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Original Research Article

## Maternal and fetal outcome in oligohydramnios: study from a tertiary care hospital, Ahmedabad, India

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### ABSTRACT

**Background:** Most severe and frequent complication of pregnancy is Oligohydramnios and the incidence of this is observed to be about 1-5 % of total pregnancies. Objective of present study was to find the maternal and perinatal outcome, etiology associated with oligohydramnios at tertiary care hospital.

**Methods:** This prospective study was done among 55 patients with gestational age from 30-40wks with Oligohydramnios AFI<5cms with intact membranes were analysed for perinatal outcomes admitted at department of obstetrics and Gynecology in B.J. Medical college, Ahmedabad during November 2011 to January 2013.

**Results:** 65.5% participants were belonged to 20 to 25 age group and 35.5% participants were Primigravida. Mean age was 23.9±3.3 years and mean gestation age was 36.9 week. Almost 72.2% were in 34 to 37 weeks of gestational age. Study found FMC <10 in 56.4% of participants. Forty percent participants have AFI 4 and 27.3% have AFI 5. 47.3% delivery was done by vaginal route. 5.5% baby was still birth and prematurity were the most common cause of still birth. Around 71% babies were low birth weight and congenital anomalies were present in 7.3% babies. APGAR score measured <7 at 1 minute was in 65.4% and <7 at 5 minutes was in 43.6% babies.

**Conclusions:** Oligohydramnios in obstetrics is a frequent occurrence and it points towards intensive surveillance and proper ante-natal and post-natal care. Due to high perinatal morbidity and mortality, the incidence of LSCS increases. However, vaginal delivery has similar outcome, but strict vigilance in labor is mandatory.

**Keywords:** AFI, LSCS, Oligohydramnios, Maternal outcome, Perinatal outcome

### INTRODUCTION

During antenatal fetal surveillance, amniotic fluid assessment is a crucial barometer to know the fetal status.<sup>1</sup> Primal sonographic sign of an obstetrical issue is abnormal amniotic fluid volume.<sup>2</sup>

Normally during third trimester, around 3% to 8% of pregnant women are anguishing from low amniotic fluid at any point of pregnancy. It is normally anticipated as a sign of placental insufficiency.<sup>3</sup> Most severe and frequent

complication of pregnancy is Oligohydramnios and the incidence of this is observed to be about 1-5% of total pregnancies.<sup>4</sup> Associate congenital fetal abnormalities with oligohydramnios are uteroplacental insufficiency, premature rupture of membranes, growth retardation, postterm pregnancy, chronic abruption placentae.<sup>1</sup>

Compression of uterine wall and adherent fetal parts and prolonged external compression and abnormal fetal development due to prolonged Oligohydramnios boost the risk of pulmonary hypoplasia includes fetal skeletal

and facial deformities. Oligohydramnios also increase the caesarian section rate for fetal distress up to 41%.<sup>5</sup> It also escalate the maternal morbidity and mortality by maternal complications like inertia, increased operative interference due to malpresentation ultimately.<sup>1,5</sup>

So, this study was conducted with objectives to find the maternal and perinatal outcome, etiology associated with oligohydramnios at tertiary care hospital.

**METHODS**

This prospective study was done among 55 patients with gestational age from 30-40wks with Oligohydramnios AFI<5cms with intact membranes were analysed for perinatal outcomes admitted at department of obstetrics and Gynecology in B. J. Medical college, Ahmedabad during November 2011 to January 2013. Data collection was done after ethical permission from institutional ethical committee and informed consent of participants.

**Inclusion criteria**

Inclusion criteria for present study were women with singleton, non-anomalous fetus with intact membranes and gestational age 30-40 weeks.

**Exclusion criteria**

Exclusion criteria were women with premature rupture of membranes, known fetal and chromosomal anomaly, severe pre-eclampsia, postterm pregnancyetc.

Information regarding antenatal and postnatal history, clinical examination, laboratory investigations was noted on admission.

**Oligohydramnios**

When the maximum vertical pocket of liquor is less than 2 cm or when amniotic fluid index (AFI) is less than 5 cm. AFI 5-8 cm as borderline oligohydramnios and AFI 8-18 cm as normal amniotic fluid index.<sup>6</sup>

**Amniotic fluid index technique**

Patient placed in supine position and a linear, curvilinear or sector transducer used. Maternal abdomen is divided into quadrants taking the umbilicus, symphysis pubis and the fundus as the reference points. With ultrasound, the largest vertical pocket in each quadrant is measured. The sum of the four measurements (cm) is the AFI.<sup>7</sup>

**RESULTS**

Table 1 shows that 65.5% participants were belonged to 20 to 25 age group and 35.5% participants were Primigravida. Mean age was 23.9±3.3 years and mean gestation age was 36.9 week. Almost 72.2% were in 34 to 37 week of gestational age. study found FMC <10 in

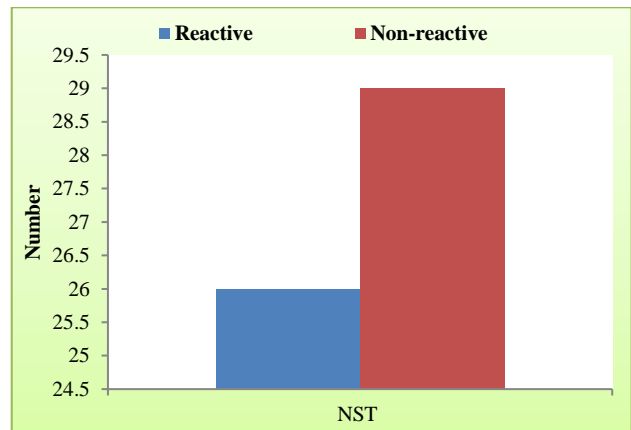
56.4% of participants. Forty percent participants have AFI 4 and 27.3% have AFI 5.

**Table 1: Clinico-social parameters of participants (N=55).**

Parameters	Number (%)
<b>Age group</b>	
20-25	36 (65.5)
26-30	13 (23.6)
>30	6 (10.9)
Mean age (Mean±SD)	23.9±3.3
<b>Parity</b>	
Primigravida	19 (35.5)
Multigravida	36 (65.5)
<b>Gestational age (in week)</b>	
30-34	7 (12.7)
34-37	40 (72.7)
37-40	8 (14.6)
Mean age (Mean±SD)	36.9±2.5
<b>FMC</b>	
<10	31 (56.4)
≥10	24 (43.6)
<b>AFI on admission</b>	
0	1 (1.8)
1	3 (5.5)
2	8 (14.5)
3	6 (10.9)
4	22 (40.0)
5	15 (27.3)

FMC-Fetal movement counting, SD-Standard deviation, AFI-Amniotic fluid index

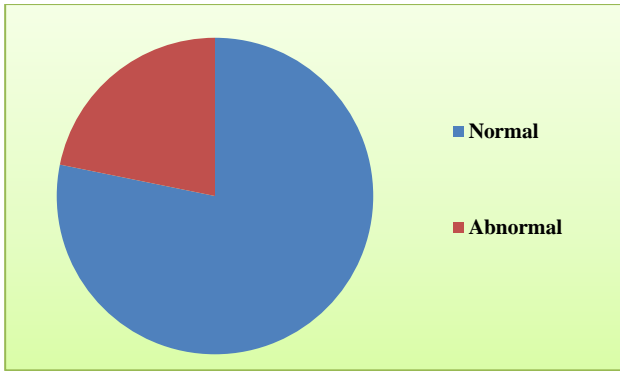
Figure 1 shows NST was non-reactive in 52.7% participants.



NST-Non-stress Test

**Figure 1: Distribution of NST pattern in patients with oligohydramnios (N=55).**

Figure 2 shows that abnormal Doppler ultrasound in the form of decreased diastolic flow I umbilical artery or increased diastolic flow in middle cerebral artery found in 21.8% participants.



**Figure 2: Findings of Doppler ultrasound (N=55).**

Table 2 shows that 47.3% delivery was done by vaginal route and small for gestational age (SGA) was found in 45.5% participants.

Almost 5.5% baby was Still birth and prematurity was the most common cause of still birth. Around 71% babies were low birth weight and congenital anomalies were present in 7.3% babies. APGAR score measured <7 at 1 minute was in 65.4% and <7 at 5 minutes was in 43.6% babies.

**Table 2: Maternal and perinatal outcome in patients with oligohydramnios (N=55).**

Outcome	Number (%)
<b>Mode of delivery</b>	
Vaginal	26 (47.3)
Instrumental	2 (3.6)
LSCS	27 (49.1)
<b>IUGR</b>	
AGA	30 (54.5)
SGA	25 (45.5)
<b>Birth outcome</b>	
Live Birth	52 (94.5)
Still Birth	3 (5.5)
<b>Cause of death (n=3)</b>	
Prematurity	3
HMD	1
Septicemia	2
MAS	1
<b>Birth weight (Kg)</b>	
<2.5	39 (70.9)
≥2.5	16 (29.1)
<b>Congenital anomalies</b>	
Present	4 (7.3)
Absent	51 (92.7)
<b>APGAR score</b>	
1 minute <7	36 (65.4)
5 minute <7	24 (43.6)

LSCS-Lower section cesarean section, IUGR-Intra-uterine growth retardation, AGA-Appropriate for gestational age, SGA-Small for gestational age, HMD-hyaline membrane disease, MAS-Muconium aspiration syndrome.

## DISCUSSION

Women who are at risk for potentially adverse perinatal outcome can be identified by the assessment of amniotic fluid volume in antenatal period.<sup>6</sup>

Mean age of participants was 23.9 years and mean gestational age was 36.9 years found in present study. Similar study done by Biradar KD et al, Vidyasagar V et al, Jagatia K et al and Bhat S et al were also found similar finding of mean age.<sup>7-10</sup> Almost 65.5% participants were belonged to 20 to 25 years age group in present study. These findings are comparable with the study done by Biradar KD et al, Patel PK et al but contrast result was found in study done by Vidyasagar et al (80.49%).<sup>7,8,11</sup> Almost 35.5% participants were Primigravida. In similar study done by Biradar et al, Vidyasagar et al and Patel RK et al, where Primigravida participants were 33.0%, 46.3% and 35.8% respectively.<sup>7,8,11</sup>

Incidence of Pelvic inflammatory disease (Pregnancy induced hypertension- PIH) in present study was 34.5% and this finding is not comparable with similar study done by Biradar et al (24.4%).<sup>7</sup> About 49.1% deliveries were done by LSCS. Similar study done by Biradar et al<sup>7</sup>, Patel PK et al, Bangal VB et al, Sowmya K et al, Bansal D et al, Casey B et al and Golan et al found LSCS incidence in 62.0%, 41.0%, 44.0%, 50.0%, 47.0%, 32.0% and 35.2% respectively.<sup>1,5,11-14</sup> Around 70.9% babies were found low birth weight in our study which is comparable with similar study done by Patel RK et al and contrast result was found in study done by Biradar et al (38.6%).<sup>7,11</sup> In present study, APGAR score <7 at 1 minute and <7 at 5 minute in 65.4% and 43.6% babies respectively. Similar study done by Biradar et al, Patel PK et al, Vidyasagar V et al, Casey B et al, Sriya V et al and Zhang J et al found APGAR score <7 at 1 minute in 26.0%, 34.6%, 35.0%, 6.0%, 38.8% and 13.3% respectively.<sup>5,7,8,11,15,16</sup>

To identify women who need increased antepartum surveillance for pregnancy complications, Antepartum measurement of AFI can very much helpful.<sup>17</sup> Borderline AFI group, the presence of abnormal Doppler velocimetry measurement with borderline AFI was concerned to adverse perinatal.<sup>18</sup> Present study observed AFI ≥4 in 67.3% and FMC <10 in 56.4% participants which is comparable with the findings of study done by Chaudhary KR et al.<sup>18</sup>

## CONCLUSION

Oligohydramnios in obstetrics is a frequent occurrence and it points towards intensive surveillance and proper ante-natal and post-natal care. Due to high perinatal morbidity and mortality, the incidence of LSCS increases. However, vaginal delivery has similar outcome, but strict vigilance in labor is mandatory. The presence of any other risk factor with oligohydramnios increases the chances of cesarean delivery.

Oligohydramnios is significantly associated with abnormal fetal growth and IUGR. So timely intervention by an obstetrician will be help in improving the perinatal outcome.

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