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Original Research Article

Perinatal outcome associated with oligohydramnios at term

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ABSTRACT

Background: Oligohydramnios is a severe and common complication of pregnancy and its incidence is reported to be around 1 to 5% of total pregnancies. The aim of this study was to perinatal outcome of oligohydramnios (AFI <5) at term.
Methods: A prospective study was conducted in which 200 patients at term with oligohydramnios AFI <5 cm with intact membranes were analyzed for perinatal outcome.
Results: There were increased chances of FHR decelerations, thick meconium, increased LSCS, low Apgar score at 5 minutes, birth weight <2.5 kg, admission to NICU in pregnancy with oligohydramnios.
Conclusions: An amniotic fluid index (AFI) of <5 cm detected after 37 completed weeks of gestation is an indicator of poor perinatal outcome. Determination of AFI can be used as an adjunct to other fetal surveillance methods that helps to identify those infants at risk of poor perinatal outcome.

Keywords: Amniotic fluid index <5 cm, Oligohydramnios, Perinatal outcome

INTRODUCTION

Amniotic fluid is a clear, slightly yellowish liquid that surrounds the fetus during pregnancy. It is contained in the amniotic sac. The fluid is faintly alkaline with low specific gravity of 1.010. Amniotic fluid volume is related to gestational age. It measures about 50 ml at 12 weeks, 400 ml at 20 weeks and reaches peak of 1 litre at 36-38 weeks. Thereafter the amount diminishes till at term it measures about 600-800 ml.[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%). Solid constituents are organic, inorganic and suspended particles.[2] It is a common obstetric complication, occurring in 0.5 to >5% pregnancies depending on the definition of oligohydramnios used and the population studied.[3] The incidence increases to approximately 11% in postdated pregnancies.[1]

Oligohydramnios is associated with a high rate of pregnancy complications and increased perinatal morbidity and mortality. During antenatal fetal surveillance, amniotic fluid assessment is a crucial barometer to know the fetal status.[4] Primal sonographic sign of an obstetrical issue is abnormal amniotic fluid volume.[5]

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 caesarean section rate for fetal distress up to 41%. It also escalates the maternal morbidity and mortality by maternal complications like inertia, increased operative interference due to malpresentation ultimately.[6]

Thus, amniotic fluid index (AFI) assessed antepartum or intrapartum would help to identify women who need

increased antepartum surveillance for pregnancy complications. Keeping in mind the above knowledge, the present study was carried out to find whether oligohydramnios can be used as a predictor of adverse perinatal outcome in non-complicated pregnancies at term.

Amount of liquor amnii in the present study was assessed by ultrasonography. Though there are various methods for sonographic assessment of amniotic fluid, AFI was taken as the criteria.

The present study has been done with an objective to determine the maternal and perinatal outcome of term pregnancy with oligohydramnios in authors tertiary care hospital.

METHODS

A prospective hospital-based study was carried out in the department of obstetrics and gynecology, SMGS hospital from June 2019 to January 2020. In this study, 200 patients with gestational age ≥37 weeks with oligohydramnios (AFI <5 cms) with intact membranes were analysed for perinatal outcome.

Inclusion criteria

Inclusion criteria of this study were women with singleton, non-anomalous fetus with intact membranes and gestational age 37-40 weeks.

Exclusion criteria

Women with premature rupture of membranes, known fetal and chromosomal anomaly, severe pre-eclampsia, pos-term pregnancy were excluded from the study.

On admission a detailed history was taken, clinical examination was performed and gestational age assessed. AFI was determined by the Phelans technique using transabdominal sonography. AFI was measured by dividing the uterus into four quadrants. When the maximum vertical pocket of liquor is less than 2 cm or when AFI is less than 5 cm. AFI 5-8 cm as borderline oligohydramnios and AFI 8-18 cm as normal amniotic fluid index.[1]

NST was performed for all patients. Parameters noted were MSAF, the mode of delivery, birth weight, Apgar score at 1 and 5 minutes. Results were analysed with special emphasis on perinatal outcome by using percentage and proportion.

RESULTS

It was observed that 128 (64%) women with oligohydramnios were in age group of 20-25 years (Table 1).

Table 1: Age and oligohydramnios.

Age group in years	Number	Percentage
20-25	128	64
26-30	44	22
>30	28	14
Total	200	100

A total 34% of the females with oligohydramnios were primigravida and 66% were multigravida in this study (Table 2).

Table 2: Parity and oligohydramnios.

Parity	Number	Percentage
Primigravida	68	34
Multigravida	132	66

A total 32% patients in this study had AFI of 4 on admission followed by 25% females with AFI of 5.2% females presented with absent liquor on admission (Table 3).

Table 3: AFI on admission.

AFI	Number	Percentage
0	4	2
1	16	8
2	36	18
3	30	15
4	64	32
5	50	25
Total	200	100

Table 4: CTG on admission.

	Number	Percentage
Normal	122	61
Abnormal	78	39

A total 61% patients had CTG reactive at the time of admission and 39% patients had abnormal CTG. The rate of abnormal CTG was statistically significant (Table 4).

Table 5: Color of liquor at rupture of membranes.

Colour	Number	Percentage
Normal	142	71
Meconium stained	58	29

A total 29% of patients with oligohydramnios had meconium stained liquor in this study (Table 5).

Caesarean for fetal distress was higher in women with oligohydramnios. Caesarean section was performed in 38% of patients in this study maximum for fetal distress (Table 6).

Table 6: Mode of delivery.

Mode of delivery	Number	Percentage
Vaginal	142	71
LSCS	58	29

Birth weight <2.5 kg was found in 66% patients and >2.5 kg in 34% of patients. 6% babies required NICU admission with birth weight <2.5 kg (Table 7).

Table 7: Perinatal outcome.

Outcome	Number	NICU admissions
Birth weight		
<2.5 kg	132 (66)	12 (6)
>2.5 kg	68 (34)	-
Apgar score		
<7 at 1 min	66 (33)	26 (13)
<7 at 5 min	8 (4)	6 (3)
MAS	24 (12)	4 (2)
Early neonatal death	4 (2)	-
Still birth	2 (1)	-

MAS: meconium aspiration syndrome.

Apgar score at 1 minute was <7 in 33% with 13% NICU admissions and Apgar <7 at 5 minutes was found in 4% with 3% NICU admissions. 12% babies had meconium aspiration syndrome (MAS) and 2% had NICU admission. Early neonatal death was observed in 2% patients and 1% still birth was also observed.

DISCUSSION

Women who are at risk for potentially adverse perinatal outcome can be identified by the assessment of amniotic fluid volume in antenatal period. Ultrasound examination during that period is a sensitive and reliable method of assessing the amniotic fluid and to detect oligohydramnios or polyhydramnios. In a pregnancy complicated by oligohydramnios and fetal growth restriction closed fetal surveillance is important because of associated morbidity and delivery is recommended for fetal or maternal indication.[7]

In this study maximum number (64%) of women were in age group of 20-25 years. These findings are comparable with the study done by Biradar et al, Chaudhari et al, but contrast result was found in study done by Vidyasagar et al (80.49%).[8-10] Almost 34% participants were primigravida in this study. Results were similar to the study done by Biradar et al, Chaudhari et al, Vidyasagar et al where primigravida participants were 33.0%, 35.8% and 46.3% respectively.[8-10] In the study done by Casey et al there were no significant relations of age and parity with oligohydramnios.[6]

In this study, 58 patients had meconium staining of amniotic fluid which was 29%. There was a significant relation between the meconium staining of amniotic fluid and oligohydramnios.

A total 62% patients in this study had vaginal delivery while 38% patients underwent caesarean section out of which 42.3% had caesarean section for fetal distress. Chauhan et al found that AFI <5 cm was associated with an increased incidence of caesarean section for fetal distress.[11]

A total 66% babies born had birth weight less than 2.5 kg out of which 10 had NICU admissions. 33% had Apgar score <7 at I minute, 12% had meconium aspiration syndrome. In study conducted by Chaudhari et al, 65.3% babies had weight <2.5 kg while it was 38.6% in the study conducted by Biradar et al.[8,9] In the study by Sowmya et al, low birth weight was seen in 48%, Apgar score <7 seen in 14% and 14% were admitted in NICU.[12]

Another study by Madhavi et al found the incidence of meconium stained liquor in 36%, 20% had Apgar score less than 7 at 5 minutes, incidence of NICU admission in 34%, incidence of meconium aspiration syndrome (MAS) in 6%.[13]

In the present study there were 2% early neonatal deaths and 1% stillbirth similar to the study conducted by Chuadhari et al (1.2%).[9]

To identify women who need increased antepartum surveillance for pregnancy complications, antepartum measurement of AFI can very much helpful.[11] Caesarean section is mostly required for the cases with an hydramnios and intrapartum fetal heart rate abnormalities. Babies are relatively more prone for certain complications like intrapartum fetal distress, MSAF and birth asphyxia.[14]

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. 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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