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A STUDY ON MATERNAL AND FOETAL OUTCOME IN THIRD TRIMESTER DIAGNOSED CASE OF OLIGOHYDRAMNIOS IN A TERTIARY CARE CENTRE.

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ABSTRACT **BACKGROUND:** Oligohydramnios is defined as when the maximum vertical pockets of liquor is less than 2 cm or when AFI is less than 5 cm or less than 10th centile. Decrease in amniotic fluid volume or Oligohydramnios has been correlated with increased risk of intrauterine growth retardation, meconium aspiration syndrome, severe birth asphyxia, low APGAR scores and congenital abnormities. Early detection of oligohydramnios and its management may help in reduction of perinatal morbidity and mortality one side and decreased caesarean deliveries on the other side.

AIMS AND OBJECTIVES: The aim of this study is to evaluate maternal and perinatal outcome in Oligohydramnios.

METHODS: The present Observational and Prospective study was conducted in the Department of Obstetrics & Gynaecology, Maharishi Markendeshwar Institute of Medical Sciences and Research (MMIMSR), Mullana, Ambala, Haryana, India during the period from September 2020 to August 2021. 150 patients with third trimester diagnosed case of oligohydramnios were included and were screened through exclusion and inclusion criteria.

RESULTS: Oligohydramnios was more in primipara in our study. It was increase in case of prolonged pregnancy. 66% were of moderate AFI and 29% were severe oligohydramnios. Idiopathic was the most common cause, and second cause was PIH. Oligohydramnios was related to higher rate of IUGR and NICU admission.

CONCLUSIONS: Oligohydramnios is frequent occurrence these days, it demands intensive fetal surveillance and proper antepartum and intrapartum care. Amniotic fluid volume is a predictor of foetal tolerance in labour and its decrease is associated with increased perinatal morbidity and mortality, rates of caesarean section are rising due to it, but decision between vaginal delivery and caesarean section should be well balanced so that unnecessary maternal morbidity and mortality can be prevented and on the other side timely intervention can reduce perinatal morbidity and mortality of the newborn babies.

KEYWORDS : Oligohydramnios, AFI, Perinatal morbidities, Maternal outcome, Foetal Outcome.

INTRODUCTION:

An appropriate volume of amniotic fluid is one of the most important components of a healthy pregnancy, as it acts as a protective cushion for the fetus, prevents compression of the umbilical cord, and promotes fetal lung development [1]. While the average volume of amniotic fluid varies with gestational age, abnormally low amniotic fluid volume has been associated with adverse pregnancy outcomes. Oligohydramnios, in which the volume of amniotic fluid is abnormally low (<500ml) between the 32nd and 36th weeks of pregnancy, is a serious condition for the fetus and the mother [1, 2]. Oligohydramnios can be diagnosed with ultrasound performed during the late second trimester or the third trimester and is defined by an Amniotic Fluid Index (AFI) below 5 cms or below the 5th percentile to approximate the amniotic fluid volume [3, 4].

Oligohydramnios is defined as when the maximum vertical pockets of liquor is less than 2 cm or when AFI is less than 5 cm or 10th centile. [5-7] Amniotic fluid is part of the baby" life support system during labour. [6] The most important mechanical function of amniotic fluid is to provide an adequate cushion for the umbilical cord. Without this cushion, compression of the cord between the fetus and the uterine wall may occur during contractions or fetal movement. This cord compression lead to severe FHR decelerations which are associated with low APGAR scores and acidosis at birth, meconium staining, cesarean section and operative vaginal delivery for fetal distress.

Oligohydramnios is also associated with maternal morbidity in form of increased rates of induction and/ or operative interference. Amniotic fluid index" was described by Phelan et al. [5-7] It is the most accurate method for assessing amniotic fluid volume and helps to categorize the patients into normal, low normal and oligohydramnios groups. Increased induction of labour and elective caesarean deliveries are currently practiced for better perinatal outcome. Early detection of oligohydramnios and its management may help in reduction of perinatal morbidity and mortality one side and decreased caesarean deliveries on the other side. Since oligohydramnios has got significant impact on perinatal outcome and maternal morbidity, oligohydramnios is a severe and common complication of pregnancy and the incidence of this is reported to be 3.9% of total pregnancies. Oligohydramnios in the third trimester of pregnancy has been associated with intrauterine growth restriction, post-dated pregnancy, congenital anomalies, increased fetal morbidity and abnormal antepartum fetal heart rate pattern, it is prompted us to study the maternal and perinatal outcome third trimester diagnosed case of oligohydramnios. [8]

METHODS:

The present study was conducted in the Department of Obstetrics & Gynaecology, Maharishi Markendeshwar Institute of Medical Sciences and Research (MMIMSR), Mullana, Ambala, Haryana, India during the period from September 2020 to August 2021. 150 cases of oligohydramnios in third trimester selected after satisfying inclusion and exclusion criteria were included in the present study.

This study was observational and prospective study. Details of these patients were recorded in the proforma.

INCLUSION CRITERIA:

USG proven cases of oligohydramnios, AFI 5 cm, antenatal patient in third trimester, singleton pregnancy.

EXCLUSION CRITERIA:

AFI >6 cm, multiple gestation, patients having major respiratory, heart disease.

METHODOLOGY:

Plan of activity and time chart were formulated after taking informed consent from the woman and/or relatives. Other potential explanatory variables were obtained including maternal age, booking status, PIH and other risk factors at the time of admission were recorded. Detailed clinical history including obstetric, menstrual, past and personal history were taken. Thorough general, systemic and obstetric examination was conducted. Woman's hematological profile was done. AFI to be measured using phelan's four quadrant ultrasound technique. 1-3 The uterus is arbitrarily divided into four quadrants by the umbilicus transversely and the linea nigra vertically.

The largest vertical pocket free of fetal parts and umbilical cord loops in each quadrant is measured and sum of these measurements will give

AFI in cm. An AFI of 5-24 cm is normal. AFI of < 5 cm is considered Oligohydramnios. USG at the time of admission was recorded including fetal biometry, amniotic fluid volume and color doppler. Study of association of various maternal factors like prolong pregnancy, hypertensive disorders of pregnancy, PROM etc. Outcome was noted in the form of mode of delivery, fetal outcome, apgar score, fetal birth weight, maturity, admission to nursery and postnatal complications, if any.

RESULTS:

All the information was entered in the proforma and analyzed and observations were made and accordingly discussion. 58% of patients were in 20-25 years age group and 29% in 26 -30 year age group thus maximum patient were in 26 -30 year. Mean meternal age was23.66 **(Table 1).**

Table 2 shows that primipara patients form a major burden of admissions due to oligohydramnios. This table 3 shows that case of oligohydramnios according to gestational age. It was increase in case of prolonged pregnancy.

Mode of Delivery: 42% cases were delivered by LSCS **(Table 6).**

Table 1: Distribution Of Patients According To Age.

AGE (YEARS)	OLIGOHYDRAMNIOS	
	No.	%
18 – 20	11	07
20 -25	87	58
26 – 30	43	29
>30	09	06
Total	150	100

Table 2: Distribution Of Patients According To Parity.

Parity	No.	%
Para 0	44	29
Para 1	85	57
Para 2	15	10
Para 3 and above	06	04
Total	150	100

Table 3: According To Gestational Age.

Gestational Age (Weeks)	No.	%
28 -32	21	14
33 – 34	33	22
35 – 37	33	22
38 – 40	28	19
>41	35	23
Total	150	100

AFI wise distribution; in the present study 66% were of moderate AFI and 29% were severe oligohydramnios and 5% anhydramnios **(Table 4).**

AFI (Up to 5 cm)	No.	%
3.1-5	99	66
1-3	43	29
Anhydramnios	08	05
Total	150	100

Table 5: Maternal Factors Associated With Oligohydramnios

Maternal Factors	No.	%
Prolonged Pregnancy (>40 weeks)	35	23
PIH Gestational Hypertension Preclampsia Eclampsia	40 23 13 04	26
PROM	14	09
Idiopathic	48	32
Malpresentation	05	03
Chorioamniotis	0	0
Chronic Renal Disease	02	1.4
Chronic Abruptio	06	04

Table 6: Distribution Of Cases According To Mode Of Delivery.

Mode of Delivery	No.	%
LSCS	64	42
Vaginal Delivery	86	58
Total	150	100

Table 7: Indication for LSCS.

Indication for LSCS	No.	%
Foetal distress	09	14
MSL	08	12.5
Anhydramnios	05	7.8
Malpresentation (Breech)	07	7.9
Failed Induction	07	7.9
Previous section	08	12.5
Oligohydramnios/IUGR with Doppler changes	21	32.8
Chorioamniotis	01	1.5
Cord around Neck	01	1.5
Bad obstetric history	01	1.5

Table 8: Distribution Of APGAR Score At Birth At 1 Min And 5 Min.

APGAR SCORE	AT 1 MINUTE	AT 5 MINUTE
8-10	4	67
5-7	126	66
3-4	14	08
<3	1	0

It was seen that LSCS in the study group was primarily done for oligohydramnios/IUGR, fetal hypoxia or fetal distress/meconium stained liquor **(Table 7).**

Perinatal Outcome:

In the present study, the Apgar score was noted 1 and 5 minutes after birth **(Table 8).**

Table 9: Distribution Of Cases According To Perinatal Outcome.

Perinatal Outcome	No.	%
Nursery Admission	52	35
Alive and Healthy	93	62
Still Birth	05	3.33
FSB	04	2.67
MS	01	0.67

Table 10: Distribution Of Cases According To Perinatal Mortality

Perinatal Mortality	No.	%
Still Birth	05	3.33
FSB	04	2.67
MSB	01	0.67
Early Neonatal Death	15	10
Total Perinatal Mortality	20	13.33

DISCUSSION:

Perinatal morbidity and mortality are significantly increased when oligohydramnios is present. Accurate antepartum estimation of amniotic fluid volume by clinical means alone is difficult but it is easily diagnosed by current ultrasound methods. [5-7] With the easier availability of ultrasonography nowadays more cases of oligohydramnios are being identified. This helps us to be more cautious and anticipate problems especially during labour. In the present study 58% of patients were in 20- 25 years age group and 29% in 26-30 year age. Mean meternal age was 23.66. Similar studies by Chauhan P et al found that the mean maternal age were 23.6±6.5 years. In Donald D et el the incidence of oligohydramnios was 60% in primigravida which is comparable to present study 57% patients were para 1.5,[10] According to gestational age it is increase in >40 weeks pregnancy 23% in the present study. Clement D et al studied six cases of postdatism, in which amniotic fluid volume diminished abruptly over 24 hours. [11] Bowen Chattoor JS et al in their study evaluated the relationship between amniotic fluid index and perinatal outcomes in fifty-five postdate pregnancies.

Obstetrical complications frequently associated with oligohydramnios .in present study idiopathic cause 32%, PIH was present in 25% cases. Similar result found in Golan A et al in his study, found maternal hypertension in 22.1% cases. [12] Cesarean section was performed in 32.8% of these cases. Mercer LJ et al found that preeclampsia was present in 24.7% of cases with decreased fluid. Study by Chauhan P et al. reported, preeclampsia in 12% cases.[9] They concluded that the incidence of oligohydramnios ranges from 10 to 30 % in hypertensive patients requiring hospitalization.

Mode Of Delivery:

The LSCS was done in 42% in present study which is compared with the situations in other studies. Study by Casey B et al found that, there

was increased rate of induction of labour (42%) and caesarean section (32%) in oligohydramnios cases.[13]Golan A et al. found that, the cesarean section was performed in 35.2% of pregnancies.[12] These are comparable to my study.

Perinatal Outcome:

In the present study, the Apgar score was noted at 1 and 5 minutes after birth. 16.3% babies had low Apgar score (less than 7 at 1 and 5 min). Syria R et al in their study have reported 38.8% incidence of Apgar score less than 7 at 1 minute.[14] In a similar study by Casey B et al (6%) babies had Apgar score of less than 3 at 5 minute.[15] Out of these nine babies, seven died during neonatal period. Jun Zhang et al [16] found that an Apgar score of < 5cm Casey BM et al in their study have reported 7% admission to the NICU in patients with AFI < 5cm. Zhang J et al in their study have reported 29.4% admission to NICU in patients with AFI < 5cm.

In the present study, there were 62% live births and 3% still births. 10% babies died in neonatal period. The perinatal mortality was 13% in present study. Chamberlin PF et al. [17] calculated the perinatal mortality rate in patients with decreased qualitative amniotic fluid volume and found it to be 188/1000. Chhabra S et al reported very high (87.7%) perinatal mortality in their study. [18] Wolff F et al found that the perinatal mortality in their study was 7.2%.[19] Apel SL et al and Sarid et al found that the perinatal mortality was 9.9%.[20,21]

Some studies from high income countries suggest that treating some cases of oligohydramnios may improve certain outcomes.[22, 23]

The lack of amniotic fluid allows compression of fetal abdomen, which limits the movement of the diaphragm. Overall, the perinatal mortality is markedly increased in patients with oligohydramnios.

CONCLUSION:

In presence of oligohydramnios thorough evaluation of the gravida for hypertension, pre-eclampsia, diabetes, chronic abruption, premature rupture of membrane, drug intake etc should be done. An amniotic fluid index of ≤5 cm detected in third trimester was associated with adverse pregnancy out come as well as indicator of poor perinatal outcome.

Now a day's oligohydramnios is most common occurrence in pregnant women. Amniotic fluid volume is a predictor of fetal tolerance in labour and its decrease is associated with increased perinatal morbidity and mortality, rates of cesarean section are rising. Take timely intervention can reduce perinatal morbidity and mortality. Regular antenatal and intranatal monitoring should be done to diagnose any fetal compromise at the earliest. Termination of pregnancy according to the balance of risk of intrauterine asphyxia against those of prematurity should be done to obtain the best outcome.

Oligohydramnios is frequent occurrence and demands intensive fetal surveillance and proper antepartum and intrapartum care. Due to intrapartum complication and high rate of perinatal morbidity and mortality, rates of caesarean section are rising, but decision between vaginal delivery and caesarean section should be well balanced so that unnecessary maternal morbidity prevented and other side timely intervention can reduce perinatal morbidity and mortality.

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