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Original Research Article

Fetomaternal outcome in pregnancy with oligohydroamnios

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ABSTRACT

Background: Oligohydramnios is one of the major causes of perinatal morbidity and mortality. The sonographic diagnosis of oligohydramnios is usually based on an AFI≤5 cm or on a single deepest pocket of amniotic fluid≤2 cm. Our study was aimed to study the perinatal outcome in oligohydramnios. Aim and objective were to study obstetric risk factors associated with oligohydramnios and maternal outcome in the form of mode of delivery, and to assess neonatal complications in terms of APGAR score at birth, NICU admission rates, meconium stained liquor and still birth rates.
Methods: Present study is a prospective study on outcome of pregnancy in oligohydroamnios. Study was conducted at department of obstetrics and gynaecology at SMT SCL general hospital, Ahmedabad from January 2024 to July 2024. A total of 60 women singleton pregnancy with oligohydroamnios (AFI <5) in third trimester admitted as either booked or referral cases, were included in the study.
Results: The present study is of 60 cases of oligohydramnios in this study caesarean section rate was higher in 20-25 years age group and operative morbidity is more common in primipara group. Most common cause of oligohydramnios is idiopathic followed by post-date. LSCS rate is significantly higher in non-reactive NST group. Most common indication to perform caesarean section was fetal distress.
Conclusions: AFI is an important and convenient screening test for prediction of perinatal outcome. In presence of oligohydramnios, the risk of fetal distress, operative delivery, low Apgar score, low birth weight, perinatal morbidity and mortality are more. Hence early detection of oligohydramnios, associated antenatal risk factors and timely management can improve the maternal and fetal outcome.

Keywords: Amniotic fluid index, Intra uterine growth restriction, Oligohydroamnios

INTRODUCTION

The fluid that collects within amniotic cavity surrounding the embryo is called Amniotic Fluid.[1] Nature has made floating bed in the form of Amniotic fluid which provides a protected milieu for the growing fetus, cushioning the fetus against mechanical and biological injury, supplying nutrients and facilitating growth and movement. The quantity of amniotic fluid increases from 25 ml at 10 weeks to about 400ml at 20 weeks. The fluid is faintly alkaline with low specific gravity of 1.010. An osmolarity of 250 mOsm/1 is suggestive of fetal maturity. The composition of the amniotic fluid up to this period is identical to that of fetal plasma as there is free diffusion of the fluid to and from the fetus. The fetal skin then begins to keratinize, the process being completed by 25 weeks. Thereafter, the two major source of amniotic fluid are fetal urine and lung secretions.[2] In early pregnancy, it is colourless at near term it becomes pale straw colour due to presence of exfoliated lanugo and epidermal cells from the fetal skin. Removal of fluid depends largely on fetal swallowing and intra membranous transport via the skin, placenta and cord surfaces. The volume increases to about 800-1000ml at 28 weeks plateaus at term and declines to about 400ml at 42 weeks.[3] Both an abnormal increase and decrease in the amniotic fluid volume have been associated with increased maternal morbidity and perinatal morbidity and mortality. When a single pocket in ultrasound 2 cm in

both vertical and horizontal plane or AFI<5is defined as oligohydramnios.[4,5]

The reported incidence of oligohydramnios varies between 0.5% - 5% The prevalence depends largely upon the definition and criteria used for oligohydramnios and the population studied.[6] The common etiological factors associated with oligohydramnios are ruptured membrane,congenital abnormalities and placental insufficiency.[7] It is thought to be associated with increased maternal and fetal morbidities. Increased perinatal morbidity and mortality could be due to umbilical cord compression, potential utero-placental insufficiency and the increased incidence of meconium-stained amniotic fluid and oligohydramnios.[7] Incidence of caesarean section increased due to antepartum, intrapartum fetal distress and prolonged labour Increased rates of low APGAR score and meconium aspiration syndrome in fetus affects perinatal morbidity and mortality.[8]

Aim of study was to observe outcome of labor in the form of perinatal morbidity and mortality and maternal outcome in the form of induction of labor and operative deliveries. To study effects of oligohydramnios on fetal outcome in the form of Growth restriction, Fetal distress, NICU admission and early neonatal morbidity and mortality. To study incidence of congenital malformation. To study effects of oligohydramnios on mode of delivery.

METHODS

This was a prospective study on outcome of pregnancy in oligohydroamnios. Prospective Study was conducted at department of obstetrics and gynaecology at SMT SCL general hospital, Ahmedabad from January 2024 to July 2024. A total of 58 women singleton pregnancy with oligohydroamnios (AFI<5) in third trimester admitted as either booked or referral cases, were included in the study. Various individual patient parameters such as parity, gestational age, mode of delivery and complications were tabulated.

Inclusion criteria

Antenal patients in their third trimester with singlecton pregnancy with AFI<5 cm.

Exclusion criteria

Antenatal case having heart disease, anemia, premature rupture of membrane.

Statistical analysis

Statistical Analysis was performed using Microsoft Excel.

RESULTS

The present study is of 60 cases of oligohydramnios and its outcome during pregnancy from the month of January 2024 to July 2024. In present study, 34 (56.66%) patients were in 20-25 years age group. 11 (8.33%) patients were in 26-30 years age group. Cesarean section rate was higher in 20-25 years age group (41.16%) followed by 26-30 years (27.27%). In present study, incidence of oligohydramnios 37 (61.66%) and operative morbidity 15 (40.54%) is more common in primipara group. In present study, most common cause of oligohydramnios is idiopathic (48.33%) followed by postdate (23.33%).

NST was done in all patient on admission, out of which 35% were found non-reactive and non-reactive NST was extended for 40 min. In present study, LSCS rate is significantly higher in non-reactive NST group (42.85%) than NST reactive group (35.89%). 24 (61.53%) patients were delivered by normal vaginal delivery and 01(2.56%) by instrumental delivery in reactive NST group as compared to 11 (52.38%) patients Were delivered by normal vaginal route in NST non-reactive group. In non-reactive group 09 patients taken for caesarean section out which 04 patients had meconium-stained liquor intra operatively.

In present study, out of 60 patients 38.33% patients had caesarean section, among them 11 (47.83%) patients had caesarean section for fetal distress. Most common indication to perform caesarean section was fetal distress. In present study, out of 60 patients 23 patients (38.33%) had caesarean section. So, oligohydramnios is associated with higher caesarean rate.

Amnioacids and hydration therapy

In present study, 5 Patients were antenatally admitted and given oral and intravenous fluids and amnioacid in 3rd trimester. Out of which 2 patients had sonographically detected increase of amniotic fluid index>5 cm and 3 patients had no improvement in AFI. Out of them, 3 patients were delivered vaginally and 2 patients had undergone LSCS.

Amnioinfusion

Amnioinfusion was not done in any patient in this study.Amnioinfusion significantly prolonged gestation and reduced neonatal mortality. In Present study, out of 08 (13.33%) babies admitted in NICU, there were 01 (1.66%) neonatal death. In present study, congenital anomaly was detected in 04 (6.66%) babIES (PUJ obstruction, U/L multicystic dysplastic kidney).

In present study out of 60 babies, 07 (11.66%) babies were preterm and among them 02 babies were delivered vaginally and 04 were delivered by caesarean section. 53 (88.33%) babies were full-term and among them 38 babies were delivered by normal vaginal delivery, 02 babies were delivered by operative vaginal delivery and 14 were delivered by caesarean section. 2 babies were expired , both babies was preterm.

Table 1: Maternal age and its relations to outcome of labour.

Age (In years)	Normal delivery, No. (%)	Instrumental delivery No. (%)	Caesarean section No. (%)	Total No. (%)
<=20	6 (17.14)	-	4 (40.0)	10 (16.67)
21-25	19 (55.68)	01 (2.94)	14 (41.16)	34 (56.66)
26-30	7 (63.63)	01 (9.09)	3 (27.27)	11 (18.33)
>30	3 (60.0)	-	2 (40.0)	5 (8.34)
	35 (58.33)	02 (3.33)	23 (38.33)	60

Table 2: Gravidity and its relation to outcome of labour.

Gravidity	Normal delivery No. (%)	Instrumental delivery No. (%)	Caesarean section No. (%)	Total No. (%)
Primi	20 (54.04)	02 (5.4)	15 (40.54)	37 (61.66)
Multi	15 (65.21)	-	8 (34.78)	23 (38.33)
	35 (58.33)	02 (3.33)	23 (38.33)	60

Table 3: Etiology and its relations to maternal outcome of labour.

Etiology	Normal delivery No.(%)	Instrumental delivery No. (%)	Caesarean section No. (%)	Total No.(%)
Gestational hypertension without IUGR	03 (60)	-	02 (40)	05 (8.33)
Gestational hypertension With IUGR	02 (40)	-	03 (60)	05 (8.33)
post date	08 (57.14)	02 (14.28)	04 (28.57)	14 (23.33)
IUGR other cause	01 (33.33)	-	02 (66.66)	03 (5.0)
Congenital anomaly	04 (100)	-	-	04 (6.66)
Idiopathic	17 (58.62)	-	12 (41.37)	29 (48.33)
	35 (58.33)	02 (3.33)	23 (38.33)	60

Table 4: NST and its relations to maternal outcome of labour.

Non stress test	Normal delivery No. (%)	Instrumental delivery No. (%)	Caesarean section No. (%)	Total No. (%)
Reactive	24 (61.53)	01 (2.56)	14 (35.89)	39 (65)
Non-reactive	11 (52.38)	01 (4.76)	09 (42.85)	21 (35)
	35 (58.33)	02 (3.33)	23 (38.33)	60

Table 5: Indication of cesarean section.

Indication	No. (%)
Fetal distress	11 (47.83)
Gestational hypertension	01 (4.34)
Induction failure	06 (26.08)
Mal presentation	03 (13.04)
IUGR	02 (8.69)
Total	23 (38.33)

Table 6: Overall maternal outcome of labour.

Mode of delivery	Normal delivery No. (%)	Instrumental delivery No. (%)	Caesarean section No.(%)
Present study	35 (58.33)	02 (3.33)	23 (38.33)

Table 7: NICU admission and neonatal outcome.

Study	NICU admission (%)	Neonatal death
Present study	08(13.33)	01(1.66)

Table 8: Congenital abnormality and oligohydroamnios.

Study	Congenital anomaly
Present study	04 (6.66)

Table 9: Mode of delivery and perinatal outcome.

	Pre term	07 (11.66%)	Full term	53 (88.33%)
Mode of delivery	**Live**	**NND**	**Live**	**NND**
Normal delivery	02	01	38	-
instrumental delivery	-	-	02	-
Caesarean section	04	01	13	-

DISCUSSION

The present study is of 60 cases of oligohydramnios and its outcome during pregnancy from the month of January 2024 to July 2024. 34 (56.66%) patients were in 20-25 years age group. 11 (8.33%) patients were in 26-30 years age group.[6,8] Caesarean section rate was higher in 20-25 years age group (41.16%) followed by 26-30 years (27.27%) incidence of oligohydramnios 37 (61.66%) and operative morbidity 15 (40.54%) is more common in primipara group.[7] Most common cause of oligohydramnios is idiopathic (48.33%) followed by postdate (23.33%). LSCS rate is significantly higher in non-reactive NST group (42.85%) than NST reactive group (35.89%). 24 (61.53%) patients were delivered by normal vaginal delivery and 01 (2.56%) by instrumental delivery in reactive NST group as compared to 11 (52.38%) patients were delivered by normal vaginal route in NST non-reactive group.

In non-reactive group 09 patients taken for caesarean section out which 04 patients had meconium-stained liquor intra operatively. Out of 60 patients 38.33% patients had caesarean section, among them 11 (47.83%) patients had caesarean section for fetal distress. Most common indication to perform caesarean section was fetal distress. In present study, 5 Patients were antenatally admitted and given oral and intravenous fluids and amnioacid in 3rd trimester.[14] Out of which 2 patients had sonographically detected increase of amniotic fluid index>5 cm and 3 patients had no improvement in AFI.[15]

Out of them, 3 patients were delivered vaginally and 2 patients had undergone LSCS. Out of 08 (13.33%) babies admitted in NICU, there were 01 (1.66%) neonatal death.[16,17] Oligohydramnios is being detected more often these days due to routinely performed obstetric USG. Oligohydramnios is one of the indicator of poor perinatal outcome. It is associated with fetal heart rate abnormalities, meconium staining of amniotic fluid, umbilical cord compression, poor tolerance of labour, low APGAR score of fetal acidosis. Gestational hypertension, postdated pregnancies are the commonest causes of reduced amniotic fluid during third trimester of pregnancy. Oligohydramnios with reactive NST is associated with good prognosis. Oligohydramnios with nonreactive NST needs careful monitoring and results in early delivery, increased incidence of caesarean delivery for fetal distress, NICU admission, low APGAR score at 5 mins and neonatal death. Mode of delivery depends on severity of oligohydramnios and status of fetal wellbeing. Caesarean section is mostly required for cases with anhydramnios with intrapartum fetal heart abnormalities. Babies are relatively more prone for certain complications like intrapartum fetal distress, MAS and birth asphyxia. Oligohydramnios associated with IUGR carries a poor perinatal outcome (increased neonatal death, NICU admission, increased rate of caesarean section for fetal distress, very low birth weight). Hence they need good neonatal care.

Diet along with hydration also plays very important role in early onset oligohydramnios. Consumption of healthy diet (including high protein, whole grains, fresh fruit and vegetables plus plenty of fluids) is important throughout the pregnancy. Good protein intake help to growth of fetus. Women should be counselled about eating balanced diet during pregnancy. From this study, we conclude that oligohydramnios is a high risk pregnancy and proper antepartum care, intensive fetal surveillance and intrapartum care are required in patient with oligohydramnios. Every case of oligohydramnios needs careful antenatal evaluation, parental counselling, individualization, decisions regarding time and mode of delivery. Continuous intrapartum fetal monitoring and good neonatal care are necessary for good perinatal outcome.

CONCLUSION

Oligohydramnios is being detected more often these days due to routinely performed obstetric USG

Oligohydramnios is one of the indicator of poor perinatal outcome. It is associated with fetal heart rate abnormalities, meconium staining of amniotic fluid, umbilical cord compression, poor tolerance of labour, low APGAR score of fetal acidosis. Gestational hypertension, postdated pregnancies are the commonest causes of reduced amniotic fluid during third trimester of pregnancy. Oligohydramnios with reactive NST is associated with good prognosis. Oligohydramnios with nonreactive NST needs careful monitoring and results in early delivery, increased incidence of caesarean delivery for fetal distress, NICU admission, low APGAR score at 5 mins and neonatal death. Mode of delivery depends on severity of oligohydramnios and status of fetal wellbeing. Caesarean section is mostly required for cases with anhydramnios with intrapartum fetal heart abnormalities. Babies are relatively more prone for certain complications like intrapartum fetal distress, MAS and birth asphyxia. Oligohydramnios associated with IUGR carries a poor perinatal outcome (increased neonatal death, NICU admission, increased rate of caesarean section for fetal distress, very low birth weight).

Hence, they need good neonatal care. Diet along with hydration also plays very important role in early onset oligohydramnios. Consumption of healthy diet (including high protein, whole grains, fresh fruit and vegetables plus plenty of fluids) is important throughout the pregnancy. Good protein intake help to growth of fetus. Women should be counselled about eating balanced diet during pregnancy. From this study, we conclude that oligohydramnios is a high-risk pregnancy and proper antepartum care, intensive fetal surveillance and intrapartum care are required in patient with oligohydramnios. Every case of oligohydramnios needs careful antenatal evaluation, parental counselling, individualization, decisions regarding time and mode of delivery. Continuous intrapartum fetal monitoring and good neonatal care are necessary for good perinatal outcome. Number of patients in this study group was small. Larger study groups with RCT and more statistical test may be applied for reliable study outcome. Long term follow up of patients is required.

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