

Original research article

Feto-maternal outcome in oligohydramnios in a tertiary care hospital: an observational studyDr. Sudha¹, Dr. Krishna Sinha²¹ Assistant Professor, Department of Obstetrics and Gynecology, Jawaharlal Nehru Medical College and Hospital, Bhagalpur, Bihar, India² Associate Professor, Department of Obstetrics and Gynecology, Jawaharlal Nehru Medical College and Hospital, Bhagalpur Bihar, India

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Abstract**Aims:** The aim of this study was to determine the feto-maternal outcome in oligohydramnios.**Material and Methods:** This prospective observational study was carried out in the department of Obstetrics and Gynecology Jawaharlal Nehru Medical College and Hospital Bhagalpur, Bihar, India for 12 months. Total 150 pregnant women having singleton pregnancy with cephalic presentation at POG 34-40 weeks, presenting with abnormal (oligohydramnios) AFI, were included in the present study.**Results:** 83.33% of patients were in 20-30 years age group and 10% patients were in above 30 years age group. Thus, maximum patients were in 20-30 years age group. Rate of caesarean was highest in above 30 years and lowest in patients of < 20 years of age. Mean maternal age was 24.65 years. Incidence of oligohydramnios was more in primipara (56.67%) in our study. Most common cause of Oligohydramnios is idiopathic (53.33%). Second commonest cause is PIH (28.33%). Operative morbidity is highest in PIH (51.67%). Operative morbidity was significantly higher in NST non-reactive (57.89%, group than NST reactive (21.95%) group. All patients were undergone Doppler study. 8.33% were found with fetoplacental insufficiency and 91.67 percent patients were normal out of these 70 vaginal delivery and 30 from caesarean section. Most common reason to perform caesarean was fetal distress which was either due to cord compression or IUGR. Oligohydramnios was related to higher rate of growth retardation and NICU admission. In NST Reactive group 2 babies expired due to septicaemia and another 2 expired due to HMD and LBW. In NST Non-Reactive group 4 babies expired due to meconium aspiration syndrome + acute respiratory distress syndrome.**Conclusion:** 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.**Keywords:** Oligohydramnios; Maternal Outcome; Fetal Outcome**Introduction**

Amniotic fluid acts like a cushion and helps in growth of fetus in sterile environment, regulates temperature, avoid external injury and reduce impact of uterine contractions. Usual amount of amniotic fluid is approximately 1000ml at term. Volume of amniotic fluid

decreases with increasing gestational age. Decrease in amniotic fluid volume is called as oligohydramnios. Causes of Oligohydramnios are pregnancy induced hypertension (PIH), postdate pregnancy, infections, congenital anomalies like renal agenesis, idiopathic, etc. Oligohydramnios may lead to increased risk of intrauterine growth retardation (IUGR), meconium aspiration syndrome, severe birth asphyxia, low APGAR scores and congenital abnormalities.¹ Oligohydramnios is defined as an amniotic fluid index (AFI) of 5 cm or less or Small deepest fluid pocket (SDP) of less than 2 cm. SDP is a measure of the single deepest pocket of fluid. Each individual pocket of fluid should be 2 to 8 cm. In multiple pregnancies, SDP for each fetus is typically reported.² Causes of Oligohydramnios are pregnancy induced hypertension (PIH), postdate pregnancy, infections, congenital anomalies like renal agenesis, idiopathic, etc. Oligohydramnios may lead to increased risk of intrauterine growth retardation (IUGR), meconium aspiration syndrome, severe birth asphyxia, low APGAR scores and congenital abnormalities.³ Oligohydramnios increases maternal morbidity by increasing rates of induction and/ or operative interference.⁴ With the help of amniotic fluid estimation by amniotic fluid Index (AFI) using four quadrant technique during transabdominal USG, as per described by Phelan et al in 1997.⁵ Better identification of fetus at high risk is done. 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 maternal & fetal morbidity and mortality. The measurement and its comparison to the index is important in helping to determine fetal and maternal health.

- An AFI between 8-20 cm is considered normal
- An AFI 5.1-8 cm is considered as borderline
- An AFI <5 cm is considered as low AFI

In this study we tried to see the type of delivery conducted in the form of normal vaginal delivery, assisted vaginal delivery or caesarean section in all patients of Oligohydramnios of different age groups and parity. We studied different causes of Oligohydramnios. Fetal surveillance was done by NST and Doppler study. Outcome of baby was studied by IUGR, APGAR score, NICU admission or perinatal mortality. The aim of this study was to determine the maternal and fetal outcome in oligohydramnios in a tertiary care hospital in Bihar region

Material and Methods

This prospective observational study was carried out in the Department of Obstetrics and Gynecology Jawaharlal Nehru Medical College and Hospital, Bhagalpur, Bihar, India for 12 months, after taking the approval of the protocol review committee and institutional ethics committee.

Methodology

All pregnant women having singleton pregnancy with cephalic presentation at POG 34-40 weeks, presenting with abnormal AFI, were included in the present study. While parturients complicated with PROM, malpresentation, antepartum hemorrhage, previous CS, myomectomy, hysterotomy and the ante-natal mothers requiring elective CS for medical and obstetric conditions not related to amniotic fluid variations were excluded from the study. Informed written consent was obtained from all the patients before including them in the study.

Study was conducted to observe outcome of labour in form of perinatal morbidity and maternal outcome in form of induction and deliveries: (1) To study affects Oligohydramnios on fetal outcome in form of – (a) Fetal distress, (b) Growth retardation, (c) NICU admission; (2) To study APGAR scores of newborn babies in relation to Oligohydramnios; (3) To study incidence of congenital malformation; (4) To study early neonatal morbidity and mortality; (5) To study maternal morbidity in form of operative delivery and induced labour A detailed

history and examination were done. All required investigation done. Oligohydramnios confirmed by measuring AFI. Routine management in form of rest, left lateral position, oral and intravenous hydration and control of etiological factor was done if present. Fetal surveillance was done by USG, modified Biophysical profile and Doppler. Decision of delivery by either induction or elective or emergency LSCS was done as per required. Some patients were already in labour and other allows going in spontaneous labour. Cases were than studied for maternal and perinatal outcome.

Results

83.33% of patients were in 20-30 years age group and 10% patients were in above 30 years age group. Thus, maximum patients were in 20-30 years age group. Rate of caesarean was highest in above 30 years and lowest in patients of < 20 years of age. Mean maternal age was 24.65 years (Table 1).

Table 1: Age and maternal outcome of labour

Age	Vaginal delivery n=80	%	Caesarian Delivery=40	%	Total=120
< 20	7	87.5	1	12.5	8
20-30	68	68	32	32	100
> 30	5	41.67	7	58.33	12
	80		40		120

Incidence of oligohydramnios was more in primipara (56.67%) in our study.(Table 2). Most common cause of Oligohydramnios is idiopathic (53.33%). Second commonest cause is PIH (28.33%). Operative morbidity is highest in PIH (51.67%) (Table 3). Operative morbidity was significantly higher in NST non-reactive (57.89%, group than NST reactive (21.95%) group (Table 4).

Table 2: Parity and Maternal Outcome of Labour

	Vaginal delivery n	%	Caesarian Delivery	%	Total
Primipara	36	52.94	32	47.06	68
Multipara	44	84.62	8	15.38	52
Total	80		40		120

Table 3: Associated Condition and Maternal Outcome of Labour

	Vaginal delivery n	%	Caesarian Delivery	%	Total
Pregnancy Induced Hypertension	18	52.94	16	47.06	34
Postdates	14	70	6	30	20
Fever	2	100	0		2
Idiopathic	46	71.88	18	28.12	64
	80		40		120

Table 4: Non-Stress Test (NST)

	Vaginal delivery n	%	Caesarian Delivery	%	Total
Reactive	64	78.05	18	21.95	82
Non-reactive	16	42.11	22	57.89	38
	80		40		120

Table 5: Doppler

	Vaginal delivery n	%	Caesarian Delivery	%	Total
Normal	77	70	43	30	110
Abnormal	3	30	7	70	10
	80		40		

Table 6: Indication of Caesarean Section

Indication	%
Fetal distress	27.5%
Oligohydramnios	12.5%
FPI, IUGR	7.5%
Breech	2.5%
Other	2.5%

All patients were undergone Doppler study. 8.33% were found with fetoplacental insufficiency and 91.67 percent patients were normal out of these 70 vaginal delivery and 30 from caesarean section. (Table 5). Most common reason to perform caesarean was fetal distress which was either due to cord compression or IUGR (Table 6). Oligohydramnios was related to higher rate of growth retardation and NICU admission (Table 7). In NST Reactive group 2 baby expired due to septicaemia and another 2 expired due to HMD and LBW. In NST Non-Reactive group 4 babies expired due to meconium aspiration syndrome + acute respiratory distress syndrome (Table 8).

Table 7: Outcome of Baby

Outcome	
Growth retardation	65 (AGA); 12 (SGA)
APGAR score < 7 in 1 to 5 mints	19
NICU admission	37

Table 8: Attributes Related to Domestic Violence

Outcome	NST reactive	NST Non Reactive
Live	77	35
Neonatal death	4	4
	81	39

Discussion

In Casey et al.⁶, the mean maternal age was 23.9 years which is comparable to the present study. In Donald D et al.⁷, the incidence of oligohydramnios was 60% in primigravida which is comparable to present study as it was 56.67%. Sir Gangaram Hospital study⁸ shows 68% vaginal deliveries in induced patients of Oligohydramnios and 32% by caesarean section which is comparable to our study. Manzanares S et al.⁹ shows 84% vaginal deliveries in induced patients of Oligohydramnios and 16% by caesarean section. In this study, in spite of non-reactive NST 42.11% patients delivered vaginally. The caesarean section was done more commonly in 755 patients with non-reactive NST as seen in Charu Jandial study.¹⁰ As these patients had oligohydramnios, a non-reactive NST + AFI <5 indicated fetal jeopardy as per revised Biophysical profile scoring by Clerk et al.¹¹ The fetal jeopardy was reflected as increase operative interference in this study.

The operative morbidity is significantly higher in patients with altered Doppler study. In Weiss et al.¹² and Yound HK et al.¹³, it was 71% and 69.7% respectively which was

comparable to this study. It was comparable to Gramellini D et al.¹⁴ where amnioinfusion was significantly gestation and reduced neonatal mortality. In present study, 40% babies had weight < 2.5 kg. Mean birth weight was 2.29 kg which is similar to the study conducted by William Ott et al.¹⁵ with the mean birth weight was 2.4 kg. The incidence of low birth weight babies is higher in Oligohydramnios except in post maturity where the babies may have average birth weight. In Julie Johnson et al.¹⁶, 92.6% babies were AGA and 7% were SGA. In Brain M Casey et al.¹⁷ 75.5% AGA and 24% SGA. In Philipson EH et al.¹⁸ 60% AGA and 40% SGA. In Manning et al.¹⁹ 64% AGA and 36% SGA. In Raj Sariya et al.²⁰ 83.4% AGA and 16.6% SGA. This high percentage of SGA babies suggesting correlation of IUGR with Oligo- hydramnios. In Manning et al.¹⁹ 15% babies had APGAR score < 7. In Raj Sariya et al.²⁰, it was 38%. In Julie M Jhonson et al.¹⁶ 20% babies had NICU admission. In Manning et al.¹⁹ and Raj Sariya et al.²⁰, 43% and 88.88% respectively. Golan et al.²¹ show 6.3% neonatal death in deliveries of Oligohydramnios patients which is 6.67% observed our study.

Conclusion

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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