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Original Research Article

A clinical study on maternal and fetal outcome in pregnancy with oligohydromnios

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ABSTRACT

Background: Oligohydramnios is associated with various maternal and fetal complication. It's correlated fetal complications like FGR, increased risk of meconium aspiration syndrome, Birth asphyxia, low APGAR scores and increased congenital abnormalities in fetus. It's also associated with maternal morbidities in view of operative interventions for delivery. To study effect of oligohydramnios in mother in form of, operative delivery and progress of labour. To study effect of oligohydramnios in fetus in form of fetal compromise i.e. FGR, fetal distress, altered APGAR score, need for NICU admission. congenital anomaly and perinatal death.

Methods: 50 patients with ≥ 28 weeks POG with oligohydramnios, confirmed by ultrasonographic measurement of AFI using four quadrant technique; were selected randomly after fulfilling inclusion and exclusion criteria.

Results: Incidence of oligohydramnios were more found in primigravida (56%) in present study. Most common cause of oligohydramnios was idiopathic (62%) followed by PIH (20%). Most common cause of caesarean was fetal distress (23%) either due to cord compression or FGR. oligohydramnios was related to higher rate of Fetal Growth restriction and NICU admission (24%).

Conclusions: Oligohydramnios is very common encounter during pregnancy, Because of its frequent occurrence; it demands intensive fetal monitoring and systemic approach to antepartum and intrapartum fetal surveillance. There is increased risk of intrapartum complication, perinatal morbidity, perinatal mortality; thus, the rate of caesarean increasing day by day. one should always know the fine line between vaginal delivery and caesarean section; move ahead with best option without hampering fetal wellbeing and avoid unnecessary operative morbidity.

Keywords: Fetal outcome, Maternal outcome, Oligohydromnios, Pregnancy

INTRODUCTION

Amniotic fluid provides protected shield for the growing fetus, cushioning fetus against mechanical and biological injury, supplying nutrient and facilitating growth and movement of fetus. Early in the developmental period of fetus, it is enclosed by amnion and is surrounded by amniotic fluid which is similar to extracellular fluid and an indicator of fetal status that has made amniotic fluid volume assessment, an important part of antenatal fetal surveillance. The quantity of amniotic fluid changes according to period of gestation. Oligohydromnios refers to amniotic fluid volume that is less than expected for

gestational age. It is typically diagnosed by ultrasound examination and may be described qualitatively (e.g., normal, reduced) or quantitatively (e.g., amniotic fluid index [AFI] ≤ 5).¹ Oligohydramnios occurs in about 1-5 % of pregnancies at term.² In pregnancies of more than 40 weeks of gestation, the incidence may be more than 12 % as the amniotic fluid volume declines progressively after 41 weeks of gestation.³ Oligohydromnios results from medical or obstetrical complication related to maternal ,placental ,fetal causes and idiopathic. Both abnormal, increase and decrease in amniotic fluid volume have been associated with maternal as well as fetal morbidity and mortality. With advent of real time USG better

identification can be done using AFI method described by phalen et al, where four quadrant technique is employed during TAS.¹ Oligohydromnios is associated with congenital fetal anomalies, Uteroplacental insufficiency, Premature Rupture of membranes, postdatism, abruption placenta and hypertensive disorder in pregnancy. It is found to be associated with high incidence of maternal and fetal morbidity and mortality. During labour the predominant mechanical function of amniotic fluid is to provide an aquatic cushion for umbilical cord. Without this cushion, compression of the cord between the fetus and the uterine wall may occur during contractions or fetal movement, this cord compression causes fetal distress which are associated with low APGAR scores and acidosis at birth, meconium staining, caesarean section and operative vaginal delivery. Early detection of oligohydramnios and its management may help in reduction of perinatal morbidity and mortality one side and decreased rate of caesarean deliveries on the other side. The objectives of the present study was to observe the effect of oligohydramnios in maternal outcome in form of, operative delivery and progress of labour, and to study the effect of oligohydramnios in fetal outcome in form of fetal compromise i.e. FGR, fetal distress, altered APGAR score, Need for an NICU admission, congenital anomaly and perinatal death.

METHODS

This study was conducted in department of Obstetrics and Gynecology of Mahatma Gandhi Medical College and Hospital, Jaipur; between Nov 2017 to June 2018. 50 patients with ≥ 28 weeks POG with oligohydramnios, confirmed by ultrasonographic measurement of AFI

using four quadrant technique; were selected randomly after fulfilling inclusion and exclusion criteria.

Inclusion criteria

- Singleton pregnancy
- Pregnancy ≥ 28 weeks POG with intact membrane
- USG proven AFI upto 5 cms.

Exclusion criteria

- Patient with Premature rupture of membrane
- Multiple pregnancy.

A detailed history and examination were done, oligohydromnios confirmed by AFI. Routine management in form of rest, left lateral position, oral and intravenous hydration and control of etiological factor was done if present. Fetal surveillance was done by USG, modified biophysical profile and Doppler. Decision of delivery by either induction or elective or emergency LSCS was done as per required. Some patients were already in labour and other allows going in spontaneous labour.

RESULTS

Out of 50 patients ,52% of patients were in 20-25 years age group and 36% were in 26-30 age group and rest 8% and 4% in 30-35 years, <20 years age group simultaneously. Thus, maximum Patients were in 20-30 years age Group. More number of sections was highest in 20-25 years age group, and lowest in <20 years age group.

Table 1: Age and maternal outcome (mode of delivery) in oligohydramnios.

Age (Years)	Vaginal delivery		LSCS	Total	Percentage
	Normal	Assisted			
<20	1 (50%)		1 (50%)	2	4
20-25	14 (53.84%)	1 (3.84%)	11 (42.30%)	26	52
26-30	9 (50%)		9 (50%)	18	36
30-35	2 (50%)		2 (50%)	4	8
Total	26 (52%)	1 (2%)	23 (46%)	50	100

Table 2: Parity and maternal outcome of labour in oligohydramnios.

Parity	Vaginal delivery		LSCS	Total	Percentage
	Normal	Assisted			
primigravida	12 (42.8%)	1 (3.57%)	15 (53.57%)	28	56
multigravida	14 (63.63)	-	8 (36.36)	22	44
Total	26 (52%)	1 (2%)	23 (46%)		100

Incidence of oligohydromnios was highest in primigravida (56%) followed by 44 % in multigravida in present study. And operative morbidity was also highest

in primigravida (53.57%) followed by 36.36% in multigravida. Most common cause of oligohydromnios is idiopathic (64%). Second commonest cause is

Hypertensive disorder in pregnancy (20%). operative morbidity is highest in hypertensive disorder in pregnancy (60%).

Oligohydromnios was associated with post-dated pregnancy (8%), fever (4%), post term (2%) and severe anemia (2%).

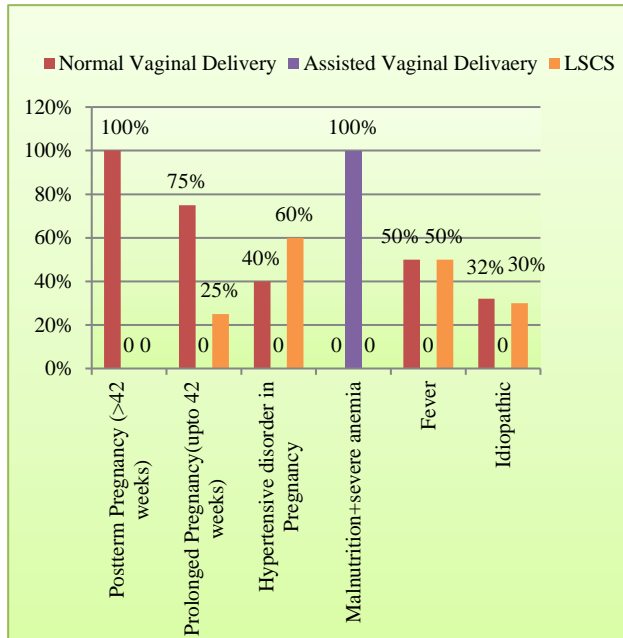


Figure 1: Associated condition and maternal outcome in oligohydromnios

Out of 50 patients, 38(76%) patients had reactive non-stress test in which 34.21% patients had LSCS.

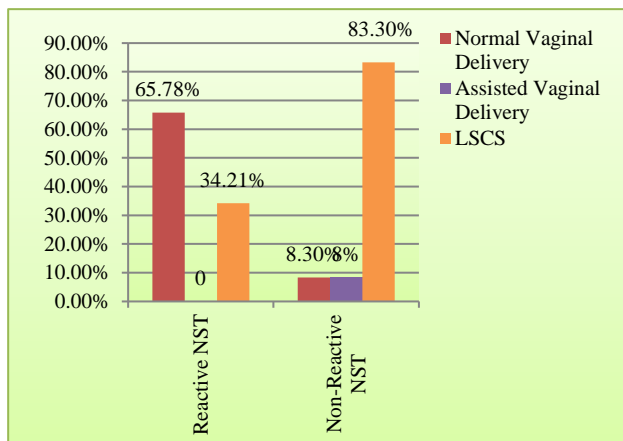


Figure 2: Non-stress test in oligohydromnios.

Operative intervention was significantly higher in NST non-reactive group (24%) in which 83.3 patients had LSCS. incidence of normal vaginal delivery was 65.78 % in NST reactive Patients.

All patients were undergone Doppler study.14% patients were found to have placental insufficiency.

Out of them, Operative intervention was significantly higher (85.71%) in patient with abnormal Doppler findings.86% patient had normal Doppler study in which 39.53% patients underwent LSCS.

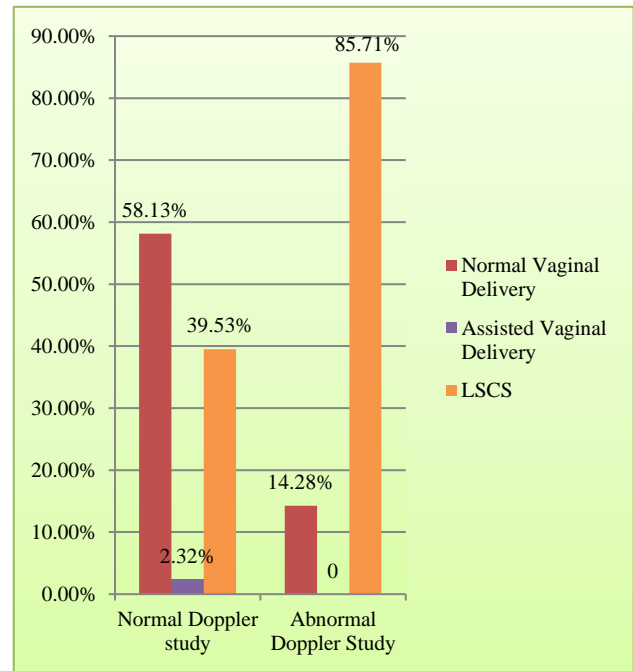


Figure 3: Doppler study in oligohydromnios

In present study most, common indication of LSCS was fetal distress (23%). Oligohydromnios, FGR, Breech was indication of LSCS in 10% ,9% and 2% of patients simultaneously.

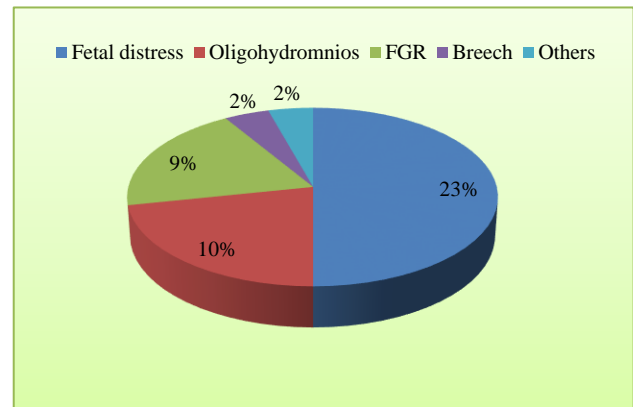


Figure 4: Indications of LSCS

In present study Fetal Growth restriction was present in form of 80% of AGA and 20% for SGA. APGAR score (<7 in 1 and 5 minutes) was present in 17% of cases. NICU admission needed in 24% of new-born.

Congenital anomaly and perinatal death was present in 2% of cases each.

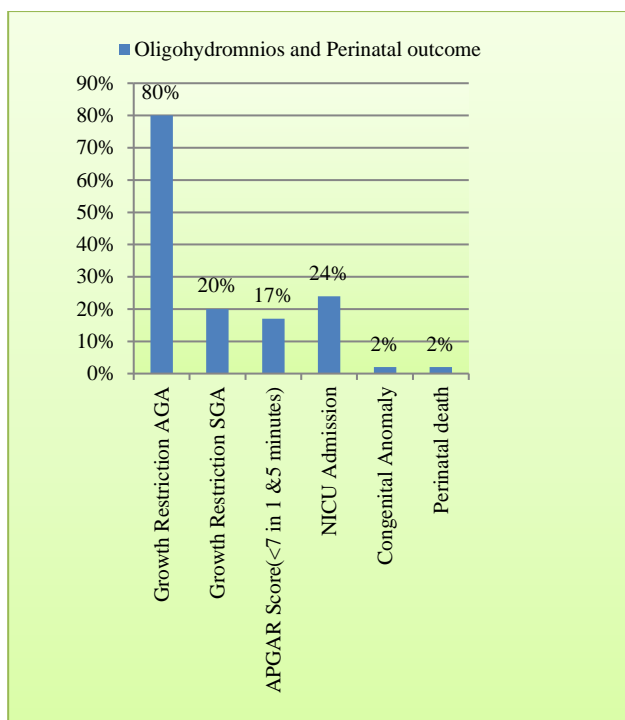


Figure 7: Oligohydromnios and perinatal outcome

DISCUSSION

In present study the incidence of oligohydromnios in primigravida is 56%, which is comparable to study done by Donald et al, it was 60%. It was 52% in study conducted by Jagatia K et al.^{4,5}

Various studies represent different rate of LSCS in pregnant women with amniotic fluid index <5 cm. The LSCS was done in 46% of cases in present study which is compared with other studies as follow. study by Casey B et al, found that there was increased rate (32%) of caesarean section in oligohydromnios cases.⁶ Golan et al [7], found that, the caesarean section was performed in 35.2 % of cases of oligohydromnios.⁷ Bansal D et al, found that there was 46% of cases of oligohydromnios who undergone caesarean section. These studies are comparable to my study.⁸

Most common cause of oligohydromnios reported by Jagatia K et al. was idiopathic followed by hypertensive disorder in pregnancy which is comparable to my study. in present study association of hypertensive disorder is 20% which is comparable to study by Sriya et al, in which its incidence was 31%.^{5,9} 8% cases had postdated pregnancy in present study. Marks and divon has reported oligohydromnios in 11.5% of 551 pregnancies at 41 weeks or greater.¹⁰ A study done by Bhat et al at Bharati Vidyapeeth Deemed University Medical College and Hospital at Sangli including 100 patients in third trimester of pregnancy with Oligohydramnios; found that the most common cause of oligohydramnios was idiopathic followed by PIH.¹¹ In the study by Kumar et al 40 % of patients had non-reactive NSTs, while in the

study by Chandra et al it was 69.23 % and in the study by Sriya et al. it was 41.55 %.^{9,12,13} In present study it was 24%. The operative morbidity is significantly higher in patients with altered Doppler study. In Weiss et al and Yound HK et al it was 71% and 69.7% respectively which was comparable to this study, in present study it was 83.3%.^{14,15}

In present study, we had intrapartum complication in form of fetal distress (23%). Which is comparable to study done by Casey et al (32%), most common reason to perform caesarean was fetal distress which was either due to cord compression or FGR.⁶ Results are comparable with Casey et al study, which show significant higher proportion of LSCS due to fetal distress. There is high rate of operative delivery (instrumental + LSCS) in all the studies which are comparable to present study. Thus, oligohydramnios is associated with increased operative delivery and therefore, increased maternal morbidity.

In Julie Johnson et al [16] ,92.6% babies were AGA and 7% were SGA. In Brain M Casey et al [6] 75.5% babies were AGA and 24% SGA. In Philipson, EH et al babies were 60% AGA and 40% SGA. In Manning et al babies were 64% AGA and 36% SGA.^{17,18} In Sriya et al babies were 83.4% AGA and 16.6% SGA. This high percentage of SGA babies suggesting correlation of FGR with Oligohydramnios.⁹ In Manning et al 15% babies had APGAR score < 7 at 5 minutes.¹⁸ In Sriya et al, it was 38%, in present study it was found to be 17%. In Julie M Jhonson et al 20% babies had NICU admission. In Manning et al and Sriya et al, 43% and 88.88% respectively.^{9,16,18} In present study 24% babies required NICU admission. Golan et al show 6.3% perinatal death in deliveries of Oligohydramnios patients which is observed 2% in present study.⁷

CONCLUSION

Oligohydramnios is frequent occurrence and demands intensive fetal surveillance and proper antepartum and intrapartum care.

Oligohydramnios is a frequent finding in high risk pregnancies like FGR, hypertensive disorder in pregnancy, pregnancy beyond 40 weeks of gestation. AFI is a predictor of fetal tolerance in labour and decrease in AFI is associated with increased risk of abnormal fetal heart rate and meconium stained liquor. Due to intrapartum complications and high rate of caesarean section is rising, but decision between vaginal delivery and caesarean section should be well balanced so that unnecessary maternal morbidity prevented and on other side timely intervention can reduce perinatal morbidity and mortality.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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