

MATERNAL AND FETAL OUTCOME IN OLIGOHYDRAMNIOS: A STUDY OF 100 CASES

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ABSTRACT

Background: 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 abnormalities. 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 & Objective: (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.

Material and Methods: Present study was done over a period from May 2009 to November 2011. 100 patients in third trimester of pregnancy with Oligohydramnios selected randomly after satisfying inclusion and exclusion criteria. A detailed history and examination were done. All required investigation done. Oligohydramnios confirmed by measuring AFI.

Results: Mean maternal age-23.66 years. Incidence of oligohydramnios was more in primipara (52%) in our study. And operative morbidity was also more in primipara. Most common cause of Oligohydramnios is idiopathic (52%). Second commonest cause is PIH (25%). Operative morbidity is highest in PIH (60%). Operative morbidity was significantly higher in NST (non-stress test) non-reactive ($3.12 \pm 75=78.12\%$) group than NST reactive (26.47%) group. Most common reason to perform caesarean was fetal distress which was either due to cord compression or IUGR. 7% patients were found with fetoplacental insufficiency on Doppler study. Oligohydramnios was related to higher rate of growth retardation and NICU (neonatal intensive care unit) admission.

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.

KEY-WORDS: Oligohydramnios; Maternal Outcome; Fetal Outcome

Introduction

Nature has made floating bed in foam of amniotic fluid cavity filled with liquor amnii for the requirement of fetus, for its existence and growth in sterile environment, regulation of temperature, avoidance of external injury and reduction of impact of uterine contractions. Decrease in amniotic fluid volume or Oligohydramnios^[1] has been correlated with increased risk of intrauterine growth retardation, meconium aspiration syndrome, severe birth asphyxia, low APGAR scores and congenital abnormalities.^[2] Oligohydramnios is also associated with maternal morbidity in form of increased rates of induction and/ or operative interference.^[3] With the help of

method of amniotic fluid estimation by Amniotic fluid Index (AFI) using four quadrant technique during transabdominal USG, as per described by Phelan et al^[4] in 1997, better identification of fetus at high risk can be done. Which was otherwise difficult in past by clinical estimation of amniotic fluid 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 perinatal morbidity and mortality one side and decreased caesarean deliveries on the other side. Since Oligohydramnios has got significant impact on neonatal outcome and material morbidity, it prompted us to study the condition as my thesis subject.

Materials and Methods

Present study was done over a period from May 2009 to November 2011. 100 patients in third trimester of pregnancy with Oligohydramnios selected randomly after satisfying inclusion and exclusion criteria. *Inclusion Criteria:* Antenatal patients in their third trimester with intact membranes. *Exclusion Criteria:* Antenatal patients having heart diseases, Polyhydramnios, premature rupture of membranes, twins and multiple pregnancies.

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

67% of patients were in 20-25 years age group and 23% patients were in 26-30 years age group. Thus, maximum patients were in 20-30 years age group. Rate of caesarean was highest in 26-30 years and lowest in patients of >39 years of age. Mean maternal age was 23.66 years (Table 1). Incidence of oligohydramnios was more in primipara (52%) in our study. And operative morbidity was also more in primipara (57.7%,

55.78 ± 1.92) (Table 2). Most common cause of Oligohydramnios is idiopathic (52%). Second commonest cause is PIH (25%). Operative morbidity is highest in PIH (60%) (Table 3). Operative morbidity was significantly higher in NST non-reactive (78.12%, 3.12 ± 0.75) group than NST reactive (26.47%) group (Table 4).

All patients were undergone Doppler study. 7% were found with fetoplacental insufficiency. In present study, 25 patients had induction of labour. Out of them cerviprim was used in 18 and misoprost in 4 and oxytocin in 3 patients. It showed 64% vaginal delivery and 36% 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 1 baby expired due to septicaemia and another expired due to HMD and LBW. In NST Non-Reactive group both babies expired due to meconium aspiration syndrome + acute respiratory distress syndrome (Table 8).

Table-1: Age and Maternal Outcome of Labour

Age	Vaginal Delivery		Caesarean	Total
	Normal	Assisted (Forceps)		
< 20	3 (75%)	0	1 (25%)	4
20-25	39 (58.2%)	1 (1.5%)	27 (40.3%)	67
26-30	10 (43.48%)	0	13 (56.52%)	23
> 30	5 (83.3%)	0	1 (16.66%)	6
Total				100

Table-2: Parity and Maternal Outcome of Labour

Parity	Vaginal Delivery		Caesarean	Total
	Normal	Assisted		
Primipara	22 (42.30%)	1 (1.92%)	29 (55.78%)	52
Multipara	35 (72.91%)		13 (27.09%)	48
Total				100

Table-3: Associated Condition and Maternal Outcome of Labour

Parity	Vaginal Delivery		Caesarean	Total
	Normal	Assisted		
Pregnancy Induced Hypertension	10 (40%)	0	15 (60%)	25
Postdates	13 (65%)	0	7 (35%)	20
Fever	3 (100%)	0	0	3
Idiopathic	31 (59.61%)	1 (1.92%)	20 (38.47%)	52
Total				100

Table-4: Non-Stress Test (NST)

NST	Vaginal Delivery		Caesarean	Total
	Normal	Assisted		
Reactive	50 (73.53%)	0	18 (26.47%)	68
Non-reactive	7 (21.88%)	1 (3.12%)	24 (75%)	32
Total				100

Table-5: Doppler

Doppler	Vaginal Delivery		Caesarean	Total
	Normal	Assisted		
Normal	57 (61.29%)	1 (1.07%)	36 (38.71%)	93
Abnormal	1 (14.29%)	0	6 (85.71%)	7
Total				100

Table-6: Indication of Caesarean Section

Indication	% of Patients
Fetal distress	21%
Oligohydramnios	9%
FPI, IUGR	8%
Breech	2%
Other	2%

Table-7: Outcome of Baby

Outcome	% of Patients
Growth retardation	82 (AGA); 18 (SGA)
APGAR score < 7 in 1 to 5 mints	15
NICU admission	22

Table-8: Attributes Related to Domestic Violence [Frequency of Violence]

Perinatal Outcome	NST Reactive	NST Non-Reactive
Live	66	30
Neonatal death	2	2

Discussion

In Casey et al^[5], the mean maternal age was 23.9 years which is comparable to the present study. In Donald D et al^[6], the incidence of oligohydramnios was 60% in primigravida which is comparable to present study as it was 52%. Sir Gangaram Hospital study^[7] shows 68% vaginal deliveries in induced patients of Oligohydramnios and 32% by caesarean section which is comparable to our study. Manzanares S et al^[8] shows 84% vaginal deliveries in induced patients of Oligohydramnios and 16% by caesarean section. In this study, in spite of non-reactive NST 25% patients delivered vaginally. The caesarean section was done more commonly in 755 patients with non-reactive NST as seen in Charu Jandial study.^[9] As these patients had oligohydramnios, a non-reactive NST + AFI < 5 indicated fetal jeopardy as per revised Biophysical profile scoring by Clerk et al.^[10] 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^[11] and Yound HK et al^[12], it was 71% and 69.7% respectively which was comparable to this study. The two patients were given amnioinfusion antenatally. Both showed improvement in AFI and pregnancy was prolonged. Both babies were low

birth weight but healthy and did not required NICU admission. It was comparable to Gramellini D et al^[13] where amnioinfusion was significantly gestation and reduced neonatal mortality. In present study, 36% babies had weight < 2.5 kg. Mean birth weight was 2.33 kg which is similar to the study conducted by William Ott et al^[14] 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^[15], 92.6% babies were AGA and 7% were SGA. In Brain M Casey et al^[16] 75.5% AGA and 24% SGA. In Philipson EH et al^[17] 60% AGA and 40% SGA. In Manning et al^[18] 64% AGA and 36% SGA. In Raj Sariya et al^[19] 83.4% AGA and 16.6% SGA. This high percentage of SGA babies suggesting correlation of IUGR with Oligohydramnios. In Manning et al^[18] 15% babies had APGAR score < 7. In Raj Sariya et al^[19], it was 38%. In Julie M Jhonson et al^[15] 20% babies had NICU admission. In Manning et al^[18] and Raj Sariya et al^[19], 43% and 88.88% respectively. Golan et al^[20] show 6.3% neonatal death in deliveries of Oligohydramnios patients which is observed our study.

Conclusion

Oligohydramnios is frequent occurrence and demands intensive fetal surveillance and proper antepartum and intrapartum care. Oligohydramnios is a frequent finding in pregnancy involving IUGR, PIH, and pregnancy beyond 40 weeks of gestation. Amniotic fluid volume is a predictor of fetal tolerance in labour and its decrease is associated with increased risk of abnormal heart rate and meconium stained fluid. 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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