

MATERNAL AND FETAL OUTCOME IN TERM PREGNANCY IN OLIGOHYDRAMNIOS

Obstetrics & Gynaecology

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ABSTRACT

Decrease in amniotic fluid volume or Oligohydramnios has been correlated with increased risk of intrauterine growth retardation, meconium aspiration syndrome, severe birth asphyxia, low APGAR scores and congenital abnormalities. Early detection of oligohydramnios and its management may help in reduction of perinatal morbidity and mortality on one side and decreased caesarean deliveries on the other side. Aim of the present study was to study maternal and fetal outcome in term pregnancy in oligohydramnios in tertiary care center. A prospective observational study was conducted on 100 patients with oligohydramnios with AFI $\leq$ 5 cm at Tertiary Care Center, studied between 2019-2021 to observe outcome of labour in form of perinatal morbidity and maternal outcome in form of induction and deliveries. It was observed that AFI measurement of less than 5 cm detected after 37 completed weeks of gestation with a low-risk pregnancy is found to be an indicator of adverse pregnancy outcome with higher caesarean section rate.

KEYWORDS

Oligohydramnios, amniotic fluid, AFI, term pregnancy.

INTRODUCTION

Amniotic fluid is a clear fluid with mild yellowish hue present in amniotic sac which is in circulation that surrounds the fetus. Life of humans starts in aquatic pond. Liquor amnii is like an aquatic pond. This fluid filled medium inside the amniotic cavity necessary for fetal growth and Development. It helps foetus regulates temperature, prevents injuries, growth in sterile environment and decreases the impact of uterine contractions.

It has many functions which are important for the development of foetus in utero,¹ by its bacteriostatic property, It helps to prevent infection in the amniotic environment. It provides a physical space for fetus which is necessary for normal musculoskeletal development. It helps in fetal breathing which is necessary for development of lungs. It also allows and helps in fetal swallowing – which is essential for the gastrointestinal tract development. It protects the fetus from any external and internal injury and acts as shock absorber and thereby prevents the umbilical cord compression.

Oligohydramnios has been associated with increased risk of meconium aspiration syndrome, intrauterine growth retardation, low APGAR scores, severe birth asphyxia, and congenital abnormalities.^{2,3} Oligohydramnios is also associated with increased maternal morbidity in form of induction of labour and increase operative interference.⁴

Early detection of oligohydramnios and its management decreases Caesarean Deliveries and may help in reduction of perinatal mortality and morbidity. The origin of the amniotic fluid is poorly understood till now. Its origin is of both maternal and foetal. The Amniotic fluid provides a fluid medium which helps in early development of the embryo protecting it from, pressure, desiccation, concussion, reminiscent of the aquatic origin of life. amniotic fluid functions as a primary source of foetal nutrients.

Decrease of amniotic fluid is attributed to so many causes but isolated oligo hydramnios where there is no fetal and maternal condition exist, unnecessary pregnancy intervention should be avoided. Oligohydramnios has got significant impact on foetal outcome in form of fetal distress, NICU admissions and meconium stained liquor and increases maternal morbidity.

Further with the help of ultrasound a thorough fetal anatomical study can be done about the genitourinary system for any anomalies and free amniotic bands could be identified. Karyotyping plays an important role.

Once diagnosed, oligohydramnios, further needs intensive antenatal and intrapartum fetal surveillance along with ultrasound evaluation.

The role of amnioinfusion appears beneficial to improve neonatal outcome in selected study series.

MATERIALS AND METHODS

A prospective observational study was conducted on 100 patients with oligohydramnios with AFI $\leq$ 5 cm at Tertiary Care Center, studied between 2019-2021 to observe outcome of labour in form of perinatal morbidity and maternal outcome in form of induction and deliveries.

Aim and objective

1. To study effects of oligohydramnios on fetal outcome in form of fetal distress; growth retardation, NICU admission
2. To study APGAR score of newborn babies in relation to oligohydramnios
3. To study incidence of congenital malformations
4. To study early neonatal mortality
5. To study maternal morbidity in form of operative delivery and induced labour

Detailed procedure

- A detailed history and examination were done, all required basic investigation done, oligohydramnios confirmed by measuring AFI.
- Routine management in form of rest, left lateral position, oral hydration and control of etiological factor will be done if present. Fetal surveillance will be done by USG, modified biophysical profile and Doppler.
- Decision of delivery by either induction or elective or Emergency LSCS was done as required.
- Some patients if already in labour or other allows going in spontaneous labour. Cases were then studied for maternal and perinatal outcome.

Inclusion criteria:

- Antenatal patient in their term gestation with intact membranes with AFI $\leq$ 5 cm

Exclusion criteria:

Antenatal patients having

- 1) Heart disease
- 2) polyhydramnios
- 3) premature rupture of membranes
- 4) twins and multiple pregnancies
- 5) preterm gestation

OBSERVATIONS AND RESULTS

A total of 100 women at term pregnancy diagnosed with

oligohydramnios on USG with AFI value of less than 5 were included in the final analysis.

Table No. 1: Age distribution of study participants (N= 100)

Age group (years)	Frequency	Percentage
18-20	16	16%
21-25	51	51%
26-30	31	31%
>30	2	2%
Total	100	100%

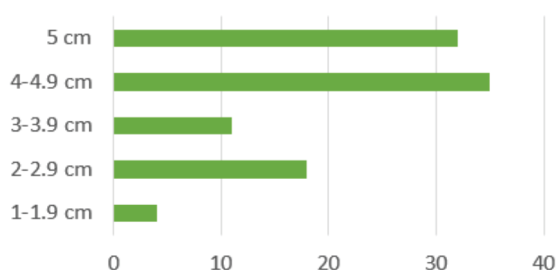
- The mean age of 100 women at term pregnancy diagnosed with oligohydramnios during the study period was 24.17 ± 3.3 years. The minimum age was 18 years and maximum 33 years. Most of the women belonged to the age group of 21 to 25 years.
- Almost equal proportion women belonged to primi (52%) and multipara (48%).
- Only term pregnant women were included in this study. 35% delivered at gestational age of 39 weeks, followed by 26%, 21% and 18% delivering at 37, 38 and 40 weeks respectively.

Table No. 2: Gestational age of study participants

Gestational age	Frequency	Percentage
37 weeks	26	26%
38 weeks	21	21%
39 weeks	35	35%
40 weeks	18	18%
Total	100	100%

- Only those pregnant women with AFI score of less than 5 cm were included in the study. The mean AFI among the study participants was 2.41 ± 0.55 cm, with the minimum and maximum value 1.4 and 4.2 respectively. Majority (35%) had their AFI value between 4 - 4.9, followed by 32%, 18% and 11% as 5, 2-2.9 and 3-3.9 respectively. Overall, 34% had their AFI score between 1- 3 and 66% between 4-5.

AFI value of study participants



- Overall, 47% fetus had no adverse outcomes due to oligohydramnios. The remaining 53 fetus had one or more than one adverse outcome such as meconium, intrauterine growth retardation or fetal distress. Doppler finding were abnormal in 6% and 94% is normal. It was seen that 36% had meconium present, 35% with IUGR and 18% with fetal distress. NST was abnormal in 24% and normal in 76%.
- In this study among women with oligohydramnios, 70% had no associated factors. 20% had associated pregnancy induced hypertension, 8% had pre-eclampsia and 2% had eclampsia.

Table No. 3: Maternal factors associated with oligohydramnios

Maternal factors	Frequency	Percentage
Nil	70	70%
Pre-eclampsia	8	8%
Eclampsia	2	2%
PIH	20	20%
Total	100	100%

- APGAR score was measured at 1 and 5 mins post-delivery. None of the newborns had APGAR score less than 3, at 1 or 5 mins. 7% babies had APGAR score between 4 - 6 at 1 min, which became 8% at 5 mins. A score of more than 7 was seen among 93% and 92% of babies at 1 min and 5 mins respectively. It was seen that greater proportion (56.1%) of babies with AFI of 1 -3 also had APGAR score less than 7 at 1 mins, but was not statistically significant at p value 0.179. But the APGAR score at 5 mins showed statistically significance association between APGAR score and AFI, (p=0.00)

greater proportion with AFI score of 4 to 5 and APGAR score more than 7

- 77% needed no NICU admission while only 23% needed it.
- No perinatal death was documented among oligohydramnios patients in the present study.
- Of the total 100 babies observed, 93% had no anomaly while only 7 babies were documented with some anomaly. Congenital anomaly seen in the present study was Hydronephrosis/hydrourters (3%) and one case of Renal agenesis, Renal agenesis, Polycystic Kidney Disease, Posterior urethral valve and Pulmonary Hypoplasia.

DISCUSSION

Measuring the volume of amniotic fluid is an important element of foetal surveillance during pregnancy. It is a known fact that severe oligohydramnios is associated with adverse perinatal outcome. Recognition of abnormal amniotic fluid volume before delivery may help the clinician about the potential high perinatal risk.

On the other hand, it is still a poor predictor of adverse consequences. However, oligohydramnios is often used as an indication for operative delivery. As a result, determining high and low risk groups requires antenatal measurement of amniotic fluid volume. Oligohydramnios can be isolated or associated with maternal or foetal conditions such as hypertension, premature rupture of membranes, foetal growth restriction and congenital anomalies.

Oligohydramnios is associated with perinatal morbidity and mortality, and increased operative delivery and increased incidence of cesarean section.

The majority (51%) of the women in our study (n=100) were in the age group of 21 to 25 years (n=51), which is comparable to Biradar KD et al.,⁽⁵⁾ Jagatia K et al.,⁽⁶⁾

In a study conducted by Bansal D et al.,⁽⁷⁾ 60 percent of primigravida had oligohydramnios.

Mushtaq E et al.,⁽⁸⁾ also found that oligohydramnios Patients who were primigravida accounted for 58.2 percent of the total, which is comparable to the current study's 52 percent. The incidence of oligohydramnios was higher in primipara, which is consistent with Petrozella LN et al., and Jandial C et al., studies.^(9,10)

In the study conducted by Mushtaq E et al.,⁽⁸⁾ found that the mean gestational age for the study group was 39.02 ± 0.936 weeks, which is comparable to the present study. According to a study conducted by Mushtaq E et al.,⁽⁸⁾ The study group's low APGAR score was 11.64 percent. Manning et al.,⁽¹¹⁾ found that 15% babies had APGAR score <7. Jagatia K et al.,⁽⁶⁾ observed that Low APGAR for the study group was 15%, comparable to present study.

According to Jhonson JM et al.,⁽¹²⁾ 20% babies had NICU admission. Another study conducted by Jagatia K et al.,⁽⁶⁾ Only 22% of babies in this research needed to be admitted to the NICU, which is similar to the current study.

CONCLUSION

Oligohydramnios is a common condition that requires close foetal monitoring and proper antepartum and intrapartum care. The volume of amniotic fluid in the womb is a predictor of foetal tolerance during labour, and its reduction is associated to a higher risk of abnormal heart rate and meconium-stained fluid.

Caesarean section rates are increasing due to intrapartum complications and a high rate of perinatal morbidity and mortality, however the decision between vaginal delivery and caesarean section should be properly balanced to avoid unnecessary maternal morbidity and to reduce perinatal morbidity and mortality. To conclude, an AFI measurement of less than 5 cm detected after 37 completed weeks of gestation with a low-risk pregnancy is found to be an indicator of adverse pregnancy outcome with higher cesarean section rate.

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