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Original Research Article

A retrograde study to evaluate the maternal and fetal outcome of severe oligohydramnios in singleton term (37-40 weeks) gestation

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ABSTRACT

Background: Oligohydromnios is a condition where there is very low or absent amniotic fluid and it demands intense antepartum, intrapartum care and fetal surveillance, as it is frequently associated with IUGR, fetal distress, PIH, PROM, fetal renal abnormalities as renal agenesis, bilateral cystic kidneys and obstructive uropathy.
Methods: Total 124 antenatal patients delivered at Department of Obstetrics and Gynecology at GMERS Medical College and General Hospital, Junagadh. During Period of September 2022 to February 2023 with gestational age between 37-40wks with AFI<1cms with intact membranes were studied and analyzed retrospectively for perinatal and maternal outcome.
Results: Out of 124 cases with oligohydramnios with AFI <1cm studied, about 115 cases underwent LSCS (92.7%). Most patients belong to age group of <25 about 85. Growth retardation seen in 38 (30.6 %), NICU admission seen in 35(28.2%) and new born with APGAR <7 @ 1 min seen in 30 cases (24.2%).
Conclusions: According to our study on severe oligohydramnios, the common mode of delivery was caesarean section and indications for CS were PIH, FGR and poor BISHOP score with severe oligohydramnios. Growth retardation seen in babies who were born from severe oligohydramnios mother.

Keywords: Feto-maternal outcome in oligoamnios, Oligo at term, Oligo maternal outcome, Severe oligohydramnios

INTRODUCTION

Oligohydramnios is defined as decreased amniotic fluid volume (AFV) for gestational age. The volume of amniotic fluid changes over gestation, increasing linearly until 34 to 36 weeks gestation, at which point the AFV levels off (approximately 400mL) and remains constant until term.[1] The AFV then begins to decrease steadily after 40 weeks gestation, leading to reduced volume in post-term gestations. This pattern allows for clinical assessment of AFV throughout pregnancy using fundal height measurements and ultrasound evaluation.[2]

Amniotic fluid disorders should be included in the differential diagnosis whenever there is a discrepancy between the fundal height measurement and gestational age. Discrepancies should prompt an amniotic fluid assessment by ultrasound.

The use of the maximum vertical pocket tends to overly diagnose cases of polyhydramnios, while the use of the AFI tends to underdiagnose cases of oligohydramnios. With this in mind, some institutions opt to use the MVP in gestations with low AFV and use the AFI in cases of high AFV. The MVP should serve to evaluate oligohydramnios

in multifetal pregnancies, as you will not be able to measure all four quadrants for each fetus.[2,3]

Transabdominal ultrasound evaluation of AFV includes the use of either the maximum vertical pocket (MVP) or the amniotic fluid index (AFI) depending on the institution. The sonographer systematically scans the abdomen and obtains an image that demonstrates the maximum vertical pocket - the deepest pocket of amniotic fluid that does not include fetal umbilical cord or body parts. The measurement should be made from the 12 o'clock position to the 6 o'clock position. The normal range for MVP is 2-8 cm: a pocket <2cm is considered oligohydramnios in both single and multifetal gestations.[3,4] An MVP >8 is considered polyhydramnios. The amniotic fluid index (AFI) is an alternative assessment of AFV. The AFI can be determined after 20 weeks of gestation by dividing the uterus into four quadrants through the umbilicus and determining the MVP in each quadrant. The sum of the four maximum vertical pockets is equal to the AFI. An AFI <5cm is consistent with oligohydramnios.[5]

Aim of this study was to evaluate the maternal and fetal outcomes of severe oligohydramnios in singleton term (37-40 weeks) gestation.

METHODS

The present study was retrospective observational study conducted in the Department of Obstetrics and Gynecology at GMERS Medical College and General Hospital, Junagadh during period of September 2022 to February 2023.

In this study, all pregnant women with term pregnancy admitted to labour room who fulfill the inclusion criteria and willing to participate will be selected for the study. Feto maternal outcome will be studied in different volumes of amniotic fluid.

Inclusion criteria

We included women with singleton pregnancy with non-anomalous fetus, intact membranes, AFI <1cm and gestational age lies between 37-40wks.

Exclusion criteria

Women with premature rupture of membranes, known fetal and chromosomal anomaly, severe pre-eclampsia, post-term pregnancy group women excluded from our study.

On admission a detailed history was taken, clinical examination was performed and gestational age assessed. AFI was determined by trans-abdominal sonography. AFI was measured by dividing the uterus into four quadrants. NST was performed for all patients. Parameters noted were MSAF, the mode of delivery, birth weight, Apgar score at 1 and 5minutes.

Statistical analyses

Results were analysed with special emphasis on maternal and perinatal outcome by using percentage calculator and SPSS software.

RESULTS

In our study, out of 124 patients, 110 patients belongs to AFI-0 class and 14 patients belongs to AFI-0-<1 class. In AFI-0 class, 1.81% vaginal delivery and 98.2 % caesarean section occurred. In AFI 0-<1 class, 50% vaginal delivery and 50% caesarean section occurred (Table 1).

Table 1: Correlation between AFI and pregnancy outcomes.

AFI (patient)	VD (%)	CS (%)
0 (110)	2 (1.81)	108 (98.2)
0-<1 (14)	7 (50)	7 (50)
Total (124)	9 (7.25)	115 (92.7)

Among the various causes for oligohydramnios, in our study, we found out several causes for it like idiopathic causes present in 56.45%, PIH present in 24.20%, anaemia present in 12.1% and severe FGR present in 7.25%. In idiopathic causes (n=70), 11.4% vaginal delivery and 88.57% caesarean section occurred. In PIH patient (n=30), all 100% caesarean section occurred. In anaemia patient (n=15), 6.67% vaginal delivery and 93.33% caesarean section occurred. In severe FGR patients (n=9), all 100% caesarean section occurred (Table 2).

Table 2: Correlation between causes of oligohydramnios and pregnancy outcomes.

Causes (n=124)	VD (%)	CS (%)
Idiopathic (70)	8 (11.4)	62 (88.57)
PIH (30)	0 (0)	30 (100)
Anaemia (15)	1 (6.67)	14 (93.33)
Severe FGR (9)	0 (0)	9 (100)

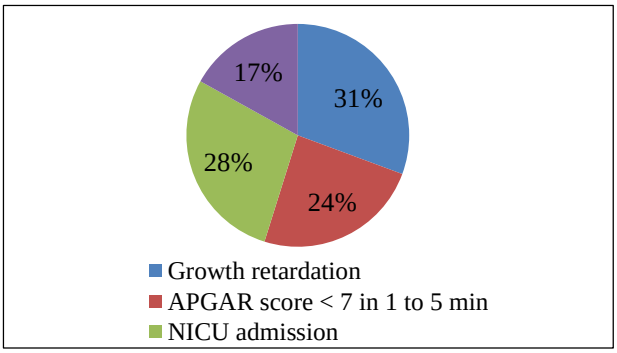

Figure 1: Various fetal outcomes in severe oligohydramnios babies.

In our study, 47 (37.90%) out of 124 patients belong to 21-25 years age group. In </= 20 years age group 30.64% patients, 26-30 years age group 24.19% patients and >/= 31 years age group 7.25% patients present (Table 3).

Table 3: Correlation between AFI and age group of patients.

	AFI	
Age (n)	0	0-<1
</=20 (38)	28	10
21-25 (47)	35	12
26-30 (30)	23	7
>/=31 (9)	4	5
Total	90	34

Table 4: Correlation between BISHOP score and pregnancy outcome.

BISHOP score	AFI	VD (%)	CS (%)	Total (n)
</= 6	0	0 (0)	101 (100)	101
Unfavourable	0-<1	3 (33.33)	6 (66.66)	9
>/=7	0	2 (22.22)	7 (77.78)	9
Favourable	0-<1	4 (80)	1 (20)	5

In our study, unfavourable BISHOP score present in 110 out of 124 patients and favourable BISHOP score present in 14 patients. In unfavourable BISHOP score class 6 vaginal delivery and 107 caesarean sections occurred. In favourable BISHOP score class 6 vaginal delivery and 8 caesarean sections occurred (Table 4).

In our study, fetal growth restriction present in 38 babies, low APGAR score in 30 babies, NICU admission required in 35 babies and 21 babies were normal with no complications (Figure 1).

DISCUSSION

Oligohydromnios is associated with increased risk of IUGR, pulmonary hypoplasia, meconium aspiration syndrome, fetal heart abnormalities and increase in C-section. IUGR is a significant in utero complication that can have profound effects on brain development including reduced myelination and deficit can continue into adulthood.

In our study, 47 (37.90%) out of 124 patients belong to 21-25 years age group. In </= 20 years age group 30.64 % patients, 26-30 years age group 24.19 % patients and >/= 31 years age group 7.25% patients present. Most of the patient belong to <30 years age group and it's correlates with the study of Casey et al.[6]

In our study, out of 124 patients, 110 patients belongs to AFI-0 class and 14 patients belongs to AFI-0-<1 class. In AFI-0 class, 1.81% vaginal delivery and 98.2% caesarean section occurred. In AFI 0-<1 class, 50% vaginal delivery and 50% caesarean section occurred which correlate with studies by Kumar et al.[7] It was stated that patients with AFI 0, 3.3% had vaginal delivery and the incidence of LSCS was 96.6%. Our study findings does not correlate with Weiss et al.[8]

In Radhamani et al, a total of 130 cases of isolated oligohydramnios were assessed. 55.4% had vaginal delivery and 34.8% had LSCS. 4.6% babies had APGAR of <7 at 5 minutes and 6.9% of babies required NICU admission.[9] In our study, out of 124 patients, 7.2 % vaginal delivery and 92.7% caesarean section occurred. 24.2% babies had APGAR of <7 at 5 minutes and 28.2% of babies required NICU admission.

In Chaudhari et al, APGAR score at 5 minutes <7 was found in 6 patients (3.8%).[10] In our study, APGAR score at 5 minutes <7 was found in 30 patients (24.2%).

In Golan et al, out of 145 cases of oligohydramnios, pregnancy complications included hypertension (22.1%) and IUGR occurred in 24.5% of cases. Cesarean section was performed in 35.2% of these pregnancies.[11] In our study, out of 124 cases of oligohydramnios, pregnancy complications included hypertension (24.2%) and IUGR occurred in 7.2% of cases. Cesarean section was performed in 92.7% of these pregnancies.

Retrospective design of the study which precluded an objective measurement of severity was the limitation of this study.

CONCLUSION

Oligohydromnios is a condition where there is very low or absent amniotic fluid and it demands intense antepartum, intrapartum care and fetal surveillance, as it is frequently associated with IUGR, fetal distress, PIH, PROM, fetal renal abnormalities as renal agenesis, bilateral cystic kidneys and obstructive uropathy. According to our study on severe oligohydramnios, the common mode of delivery was caesarean section and indications for CS were PIH, FGR and poor BISHOP score with severe oligohydramnios. Growth retardation seen in babies who were born from severe oligohydramnios mother.

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