60%)	10(20%)
≥2.5kgs	20 (40%)	40 (80%)
Total	50 (100%)	50 (100%)
MEAN ± SD	2.18 ± 0.67	2.71 ± 0.33

Chi- square test value is = 16.64; P-value= 0.0001(<0.05) significant

In the present study, in the study group 60% of babies had low birth weight when compared to 20% in control group. This difference is found to be statistically very significant.

Table 15: distribution of babies according to admissions into NICU

NICU admission	Study group(n=50)	Control group(n=50)
Admitted	17(34%)	8(16%)
Not Admitted	29(58 %)	42 (84%)
Stillborn	2 (4%)	0
IUD	2(4%)	0
Total	50 (100%)	50(100%)

Chi- square test value is = 4.32; P-value= 0.031(<0.05) significant

In the present study, 34% of babies were admitted in NICU when compared to 16% of babies were admitted in control group. This difference is found to statistically significant.

Table 16: distribution of babies according to perinatal outcome

Perinatal outcome	Study group (n =50)	Control group (n =50)
ALIVE	43(86%	50(100%)
STILLBORN	2(4%)	0
IUD	2(4%)	0
NEONATAL DEATH	3(6%)	0

Chi- square test value is = 7.523; P-value= 0.07 (>0.05) Not significant

In the present study, in study group out of 50 babies, 2(4%) were stillborn, 2(4%) were IUD, 3(6%) were neonatal deaths. In control group no perinatal deaths were seen.

Table 17: distribution of babies according to neonatal complications

Neonatal admission	Study group	Control group
Birth asphyxia	3(17.6%)	0
Meconium aspiration syndrome	2(11.7%)	1(12.5%)
Respiratory distress syndrome	7(41.1%)	3(37.5%)
Very low birth weight	5(29.4%)	0
Hyperbilirubinemia	0	4(50%)
TOTAL	17(100%)	8(100%)

In the present study, in study group out of 17 babies who were admitted in NICU, 3(17.6%) babies had birth asphyxia, 2(11.7%) babies had meconium aspiration syndrome, 7 (41.1%) babies had respiratory distress syndrome,5(29.4%) babies had very low birth weight.

In the control group out of 8 babies who were admitted in NICU, 1(12.5%) baby had meconium aspiration syndrome, 3(37.5%) babies had respiratory distress syndrome,4 (50%) babies had hyperbilirubinemia.

DISCUSSION

It is known fact that severe oligohydramnios is associated with adverse perinatal outcome. On the other hand, it still remains a poor predictor in detecting adverseoutcome. but often oligohydramnios is used as an indication for operative delivery. Hence assessing amniotic fluid volume antenatally in determining high and low risk group.

Late onset oligohydramnios has been associated with incidence of Meconiumstained liquor, fetal distress, low APGAR score, low birth weight, admission to NICU, birth asphyxia and caesarean section for fetal distress. The study was carried out on 100 women who attended the kamineni institute of medical sciences narketpally. It is prospective comparative study comparing 50 cases of oligohydramnios (AFI≤ 5) with control group (AFI>5) matched with age and parity.

In the present study, most of the women were between 20 to 25 years in both study and control groups. The mean age was 23.18 ± 3.22years in the study and 23.3±3.27 years in control group. 24% of cases were 16-20 years ,56% of cases were 20-25 years,18% of cases were 25 to 30 years,2% of cases were 30-35 years in both study and control groups.

Mean maternal age in the present study in oligohydramnios is compared with other studies, Voxman et al,[6] mean maternal age was 27.3 years

In this study 62% are primipara and 38% are multipara in both study group and control group, both study group and control group are matched with parity similar findings were also observed in other studies of Jandial et al. 7(60%),[7] Petrozella et al (60%),[8] Jagatia et al (52%),[9] Amany H et al (58%),[10] Vidyasagar V et al,[11] (46%) of oligohydramnios group were primipara.

In this study, in the study group 44% were unbooked cases, 56% were booked cases and in control group 68% were unbooked, 16% were booked. In a study conducted by Mathuriya G et al 12.88% were unbooked, 12% were booked and in control group 68% were unbooked, 32% were booked.[12]

Women in the study group where more likely to have shorter mean weeks of gestation compared to control group. In the present study mean gestational age in the study group was 36.77 ± 2.4 weeks and in the control group was 38.31± 1.3 weeks.

In a study conducted by Gumus et al,[13] mean gestational age in study group was 37.7 weeks and in control group was 38.3 weeks.

In a study conducted by Ghike et al,[14] mean gestational age in study group was 40.3±1.6 weeks and in control group was 40.8±1.61 weeks. In a study conducted by Amany H et al,[10] mean gestational age in study group was 38.9±1.3weeks and in control group was 39.4±0.9 weeks.

In the study group, 11(22%) patients had PIH, 5(10%) cases had post dated pregnancy, 12(24%) of them had Anaemia and 17 (34%) cases were IUGR. In control group, 5(10%) patients had PIH, 4(8%) cases had post-dated pregnancy, 7 (14%) of them had anaemia, and 3(6%) cases were IUGR.

Hypertensive disorders which causes chronic placental insufficiency lead to oligohydramnios. In the oligohydramnios group 22% had hypertensive disorders compared to studies done by Golan A et al (22.1%),[15] Bansal D et al (21%),[16] G P Reddy et al (25.33%),[17] but in study conducted by Chandra PC et al,[18] hypertensive disorders seen in 38.46%, and in study conducted by Sriya R et al,[19] 31% had hypertensive disorders.

Post dated pregnancy was seen in 10% in oligohydramnios group compared to study by Chandra P et al postdated pregnancy seen in 15.38%, Sriya R et al,[19] post dated pregnancy seen in 25%, Bansal D et al,[16] post dated pregnancy seen in 17%, G P Reddy et al post dated pregnancy seen in 18% .Any cause of chronic placental insufficiency including chronic abruption can cause fetal growth restriction and oligohydramnios.

In the present study non reactive NST is 36% in the study group and 14% in the control group.

Nonreactive NST in oligohydramnios group in present study is compared with other studies, in a study conducted by Kumar P et al,[20] NR NST seen in 40% of cases, Chate P et al,[21] NR NST seen in 38% of cases, Sriya R et al,[19] NR NST seen in 41.55% of cases,

In the present study percentage of LSCS 90% in the study group and 60% in the control group. In the present study there was increased incidence of LSCS in oligohydramnios group (90%) which is higher than other studies due to presence of high risk factors like severe preeclampsia, IUGR, previous LSCS in oligohydramnios group and also due to maternal request. Decision for Elective LSCS to improve neonatal outcome.

Incidence of LSCS in different studies were casey et al,[10] LSCS percentage was 32%, Umber et al,[22] (32%), Jandial C et al (56%),[7] Chate P et al,[21] (64%) in oligohydramnios group.

Fetal distress as an indicator of LSCS: In the present study fetal distress as an indicator for LSCS in 15 women (33.3%) in study group when compared to 5 (16.6%) in control group. In study group out of 50 cases, 45 women underwent LSCS , most common indication was fetal distress seen in 15 cases, other indicators of fetal distress in study group are previous LSCS 9(20%), CPD 4(8.8%), failure to progress 3(6.6%), severe preeclampsia 6(13.3), Breech presentation 3(6.6%), IUGR 4 (8.8%), In control group out of 50 women, 30 women underwent LSCS, out of that 9(30%) due to previous LSCS, 7(23.3) due to CPD, 5(16.6) due to fetal distress, 4(13.3%) due to failure to progress, due to severe preeclampsia 1(3.3%), breech presentation 1(3.3%), others 3(10%). Grubb and Paul et al 72 did not observe such association no significant increase in intervention for fetaldistress, either caesarean section or operative vaginal delivery in patients with oligohydramnios group when compared to normal AFI. In a study conducted by Mathuriya G et al,[12] elective LSCS (48.5%) was the most common indication of LSCS, the decision for elective lscs was taken for improving the fetal outcome. Other indicators of of LSCS are fetal distress (14.2%), MSL (8.5%), non progression of labour(8.5%), and failed induction (17%).

In the present study meconium stained liquor is seen in 28% in study group and 12% in control group, this correlates with various studies, Golan A et al,[15] (29.1%), Chandra PC et al,[18] (23.7%). In the study conducted by Sriya R et al,[19] (38.8%), Jandial C et al,[7] (48%) of cases were meconium stained. In a study conducted by Umber et al,[22] meconium stained liquor was seen in 6% in oligohydramnios group probable variation is due to sample size and high risk factors like preeclampsia were excluded from the study.

In the present study APGAR score at 5 min <7 in study group was 16% and in control group was 4%. APGAR score ≤ 7 at 5 min. was compared with other studies Chandra PC et al.66 (23.07%), Sriya R et al,[19] (9.72%), Jandial C et al.7(12%), In a study conducted by Umber et al,[22] APGAR score <7 at 5 minutes was present in 6% in oligohydramnios group, probable variation is due to sample size and high risk factors like preeclampsia were excluded from the study.

In the present study birth weight <2.5 kgs in study group is 60% and in control group 20%. This study is compared with other studies Chandra PC et al,[18] (61.53%), Sriya R et al,[19] (58.38%), Jandial C et al,[7] (58%). In a study conducted by Amany H et al,[10] birth weight <2.5 kgs was present in 13.2% in oligohydramnios group probable variation was because they included gestational age after 36 weeks. In a study conducted by Umber et al.70 birth weight <2.5 kgs was present in 36.3% in oligohydramnios group probable variation was because they includes gestational age after 40 weeks, high risk factors like preeclampsia were excluded from the study.

In the present study number of cases admitted in NICU in study group is 34% and in control group is 16%. In the present study NICU admissions of babies in oligohydramnios group was compared with other studies, G P. Reddy et al,[17] (32%), Mathuriya G et al (28%),[12] Chate P et al,[21] (42%). In a study conducted by Umber et al,[22] 7% of newborns admitted in NICU probable variation is due to their exclusion criteria like severe preeclampsia.

In this study perinatal death in study group is 14 % and in control group no perinatal deaths were present. In the present study Perinatal deaths were compared with other studies, Golan et al,[15] perinatal deaths were 16%.Jandial et al,[7] perinatal deaths were 10%. In a study conducted by Nancy et al,[23] perinatal deaths were 6%. In the present study, 34% of newborn babies admitted in NICU due to different reasons in study group, out of 17 newborns admitted in NICU, birth asphyxia was present in 3 newborns, meconium aspiration syndrome was present in 2 newborns, respiratory distress syndrome was present in 7 newborns, very low birth weight was present in 5 newborns. In control group 16% of newborns admitted in NICU, out of 8 newborns admitted in NICU, 1 had meconium aspiration syndrome, 3 had respiratory distress syndrome, 4 had hyperbilirubinemia. In a study conducted by Vidyasagar V et al,[11] Meconium aspiration syndrome present in 9.76% and Neonatal sepsis was present in 4.88%.

Limitations of the study:

- Only 50 cases of oligohydramnios were available during the study period which exactly satisfied inclusion and exclusion criteria which is less compared to other studies.
- The diagnosis of fetal distress was made depending on NST. However, the fetal acidosis was not proved by fetal blood scalp pH or other methods because of non-availability.
- The use of backup surveillance methods like scalp blood sampling and acoustic stimulation and amnioinfusion would have altered the outcome.
- Neonatal follow up after 7 days was lacking.

Recommendations

- Determination of AFI should be used as an adjuvant to other fetal surveillance methods. It helps to identify those infants at risk of having poor perinatal outcome.
- It remains as a valuable screening test for predicting fetal distress in labour requiring caesarean section in oligohydramnios patient.
- Continuous antepartum and intrapartum monitoring are mandatory for every women diagnosed with oligohydramnios to reduce the maternal and neonatal risks associated with oligohydramnios

The suggested plan of action:

- Development of health instruction brochure to raise the pregnant women's awareness regarding oligohydramnios and its management.
- The brochure should include knowledge related to the definition of oligohydramnios and its maternal and fetal outcome.
- Meeting with the antenatal clinics nurses to encourage them to educate pregnant women about oligohydramnios , its maternal and fetal outcome and its plan of action.
- Referral of women who had oligohydramnios to the proper channels for further examination

CONCLUSION

The goal of antepartum fetal surveillance is to identify the fetus at increased risk. Amniotic fluid volume has been proved as an indirect measure of fetoplacental function and hence the estimation of amniotic fluid volume assists the obstetrician in risk assessment. From this study, it can beconcluded that oligohydramanios 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, counselling, 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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