A Clinical Study of Perinatal Outcome and its Relation to Oligohydramnios in Pregnant Women at Term

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Abstract

Background: Oligohydramnios is one of the major causes of antenatal and perinatal morbidity and mortality.

Objective: Aim of the study is to find out the perinatal outcome in terms of LSCS, meconium staining, Apgar scores, fetal distress, birth weight, NICU admission in gravid women with oligohydramnios.

Method: The present study was done prospectively carried out on 110 pregnant women with AFI <5 cm with intact membranes were analysed for perinatal outcome atour hospital, during period of July2019 to June 2020.Olighydramnios was confirmed by measuring AFI on USG.

Results: In this study, oligohydramnios was mainly seen in primigravida (60%). There were 80% of females in between 20-30 years. 66.7% underwent for caesarean section, because of fetal distress. 11.8% neonate had low APGAR score in 1 minute were 11.8% and 8.2% were APGAR score in 5 minute. In this study 22.7% of babies were admitted to NICU.2(1.81%) babies expired due to septicaemia and meconium aspiration syndrome in 2.72%.

Conclusion: AFI is important screening test for fetal surveillance method. Oligohydranmios is associated with more LSCS rate due to fetal distress, low birth weight babies, NICU admission, so that timely detection of this condition required proper antenatal care to reduced perinatal morbidity and mortality.

Keywords: *Amniotic fluid volume (AFV), Amniotic fluid index AFI, Intrauterine death (IUD), Fetal distress, Oligohydramnios, Perinatal outcome, APGAR.*

Introduction

Amniotic fluid is the yellowish, clear protective liquid contained in the amniotic sac of gravid uterus. This fluid serves important role as a cushioning the growing fetus, maintaining temperature within the uterus, prevention of cord compression, allowing fetal movements and also aids the digestive and respiratory systems of the fetus, but also facilitate the exchange of nutrients, water, biochemical product between mother and fetus [1]. Amniotic fluid volume (AFV) progressively increases from 30 ml at 10 weeks to 200ml by 16 weeks and reaches 800 ml by mid third trimester. As the pregnancy continues post term, further fluid reduction to about 200ml at 43 weeks[2].

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Oligohydramnios is defined as decreased amount of amniotic fluid volume related to gestational age, incidence approximately 1 to 2 percent of pregnancy. The oligohydramnios measures by ultrasonographic diagnosis is usually based on an amniotic fluid index (AFI) ≤5 cm or a single deepest pocket of amniotic fluid ≤2 cm^3 oligohydramnios is associated with preterm premature rupture of membrane, post-term, utero-placental insufficiency or intrauterine growth restriction, genitourinary tract abnormality and chromosomal abnormality in fetus[4,5,6]. Oligohydramnios has been correlated with increased maternal morbidity by increasing the rate of caesarean section, blood loss and perinatal morbidity by causing risk intrauterine growth retardation, meconium aspiration syndrome, severe birth asphyxia, low APGAR scores and congenital abnormalities[6-8].

Oligohydramnios depends upon the stage of pregnancy at which it accurs, in 1st trimester serious sequel like birth defects, in 2nd trimester there can be miscarriage, Potter's syndrome, club foot, premature birth, intrauterine death (IUD) and in last trimester there can be sequel like pulmonary hypoplasia, Compression of the umbilical cord between the fetus and the uterine wall may occur during contractions causes Fetal Heart Rate (FHR) decelerations which are associated with low APGAR score and acidosis at birth, meconium staining, still birth, IUD[9-11].

Material and Method

Present study was done prospectively in department of obstetrics and gynaecology, from July2019 to June 2020. 110 patients inthird trimester of pregnancy with Oligohydramnios selected randomly after satisfying inclusion and exclusion criteria.

Inclusion Criteria: All singleton pregnant women who completed 34 weeks with intact membranes, postdate pregnancy, IUGR, AFI ≤5cm,

Exclusion Criteria: Antenatal patients with gestational age between <34 to > 42 weeks having heart diseases, Polyhydramnios, premature rupture of membranes, twins and multiple pregnancies, AFI ≥6 cm, fetal congenital anamaly, PIH.

On admission, after taking an informed written consent, a detailed history was taken including personal, menstrual, obstretrics history and thorough general physical, systemic examination, clinical examination was performed. Ultrasound was done by ultrasonologist with Logiq P3 USG machine and Amniotic fluid index was determined by using Phelan's technique[4]. The uterus was divided in to four quandrants, ultrasound transducer kept perpendicular to abdomen with no pressure, no limbs, no cord, were observes in measured pocket. The AFI (Amniotic Fluid Index) which is the sum of four quadrants, was calculated as per Phelan as very low/low/ normal/poly which coincides with <5/5-8/>8/18 cm.

All oligohyadramnios women were subjected to Doppler for determination of fetal wellbeing. Cardio-tocography (CTG)was done in these cases routinly. Abnormal CTG and abnormal Doppler studies at the time of diagnosis or any time during fetal surveillance were considered for termination of pregnancy Management was decided after doing P/V examination (LSCS/ Vaginal). After birth, APGAR was noted 1 and 5 min and babies getting admitted in NICU were recorded.

Result and Observations

In this study 110 patients were recruit in our study, out of 110 around 80% were in 20-30 years age group. Out of 80 % women 49.4% delivered vaginally and 14.6% delivered by forceps. 36% were delivered by caesarean section. 7.2% patients were less than 20 years of age. Out of these patients 62.5% patients were delivered by caesarean section. 11.8% patients were more than 30 years of age, 61.5% patients delivered by caesarean section. Rate of caesarean was highest in patients of age group 20-30 years.**(Table No. 1).**

In this study 60% women were primigravida, out of which 45% were delivered by caesarean section and 34.8% were delivered by vaginally. Out of 40% multigravida patients were 52.27% delivered vaginally, 34.09% were delivered by caesarean section. **(Table No. 2**) In this study, operative morbidity was significantly higher in NST non-reactive (85.3%) group than NST reactive (14.5%) group. 63.7% women with reactive NST delivered vaginally, 21.7% were delivered by instrumental. **(Table No. 3)** In our study, most common reason to perform LSCS was (66.7%) fetal distress which was due to cord compression or IUGR. In our study, most common reason to perform LSCS was (66.7%) fetal distress which was due to cord compression or IUGR and 8.9% women were in meconium stain liquor. **(Table No. 4**).

As shown in table no. 5, there was poor fetal outcome with oligohydramnios. Out of 110 babies, 32 (29.1%)

baby were in less than 2.5 kg weight and 25(22.7%) baby were admitted to NICU similar finding was observed by shadabkhalid et.al. 6. In this study, babies had APGAR score <7 in 1 minute were13 (11.8%), 9 (8.2%) had APGAR score <7 in 5 minutes. In NICU admission 3(2.72%) were expired due to Meconium aspiration syndrome, In NST Reactive group 2(1.81%) babies expired due to septicaemia. **(Table No. 5).**

Table No. 1 Age and perinatal outcome of labour

Age	Vaginal Delivery	Instrumental Vaginal Delivery	LSCS	Totle
< 20 Years	1 (12.5%)	2 (25%)	5 (62.5%)	8 (7.2%)
20-30 Years	44 (49.4%)	13 (14.6%)	32 (36%)	89 (80%)
>30 Years	1 (7.6%)	4 (30.7%)	8 (61.5%)	13 (11.8%)
	46 (46.8%)	19 (17.2%)	45 (40.9%)	110 (100%)

Table No. 2 Parity and Maternal Outcome of Labour

	Vaginal Delivery	Instrumental Vaginal Delivery	LSCS	Totle
Primigravida	23 (34.8%)	13 (19.7%)	30 (45%)	66 (60%)
Multigravida	23 (52.27%)	6 (13.63%)	15 (34.09%)	44 (40%)
	46	19	45	110 (100%)

Table No. 3 Non-Stress Test (NST)

NST	Vaginal Delivery	Instrumental Vaginal Delivery	LSCS	Totle
R	44 (63.76%)	15 (21.7%)	10 (14.5%)	69 (65.5%)
NR	2 (5%)	4 (9.75%)	35 (85.3%)	41 (34.5%)
	46	19	45	110 (100%)

Table No. 4 Indication of Caesarean Section

Indication	Totle
Fetal distress	30 (66.7%)
Meconium stain liquor	5 (8.9%)
IUGR	3 (6.67%)
Breech	2 (4.5%)
Others	5 (8.9%)

Table No. 5 Neonatal outcome

Neonatal outcome		Totle
Baby Weight	Aga (>2.5 kg) SGA (<2.5 kg)	78 (70.9%) 32 (29.1%)
NICU admission	Present Absent	25 (22.7%) 85 (77.3%)
APGAR SCORE <7	1 min 5 min	13 (11.8%) 9 (8.2%)
Neonatal death	Septicaemia	2 (1.81%)
	Meconium aspiration syndrome (MAS)	3 (2.72%)

Discussion

In our study, 80% women were in 20-30 years age group. In Vidyasagar V et al.80.49% women were in age group of 20 to 30 years [12]. In Casey et al, the mean maternal age was 23.9 years which is comparable to our study[13]. In this study 60% women were primigravida. In Donald D et al.[14] the incidence of oligohydramnios was 60% in primigravida, Reddy P et al.[7] reported 60% in primigravida and 40% in multigravida which comparable to our study. Charu J et al. 60% in primigravida, Kolsoum R et al. 49% in primigravida, Patel P et al. reported 58.75% in primigravida, Enas M et al. reported 58.2% in primigravida. 15-18. Incidence of oligohydramnios was maximum in primigravida

In present study 60.1% vaginal delivery and 40.9% were LSCS. Indication for LSCS was mostly fetal distress followed by meconium stain liquor. Regarding other study which was comparable to our study were Reddy P et al. 38.67% delivered vaginally, 61.33% delivered by caesarean section and fetal distress was the major indication for LSCS (42.39%)[6], Vidyasagar V et al[12] reported 62.6% delivered vaginally and LSCS in 35.3% in women with AFI <5, Enas M et al.[16] reported that 63.69% performed LSCS in study group than 28.8% in control group, Dwivedi R et al.[19] 40% patients were performed caesarean.

In our study, found that non-reactive NST was present in 34.5% and caesarean section was done in 85.3% patients were non- reactive NST as seen inCharu J et al. study[15] and in Dwivedi R et al.[19], 32% were non-reactive NST which was comparable to this study. In present study 29.1% babies had weight<2.5 kg as seen in Kolsoum R et al. 29%[16]. The incidence of low birth weight babies is higher in women had AFI <5 suggesting correlation of IUGR with oligohradramnios. In our study 70.9% AGA and 29.1% SGA, as seen in Casey et al.[13] 75.5% AGA and 24% SGA,in Raj Sariya et al[20] 83.4% AGA and 16.6% SGA. In our study 22.7% babies were admitted in NICU and 1.81% babies died due to septicaemia. Krishna J et al reported 22 % NICU admissions and 1 % neonatal death due to septicaemia[21]. According to Patel P et al NICU admissions was 20% in women had less AFI[17], 16% inCharu J et al [15]. In this study APGAR score <7 in 11.8% at 1 minute and 8.2% in 5 minute. In other study Enas M et al.[18] reported 5.59% at 1 minute and 2.05% at 5 minutes in Kolsoum R et al.[16] reported 4.7% in both groups at 5 minutes in oligohydramnios group. There was 2.72% babies had meconium aspiration syndrome.

Conclusion

According to our study,Amniotic fluid is an important predictor of fetal tolerance in labour, increased risk of fetal distress when liquor volume decrease. Pregnancy associated with oligohydramnios was adverse antenatal outcome as well as perinatal outcome, because of intrapartum complication and high perinatal morbidity. Oligohdramnios in pregnancy is frequently associated with meconium stained liquor, development of fetal distress, the rate of LSCS, low Apgar score, low birth weight, NICU admission therefore maternal morbidity can be prevented by proper prenatal care, careful antenatal evaluation and fetal monitoring, timed pregnancy termination. AFI detection is a valuable screening test for predicting perinatal outcome.

Ethical Clearance: Taken from institutional ethics committee.

Source of Funding: Self.

Conflict of Interest: Nil.

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