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Maternal and perinatal outcome in oligohydramnios at and after 34 weeks of gestation.

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Abstract
Background: *Oligohydramnios is a serious complication that is associated with low birth weight, Meconium aspiration syndrome, severe birth asphyxia, low APGAR score, and also maternal morbidity due to Caesarean section, increased induction rate and instrumental delivery. Early detection and management of oligohydramnios may reduce its adverse perinatal and maternal outcome.* ***Methods:*** *A Hospital-based study was conducted in the department of Obstetrics and Gynaecology, Government General Hospital, Rajiv Gandhi Institute of Medical Sciences, Kadapa (YSR district), Andhra Pradesh. Duration of the study was 18 months i.e, from January 2016 to June 2017. 150 pregnant women of gestational age ≥ 34 weeks satisfying inclusion and exclusion criteria are taken.* ***Results:*** *The incidence of oligohydramnios was found to be more in primigravida (60%) With mean maternal age 23.96±3.92 years. Maternal morbidity is more in primigravida (71.11%). Most common antenatal complication is Hypertensive disorders of pregnancy (25.33%). Most common Indication for Caesarean section is fetal distress (42%). Perinatal outcome showed low birth weight (45%), APGAR score < 7 at 1 min (33%) and 5 min (20%), NICU admission (32%), MAS (5.33%), one still birth and three perinatal death's. Caesarean section rate was 61.33%.* ***Conclusion:*** *Oligohydramnios in the present study was associated with increased maternal and perinatal complications and needs proper antepartum and intrapartum fetal care and intensive fetalsurveillance.*

Keywords: *Oligohydramnios, Incidence, Maternal and perinatal outcome, Low birth weight.*

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I. Introduction

The fluid that collects within amniotic cavity surrounding the embryo is called Amniotic Fluid. Hippocrates was the first to attribute the development of amniotic fluid to fetal urine. Fetal urination is the major source of amniotic fluid, once the fetal kidney function begins at 10 – 12 weeks. Fetal lung fluid is a minor contributor to amniotic fluid.

The Amniotic fluid volume rises progressively until 32 weeks of gestation. From 32 weeks to term the mean amniotic fluid volume is relatively constant about 600-800 ml. After 40 weeks there is progressive decline in amniotic fluid volume average of about 400 ml at 42 weeks. Amniotic fluid is removed by fetal swallowing. A normal Amniotic fluid volume is critical for normal fetal growth and development.

AFI(Amniotic Fluid Index) is a good predictor of fetal outcome and forms one of the component of modified biophysical profile (AFI and Nonstresstest).

Oligohydramnios is a serious complication of pregnancy that is associated with a poor perinatal outcome. Abnormal Amniotic fluid volume may be the only or earliest sonographic sign of an obstetric problem[1]. The incidence of oligohydramnios is reported to be around 1to 5 % of total pregnancies [2]

Phelan proposed AFI as a more objective and reproducible method as it estimates the amniotic fluid in four quadrants, and defined oligohydramnios as AFI less than 5 cm, with the normal range for AFI being 12.9 ± 4.6 cm (5-18 cm)[3,4]. Ship and associates noted a bimodal distribution in the diagnosis of severe oligohydramnios with more cases diagnosed between 13-21 weeks and 34-42 weeks.

Oligohydramnios has been correlated with increased risk of abnormal fetal heart rate, cord compression, pulmonary hypoplasia, Intrauterine growth restriction

Meconium passage, Lower Apgar scores, NICU (Neonatal Intensive Care Unit) admissions, still births and Neonatal death Thus, in high risk pregnancies, oligohydramnios is frequently used to identify fetuses at risk of an adverse outcome.

Oligohydramnios is found to be associated with an increased risk of LSCS delivery for fetal distress, induction of labour, prolonged labour and thus increasing the maternal morbidity

II. Aims And Objectives

1. To know the obstetric outcome associated with Oligohydramnios at and after 34 weeks of Gestational age.
2. To assess the adverse Perinatal outcome in Oligohydramnios.

III. Material And Method

Prospective Observational study of Maternal and Perinatal outcome of 150 pregnant women with oligohydramnios diagnosed at and after 34weeks of gestation, was done in the Department of Obstetrics and Gynaecology, RIMS Government General Hospital, Putlampalli, Kadapa, (YSR district) during the period of January 2016 to June 2017

INCLUSION CRITERIA:
AFI ≤ 5
Gestational age 34 to 42 weeks Patient sure of LMP
Singleton pregnancy with cephalic presentation Intact membranes
EXCLUSION CRITERIA: Rupture of membranes Multiple pregnancy Malpresentation Placenta previa
Prior caesarean section

IV. Results

Total no. of deliveries are: 10,030

Total no. of oligohydramnios (during the period of study): 344

Incidence of oligohydramnios : 3.43%

Table -1 Demographic Parameters

Maternal age (mean±sd)	23.92 ± 3.96 years
Parity Primigravida Multigravida	90(60%) 60(40%)
Gestational age (mean±sd)	38.49±1.67 weeks
Amniotic fluid index (mean±sd)	3.34cm

In our study maximum no of patients belong to age group 21-25 years (62%). Mean age of incidence is 23.92±3.96 years and Mean age of Gestation is 38.49±1.67 weeks. Majority of cases are primigravida (60%) compared to multigravida (40%). (Table-1).

Table - 2 Associated Antenatal Medical

COMPLICATIONS

Complication	Percentage (%)
Anemia	42.67(%)
Hypertensive Disorders of pregnancy	25.33(%)
Postdates	18(%)
Preterm	8.67(%)
Rh negative	4(%)
Others	1.33(%)

Most common antenatal complication associated is Anemia (42%) followed by Hypertensive disorders of pregnancy (25.33%), postdates (18%), Rh negative pregnancy (4%) and others (Jaundice and Hypothyroidism) contributing 1.33%.

Table - 3 Mode Of Delivery

Type of Delivery	No.of cases	Percentage (%)
Vaginal	58	38.67(%)
Caesarean section	92	61.33(%)

Table-4 Mode Of Delivery In Induction

Type of Delivery	No.of cases	Percentage(%)
Vaginal	17	41.46(%)
Caesarean section	24	58.54(%)

As regards to mode of delivery, 38.67% had spontaneous vaginal delivery and caesarean section was 61.33%. In induced group 41.46 % were vaginal and 58.54% caesarean section.

Table-5 Indication Of Caesareansection

Indication	No.of cases	Percentage (%)
Fetal distress	39	42.39(%)
Oligohydramnios	20	21.73(%)
Failed induction	8	8.69(%)
Failed progression	7	7.60(%)
Severe preeclampsia with IUGR	6	6.52(%)
IUGR	2	2.17(%)
Severe preeclampsia	2	2.17(%)
CPD	4	4.34(%)
Precious pregnancy	4	4.34(%)

Table - 5 shows the indications of caesarean section of which fetal distress is the most common indication followed by oligohydramnios.

Table - 6 Parity And Maternal Outcome

Parity	Normal vaginal	Assisted vaginal	LSCS
Primi	22(24.44%)	4(4.44%)	64(71.11%)
Multi section	30(50%)	2(3.33%)	28(46.67%)

Percentage of instrumental (4.44%) and caesarean section (71.11%) is high in primigravida compared to multigravida. [instrumental (3.33%) and LSCS (46.67%)].

Table-7 Perinatal Morbidity

Fetal outcome	No.of cases	Percentage (%)
Birth weight <2.5kgs	72	48%
APGAR SCORE		

At 1min<7	50	33(%)
At 5 min<7	30	20(%)
Neonatal intensive care unit (NICU) admission	48	32(%)
Meconium aspiration syndrome(MAS)	8	5.33(%)
Still Birth	1	0.67(%)
Perinatal deaths	3	2(%)
Sex distribution	Male	Female
In total cases	54(%)	46(%)
In NICU admission	60(%)	40(%)
In MAS	50(%)	50(%)
In Total Perinatal Mortality	50(%)	50(%)

Perinatal outcome is measured by assessing the low birth weight babies which is 48%, APGAR SCORE at 1min and 5min <7 is 33% and 20% respectively, No. of NICU admissions are 32%, incidence of Meconium aspiration syndrome is 5.33%, still birth being 0.67% and perinatal death rate is 2%. There is no significant difference of perinatal outcome in both male and female babies.

V. Discussion

Oligohydramnios poses a challenge in Obstetric management particularly when diagnosed before term. In the present study, an incidence of 3.34% is noted. Oligohydramnios complicates 1-5% ofpregnancies. In present study mean age distribution is 23.92±3.96years, which is similar to Krishna Jagatia et al study[5] (23.66 years). The most common age group is 21-25 years (52%), which is similar to Madhavi et al study [6] (56%).

Even though oligohydramnios incidence in teenage and elderly pregnancies is high, the results show maximum no. Of cases between 20-30 years, because it is the most common age at which women of Indian community get married and become pregnant.

The percentage distribution of cases in primigravida and multigravida in present study is 60% and 40% respectively, which is similar to Petrozella et al study[7] (60% and 40%) and Hindumathi M et al study (59%and41%). In present study, the incidence of Hypertensive disorders of pregnancy (25.33%) is similar to Krishna Jagatia et al study[5] (25%) and Golan A et al[8] (22.1%), incidence of past dates and Anemia are similar to Bansal et al study (17%), and (55%), Rh negative pregnancy incidence (4%) is close to Rathod HM et al study(7%).

Even though there is no evidence of Anemia as a cause of Oligohydramnios, its high prevalence in oligohydramnia cases in present study may indicate an indirect association or may be because of anemia endemic region. Most common cause is Hypertensive disorders of pregnancy (25.33%). Golan A et al[8] in his study, found maternal hypertension in 22.1% ,Mercer L J et. al found that preeclampsia was present in 24.7% of cases with decreased fluid. They concluded that the incidence of oligohydramnios ranges from 10 to 30 % in hypertensive patients requiring hospitalization.

In present study lower segment caesarean section (LSCS) rate is 61.33% and vaginal delivery is 38.67%, which is similar to Biradar KD et al[9]study LSCS(62%) and vaginal delivery (38%), Mushtaq et al study LSCS (63.69%) and vaginal delivery (36.31%). In present study most common indication for caesarean section is Fetal distress (42%), followed by severe oligohydramnios (21.73%), IUGR(8.7%), Failed induction (8.69%), Failed progression (7.60%), Cephalo pelvic disproportion (CPD) (4.34%) and both infertility and bad obstetric cases (4.34%).

The indications for caesarean section in Babar shrikant et al[10] study for fetal distress (34.28%), severe oligohydramnios(21.7%) and IUGR(4.28%) are similar to present study.

Anna et al[11] found that 15.2% caesarean delivery among 341 oligohydramnios patients. Voxman[12] also found increased caesarean section rate 14.7% for fetal distress in oligohydramnios group. In Anna et al study[11] and Voxman[12] study caesarean section rate was high in oligohydramnios patients but not significantly high as it is found in this study probably due to less facility for fetal wellbeing monitoring during antepartum and intrapartum period. So for the avoidance of adverse effect on perinatal outcome, in most cases so caesarean section was done.

The present study shows that there is high operative morbidity in primigravida(71.11%) compared to multigravida (46.67%) similar to Krishna jagatia et al[7] study (55.78% and27,09%).

The incidence of lowbirth weight in is close to present study values (48%) and Biradar KD et al[9](38.6%).

In present study the incidence of APGAR Score less than 7at 1minute(33.33%) and at 5minutes(20%) are similar to incidence in Bansal et al study(35% and 17.5),

Biradar KD et al[9](38.6% and 26%).
Golan A et al[8] found low APGAR scores at 5 min as 4.6% which is in contrast to present figure 20% because of better intrapartum fetal monitoring facilities in developed countries. This shows the need for strict fetal surveillance in oligohydramnios.

Meconium aspiration syndrome incidence in present study (5.33%) is similar to Biradar et al[9] study (6%) Madhavi K[6] et al study (6%).

Present study NICU admission rate (30%) is similar to Madhavi K et al[6] study (34%) and Rathod HM et al study (25.72%).There is a clear association between oligohydramnios and increased incidence of meconium aspiration syndrome as well as NICU admissions.

Incidence of still birth in present study (0.66%) is similar to Mushtaq et al(0.68%).In our study the Neonatal Mortality rate (2%) is similar to Rathod HM et al study(2.86%). Golan A et al[8] show 6.3% neonatal death in deliveries of Oligohydramnios patients, hence oligohydramnios has been recognized as a clinical hallmark of impending severe perinatal compromise.

The limitations of study include:

- Exactly satisfied inclusion and exclusion criteria.
- The use of backup surveillance methods like scalp blood sampling and acoustic stimulation and amnioinfusion would have altered the outcome.

VI. Conclusion

An amniotic fluid index of ≤5 cm detected after

34weeks is associated with adverse pregnancy outcome, as well as indicator of poor perinatal outcome. The goal of antepartum fetal surveillance is to identify the fetus at risk, amniotic fluid volume has been proved an indirect measure of fetoplacental function. Hence the estimation of amniotic fluid index assists the obstetrician as a most convenient and reproducible method of evaluating amniotic fluid volume. In presence of oligohydramnios, Meconium stained liquor, development of fetal distress, the rate of LSCS, low Apgar score, low birth weight, perinatal morbidity and mortality are more. Early intervention in form of induction of labour, close intrapartum monitoring, artificial rupture of membranes inactive phase of labour and grading of liquor and early decision making regarding mode of delivery are the steps to be taken to bring better perinatal outcome

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