A Statistical Analysis-AFI with Perinatal Outcome

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Abstract
Objectives: We aimed to evaluate the predictive value of amniotic fluid index (<5) for unfavorable perinatal outcome in phrases of caesarean section for fetal distress, low birth weight, meconium staining, Apgar scores, IUGR and NICU admissions.

Methods: This became an observational correlational scientific study of 120 antenatal patients referred to radiology department with clinical diagnosis of 3rd trimester severe oligohydramnios. The women’s history, scientific examination recorded and AFI measured and the perinatal final results observed up.

Results: The caesarean sections for fetal misery become sixty two. 62% (57 patients), low birth weight babies 25% (30 patients), meconium staining 10% (12 patients), IUGR in 47% (56 sufferers) and NICU admissions 40. 8% (49 sufferers).

Conclusions: There changed into extended occurrence of unfavourable effects in severe oligohydramnios. There changed into higher incidence of IUGR, low delivery weight, cesarean segment for fetal distress and NICU admissions.

Keywords: Severe oligohydramnios, caesarean section, Apgar scores, Birth weight, preterm, NICU.

Introduction
Modern obstetrics is concerned with the health of both the mother and the unborn child. Recognition of a fetus at threat for demise or harm in utero, quantifying the hazard, balancing the fetal danger in opposition to the hazard of neonatal headaches from immaturity and determining the most appropriate time and mode of intervention are the cornerstones of modern perinatal medicine(1). Amniotic fluid affords a defensive milieu for the growing fetus, cushioning it towards mechanical and organic injury(2,3). Quantification of amniotic fluid and the fetal biophysical profile is an crucial aspect in the ultrasound assessment of fetus in the third trimester(4). An correct and reproducible technique of determining abnormality in amniotic fluid volume (AFV) is sonographic evaluation of amniotic fluid index (AFI). Ultrasound being a non invasive test is right for utility on a massive scale and may be used regularly for repeat AFV determination in case of suspected abnormalities(3). In the existing look at, amniotic fluid quantification was performed by means of the four quadrant method as described through phalen et al(5) to determine AFI.
Materials and Methods
The present observe turned into a observational correlational study accomplished at RMMCH, Chidambaram. The examine individuals covered one hundred twenty booked antenatal patients from the period October 2015 to October 2017. The inclusion and exclusion criteria as follows:

**Inclusion criteria**
1. All pregnant women no matter gravida beyond 24 weeks of gestation with severe oligohydramnios (AFI <5cm).
2. Singleton pregnancy with intact membranes.

**Exclusion Criteria**
1. Pregnancies complicated by fetal anomalies, both chromosomal or structural.
2. Multiple pregnancy.
3. Patients in labour or with rupture of membranes.
4. Patients with hypertension, diabetes, Rh incompatibility, and so forth.

**Method**
Antental patients satisfying the standards and consenting to the system had been decided to take up for the study after getting a proper consent. The routine antenatal tests done and any fetus with congenital anomalies were excluded from the observe. The amniotic fluid index is calculated by the use of the 4 quadrant AFI approach. Severe Oligohydramnios was defined as AFI <5cm and all patients observed up till deliver with fetal kick count, BPP and handled with L-Arginine, and oral rehydration. Base line investigations like haemoglobin percentage, urine examination, blood typing, NST and BPP have been completed. Then patients had been followed up to assess the mode of delivery, indication of LSCS, APGAR scorings, meconium staining, preterm, IUGR, birth weight and NICU admissions.

**Results**

**Table 1: Mode of delivery**

| Mode of Delivery | No. of Patients | %  |
|------------------|-----------------|----|
| NVD              | 27              | 22.6|
| LSCS             | 91              | 75.8|
| VA               | 1               | 0.8 |
| VBAC             | 1               | 0.8 |
| Total            | 120             | 100 |

Table 1 suggests the mode of delivery inside the study institution. 22.6% of the study population had normal vaginal delivery. 75.8% underwent LSCS. One patient had a vacuum assisted delivery and one patient had vaginal delivery after LSCS (VBAC).

**Table 2: Indications for LSCS.**

| Ind | LSCS | No. of Patients (n = 91) | %  |
|-----|------|--------------------------|----|
| FD  | 57   | 62.6                     |
| PREV LSCS | 17 | 18.7                     |
| BREECH | 11 | 12.1                     |
| CPD | 3    | 3.3                      |
| NPL | 1    | 1.1                      |
| ABRUPTIO | 1 | 1.1                      |
| Anhydromnious | 1 | 1.1                      |
| TOTAL | 91 | 100                      |

Out of a hundred and twenty patients, 91 patients underwent LSCS. Table 10 indicates the indications for LSCS. Of the ninety one patients, 57 patients (62.6%) had fetal distress, 17 patients (18.7%) had previous LSCS, 11 patients (12.1%) had breech presentation, three sufferers (3.3%) had CPD and 1 patient (1.1%) had non progression of labour, abruption, anhydromnios each.

**Apgar Results**
Forty patients (33%) had 1 min APGAR rating ≤7. Eighty patients (67%) had normal 1 min APGAR rating. 117 patients had normal 5 min apgar rating.

**Table 3: Nature of amniotic fluid at delivery**

| Liquor | No. of Patients | %  |
|--------|-----------------|----|
| No     | 1               | 0.8 |
| CL     | 107             | 89.2|
| MS     | 12              | 10. |
| Total  | 120             | 100 |

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Incidence of meconium stained liquor in 10% even as 89.2% had clear liquor at the time of delivery. One patient had no liquor at the time of delivery.

Birth weight in our look at:
The mean birth weight is 2.52 kg. Low delivery weight as described through fetal weight <10th percentile for gestational age was seen in 25 %. Birth weight >10th percentile for gestational age was seen in 75 % of patients.

Table 4: Incidence of IUGR, NICU admission, Postnatal death.

|             | No. of Patients | %    |
|-------------|-----------------|------|
| IUGR        | 56              | 46.7 |
| NICU        | 49              | 40.8 |
| PN Death    | 4               | 3.3  |

Table five - shows an occurrence of 46.7 % of IUGR among the examine population. 40.8% of the babies have been admitted to the NICU for observation, breathing distress, preterm care and meconium aspiration. 4 sufferers had postnatal death.

Discussion
In the prevailing study, meconium-stained liquor was present 10%, even as Yousseff et al(6) diagnosed it in forty percentage of women. This shows that there is a correlation in incidence of meconium staining and poor placental reserve in study performed.

The caesarean section for fetal distress (62.6%) turned into additionally higher in patients with oligohydramnios. A study done by Baron et al(7) showed that meconium stained amniotic fluid happened notably less frequently in the oligohydramnios group compared the normal AFI index population. A study done by Voxman et al(8) concluded that there was no difference among the study population with regard to meconium stained liquor. Chauhan et al(9) concluded that AFI 5cm is associated with elevated risk of cesarean section for fetal distress and decreased apgar rating at 5 mins.

Sarno et al(10) stated a substantially higher occurrence of fetal distress and low apgar rating in ladies with AFI<5cm. This is pronounced to be due to head and cord compression. Golan et al(11) suggested a low apgar score at 5 minutes in 4.6% babies, in contrast to 2.5% in our observe.

The occurrence of NICU admissions changed into found to be 18.5% with the aid of Garmel et al(13) study whereas in our observe had 40. 8% (49 sufferers).

Severe Oligohydramnios has been recognised as a clinical hallmark of adverse perinatal outcome. We concluded postnatal deaths in 3.3% (4 infants), while Casey et al(12) mentioned 6.4% perinatal deaths. Rutherford et al(16) found an inverse relationship between amniotic fluid index and cesarean segment for fetal distress.

Locatelli et al(14) mentioned that during uncomplicated term pregnancies with oligohydramnios, the presence of an AFI <five independently increased the risk for fetal growth restriction. Morris et al(15) observed that 60% of babies had been diagnosed as LBW within the group with AFI<5, indicating that oligohydramnios had an association with fetal growth restriction. Rutherford et al(16) confirmed that once the AFI become <5 36%, pregnancies led to babies with intrauterine growth restriction (IUGR).In our examine, IUGR was found in 46.7% (56 babies).

Conclusions
To conclude, oligohydramnios is associated with a high fee of pregnancy headaches and multiplied perinatal morbidity and mortality. We trust the AFI assessed antepartum or intrapartum might help to perceive ladies who need multidisciplinary antepartum surveillance for pregnancy complications and as such women must be intervened at a prompt time to prevent adverse perinatal outcomes.
References
1. Manning FA. Antepartum fetal testing: a critical appraisal. Curr Opin Obstet Gynecol.2009; 21(4): 348-52.
2. Chanberlain PF, Manning FA, Morrison I, et al. The relationship of marginal and decreased amniotic fluid volumes to perinatal outcome. Am J Obstet Gynecol.1984;150(9):245-9.
3. Nageotte MP, towers CV, Asrat T, et al. Perinatal outcome with the modified biophysical profile. Am J Obstet Gynecol.1994;170(6):1672-6.
4. Kofinasa, Kofinas G. Differences in amniotic fluid patterns and fetal biometric parameters in third trimester pregnancies with and without diabetes. J Matern Fetal Neonatal Med.2006;19(10);633-638.
5. Phelan JP, Ahn MO, smith CV, et al. Amniotic fluid index measurements during pregnancy. J Reprod Med.1987;32;601-4.
6. Youssef AA, Abdulla SD, Sayed EH et al. Superiority of amniotic fluid index over amniotic fluid pocket measurement for predicting bad fetal outcome. Southern Medical Journal 1993; 86426-29.
7. Baron C, Morgan MA, Garite TJ. The impact of amniotic fluid volume assessed intrapartum on perinatal outcome. Am J Obstet Gynecol. 1995;173(1)167-74.
8. Voxman EG, Tran S, Wing DA, Low amniotic fluid index as a predictor of adverse perinatal outcome. J Perinatal.2002;22(4)282-5.
9. Chauhan SP, Sandersonn, Henddrix NW, et al. Perinatal outcome and amniotic fluid index in the anteartoart and intrapartumperiods; a meta-analysis. Am J Obstet Gynecol.1999; 18(6);1473-8.
10. Sarno AP Jr, Ahn MO, Brar HS et al. Intrapartum Doppler velocimetry, amniotic fluid volume and fetal heart rate as prediction of subsequent fetal distress. Am J Obstet Gynecol 1989;161;1508-14.
11. Golan A, Lin G, Evron S et al. Oligohydramnios: maternal complications and fetal outcome in 145 cases. Gynecol Obstet Invest 1994;37:91-95.
12. Casey BM, McIntire JD, Blioom SI et al. Pregnancy outcomes after antepartum diagnosis of oligohydramnios at or beyond 34 wksgestation. Am J Obstet Gynecol 200;182:909-12.
13. Garmel SH, Chelmow D, Sha SJ et al. Oligohydramnios and appropriately grown fetus. Am J perinatol 1997;14:359-63.
14. Locatelli A, Vergani O, Toso L, et al. Perinatal outcome associated with oligohydramnios in uncomplicated term pregnancies, Arch Gynecol Obstet.2004;269(2)130-3.
15. Morris JM, Thompson K, Smitykey J, et al. The usefulness of ultrasound assessment of amniotic fluid in predicting jadverse outcome in prolonged pregnancy; a prospective blinded observational study. Br J Obstet Gynecol.2003;110(11)989-94.
16. Rutherford SE, Phelan JP, smith CV, et al. the four quadrant assessment of amniotic fluid volume; an adjunct to antepartum fetal heart rate testing. Obstet Gynecol 1987;7-(3);353-6.