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A Comparative Study of Mode of Delivery in Low & Normal Amniotic Fluid Index in Low Risk Pregnancy

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Abstract **Original Research Article**

Background: Estimation of amniotic fluid volume is a good predictor of maternal & perinatal outcome. With increasing obstetrical care more cases of oligohydramnios are coming into limelight & their management as per gestational age & mode of delivery are matter of great concernto doctor & patient .Oligohydramnios ,AFI</= 5cm has been circumstantially associated with variety of omnious pregnancy outcome such as prolonged labor , fetal distress in labor .We ,by this study sort to assess whether antepartum oligohydramnios is associated with adverse labor events ***Methods:*** A hospital based Prospective comparative study was conducted in the Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur from April 2017 to September 2018. 110 Pregnant women at term (37-40 weeks) attending antenatal clinic in Department of Obstetrics and Gynaecology, in SMS Medical College, Jaipur were enrolled for the study. They were divided in to two groups. Group-A comprising 55 patients with AFI >5 cm and Group-B comprising 55 Patients with AFI less than 5 cm or equal to 5 cm. A detail study regarding mode of delivery in concern with oligohydramnios was done, ***Result:*** Results showed that low AFI is more commonly associated with increased caesarean delivery. The rate of caesarean in oligohydramnios patient was 54.55%. Common indication of caesarean section was failed induction, non-progression of labor & fetal distress**.** ***Conclusion:*** Oligohydramnios in term pregnancies is associated with adverse pregnancy outcome such as prolonged labor, caesarean for fetal distress .It signifies the need for prevention, early detection and timely intervention to prevent the associated complications.
Keywords: oligohydramnios, caesarean section, fetal distress.

INTRODUCTION

Amniotic fluid is a clear, slightly yellowish liquid that surrounds the fetus during pregnancy. It is contained in the amniotic sac [1]. The fluid is faintly alkaline with low specific gravity of 1.010[1].

In the first half of pregnancy, the composition of fluid is almost identical to a transudate of plasma. But in late pregnancy, the composition is very much altered. The composition includes water 98-99% and solids (1-2%)[2].

The main function of amniotic fluid is to protect the fetus. During pregnancy, it acts as a shock absorber, maintains even temperature, allows for growth and free movement of the fetus and prevents adhesion between fetal parts and amniotic sac. During labour, the amnion and chorion are combined to form a hydrostatic wedge which helps in dilatation of cervix, it guards against umbilical cord compression [3].

It is typically diagnosed by ultrasound examination and may be described Qualitatively (e.g, normal, reduced) quantitatively (e.g, amniotic fluid index [AFI]≤5)[4].

Isolated oligohydramnios refers to the presence of oligohydramnios without fetal structural & chromosomal abnormalities, without fetal growth restriction without intrauterine infection and in absence of known maternal disease [5, 6].

Effect of oligohydramnios on pregnancy outcome

Isolated oligohydramnios in low risk women may be a different situation. If there is evidence to prove that the pregnancy outcome in these pregnancies is not compromised, it could save a lot of intervention like induction of labor& caesarean section which is definitely in the better interest of patients [7].

Mode of delivery

Oligohydramnios at term may be managed actively via induction of labor or expectantly via hydration, fetal surveillance &/or regular ultrasound

assessing amniotic fluid volume [8]. Intrapartum oligohydramnios is associated with an increased risk of caesarean section for fetal distress [9].

Maternal complications can be prolonged labor due to inertia, increased operative interference due to malpresentation ultimately leading to increased maternal morbidity [10].

Perinatal outcome

It is well established that oligohydramnios is associated with a high risk of adverse perinatal outcome [11, 12]. On the other hand oligohydramnios is a poor predictor for adverse outcomes [13, 14]. In a pregnancy complicated by oligohydramnios and fetal growth restriction, closed fetal surveillance is important because of associated morbidity and mortality. Delivery is recommended for fetal and maternal indications [15]. Antepartum measurement of AFI can help to identify women who need increased antepartum surveillance for pregnancy complications. Early detection of oligohydramnios and its management may help in reduction in perinatal morbidity and mortality on one side and decreased caesarean delivery on other side.

Aim & objectives

Aim

To study mode of delivery in low and normal amniotic fluid index patients.

Objectives

To identify the intrapartum sequelae of oligohydramnios such as prolonged labour, caesarean for fetal distress.

MATERIALS AND METHODS

Study design – Prospective comparative study

Study type – Hospital based analysis conducted in Dept of Obstetrics and Gynaecology, SMS Medical College, Jaipur.

Duration of study: April 2017 to Sept 2018

Sample size: 55 in each group

Method

- Pregnant women at term attending antenatal clinic were evaluated using abdominal USG as a part of routine fetal surveillance.Women who fulfilled the following inclusion & exclusion criteria were enrolled for the study.

Inclusion criteria

- All singleton pregnancies
- Cephalic presentation
- At term 37-40 weeks (gestation age will be calculated by LMP or first trimester USG)
- Intact membranes
- Patients giving consent

Exclusion criteria

- Gestational age <37 weeks or more than 40 weeks
- Premature rupture of membranes
- Uterine anomaly
- Malpresentation
- High risk pregnancy-
  - Hypertensive disorder of pregnancy
  - Diabetes
  - Chronic renal disease/cardiac disease and other medical disease.
  - Connective tissue disorders
  - Bad obstetric history

The women were grouped as

GROUP A – women at term pregnancy with AFI >5

GROUP B- women at term pregnancy with AFI ≤5

- Details of the study were explained to the pregnant women and written informed consent was taken from all the pregnant women
- Period of gestation was calculated by LMP in patients with regular cycles or by first trimester USG.

The method of calculating an AFI by using ultrasound to measure the sum of the deepest pockets of amniotic fluid in 4 quardants.

Comparative study of mode of delivery was done in both groups.

RESULTS

Table-1: Comparison of Age Distribution in Group-A and Group-B

Age Group (in years)	Group-A	Group-B	Total	p-value
≤20	8 (14.55%)	4 (7.27%)	12 (10.91%)	0.422
21-30	42 (76.36%)	47 (85.45%)	89 (80.91%)	
31-40	5 (9.09%)	4 (7.27%)	9 (8.18%)	
Total	55 (100.00%)	55 (100.00%)	110 (100.00%)	

Table-2: Comparison of Booking Status in Group-A and Group-B

Booking Status	Group-A	Group-B	Total	p-value
Booked	25(45.45%)	26 (47.27%)	51 (46.36%)	0.848
Unbooked	30 (54.55%)	29 (52.73%)	59 (53.64%)	
Total	55 (100.00%)	55 (100.00%)	110 (100.00%)	

Table-3: Comparison of Residence in Group-A and Group-B

Residence	Group-A	Group-B	Total	p-value
Rural	19 (34.55%)	31 (56.36%)	50 (45.45%)	0.022
Urban	36 (65.45%)	24 (43.64%)	60 (54.55%)	
Total	55 (100.00%)	55 (100.00%)	110 (100.00%)	

Table-4: Comparison of Induction / Spontaneous / Augmentation in Group-A and Group-B

Induction / Spontaneous / Augmentation	Group-A	Group-B	Total	p-value
Induction	32 (58.18%)	24 (43.64%)	56 (50.91%)	
Spontaneous	7 (12.73%)	16 (29.09%)	23 (20.91%)	
Augmentation	16 (29.09%)	15 (27.27%)	31 (28.18%)	0.096
Total	55 (100.00%)	55 (100.00%)	110 (100.00%)	

Table-*5*: Comparison of Mode of Delivery in Group-A and Group-B

Mode of Delivery	Group-A	Group-B	Total	p-value
LSCS	18 (32.73%)	30 (54.55%)	48 (43.64%)	0.021
Normal Delivery	37 (67.27%)	25 (45.45%)	62 (56.36%)	
Total	55 (100.00%)	55 (100.00%)	110 (100.00%)	

Table-6: Comparison of Indication of Caesarean in Group-A and Group-B

Indication of Caesarean	Group-A	Group-B	Total	p-value
Failed Induction	11 (61.11%)	7 (23.33%)	18 (37.50%)	0.042
Fetal Distress	6 (33.33%)	17 (56.67%)	23 (47.92%)	
Non-descent of Head	0 (0.00%)	1 (3.33%)	1 (2.08%)	
Non-progression of Labour	1 (5.56%)	5 (16.67%)	6 (12.50%)	
Total	18 (100.00%)	30 (100.00%)	48 (100.00%)	

DISCUSSION

The mean age in Group-A in our study was 24.27 ± 3.98 years and in Group-B it was 25.26 ± 3.64 years. On categorisation, among cases, maximum patients i.e. 47 (85.45%) were in the age group 21-30 years followed by 4 (7.27%) in ≤20 years and 4 (7.27%) in 31-40 years. Among the controls also, maximum patients i.e. 42 (76.36%) were in the age group 21-30 years followed by 8 (14.55%) in ≤20 years and 5 (9.09%) in 31-40 years

In present study, Group-A had 54.55% unbooked patients, and 45.45% booked patients and Group-B had 52.73% unbooked patients and 47.27% booked patients. This was because unbooked patients do not receive routine antenatal care which increases the number of pregnancy complications in them thereby leading to fetal compromise and oligohydramnios.

In our study, among Group-A, 19 (34.55%) patients were rural and 36 (65.45%) were urban and in Group-B, 31 (56.36%) patients were rural and 24 (43.64%) were urban. Most of the cases were from rural area and most of the controls were from urban areas indicating the lack of awareness and other factors in the rural population leading to increased oligohydramnios.

In our study, delivery was induced in 58.18% patients in Group-A and in 43.64% patients in Group-B; delivery was augmented in 29.09% patients in Group-A and in 27.27% patients in Group-B; and delivery was spontaneous in 12.73% patients in Group-A and in 29.09% patients in Group-B.

In our study, for mode of delivery, LSCS was used in 18 (32.73%) patients in Group-A and in 30 (54.55%) patients in Group-B; and normal delivery was in 37 (67.27%) patients in Group-A and in 25 (45.45%) patients in Group-B. There was significant difference between the two groups with respect to mode of delivery ($p<0.05$).

In our study, for caesarean section, failed induction and fetal distress were the main indications in Group-A as seen in 11 (61.11%), 6 (33.33%) patients; and in Group-B, it was multiple- failed induction in 23.3%, fetal distress in 56.67%, and non-progression of labour in 16.67% patients

CONCLUSION

Isolated oligohydramnios refers to the presence of oligohydramnios without fetal structural & chromosomal abnormalities, without intrauterine infection & in the absence of known maternal disease. It is well established that during the course of labor oligohydramnios is associated with an increased incidence of fetal distress possibly as a result of umbilical cord compression or Meconium stained amniotic fluid & non progression of labor.

In patients with isolated oligohydramnios at term, induction & augmentation is appropriate management rather than opting elective caesarean but close supervision of labor, intensive fetal monitoring, early detection of fetal distress & intervention is mandatory to achieve better feto-maternal outcome. The decision between vaginal delivery & caesarean section should be well balanced so that unnecessary maternal morbidity can be prevented.

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