

## ORIGINAL RESEARCH

# Assessment of effect of maternal and fetal outcome in oligohydramnios at term pregnancy

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### ABSTRACT

**Background:** Oligohydramnios is associated with increased risk of adverse perinatal outcome. This present study was undertaken to study the effect of maternal and fetal outcome in oligohydramnios at term pregnancy.

**Materials & Methods:** A total of 100 patients was included. Oligohydramnios was confirmed by measuring AFI with ultrasound. Fetal surveillance was done by NST and Biophysical profile. Cases were then studied for maternal and fetal outcome. **Results:** Maternal outcomes of labour with respect to age. In our study among 11 (11%) of below 20 years patients 4 (36%) normal delivery and 7 (64%) were LSCS cases. Among the 59 patients of 20 to 25 years age group, 23 (39%) patients were normal delivery and 36 (61%) were LSCS. Among the 26 patients of 25 to 30 years age group 15 (58%) were normal delivery and 11 (42%) were LSCS. Among 4 patients of above 30 years age group 2(50%) were found normal delivery and another 2 (50%) patients were found LSCS. Among 62 patients of primigravida 21 were normal labour and 41 were LSCS, where 38 patients of multi gravida 15 were normal delivery and 23 were LSCS. CTG analysis in respect of maternal outcomes of Labour. Among 62 CTG reactive patients, 35 were normal labour and 27 were LSCS and p value was not significant (p=0.098). Among 38 patients of CTG non- reactive patients 1 was normal labour and 37 were LSCS, the p value was significant (p<0.001).

Among 39 patients of no meconium cases 31 were normal labour and 8 were LSCS, where p value was highly significant (p<0.001) and among 61 patients of meconium cases 5 were found normal delivery and 56 were found LSCS. Onset of labour was induced in 61 and spontaneously in 39 cases. There was 1 still birth, 92 (92%) were found no requirement of NICU where 7 (7%) babies were admitted in NICU. Among 100 participants neonatal outcome found as 71 (71%) were discharged, 1 (1%) Death, 13 (13%) Death IUGR and 15 (15%) IUGR. Among 100 patients, 7 were chronic hypertension, 19 were pre-eclampsia, 14 were postdated, 14 were IUGR and 46 were uncomplicated. The difference was significant (P<0.05). **Conclusion:** 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:** intrapartum complication, caesarean section, Oligohydramnios

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### INTRODUCTION

Nature has made floating bed in form 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. The fluid is faintly alkaline with low specific gravity of 1.010.

An osmolarity of 250 mOsmol/litre is suggestive of foetal maturity. In early pregnancy, it is colourless but near term it becomes pale straw coloured due to the presence of exfoliated lanugo and epidermal cells from the foetal skin. Adequate amount of amniotic fluid is essential for the normal growth of the foetus, as it cushions against all sorts of trauma and

agitations. Its bacteriostatic properties prevent infection and it functions as a primary source of foetal nutrients.<sup>1</sup>

In normal pregnancies, the volume of amniotic fluid increases to about one litre at 36 weeks which is the maximum level.<sup>2</sup> Amniotic fluid volume rises progressively during gestation until 36 weeks; the mean amniotic fluid volume is relatively consistent in the level of 700-800 ml. After 40 weeks there is a progressive decline of amniotic fluid volume at a rate of 8 % per week, with amniotic fluid volume averaging about 400ml at 42 weeks. The clinical picture of reduced amniotic volume is termed oligohydramnios.<sup>3</sup>

Using amniotic fluid index of less than 5cm, the incidence of oligohydramnios was found to be 2.3% after 34 weeks.<sup>4</sup> Oligohydramnios is associated with increased risk of adverse perinatal outcome. The umbilical cord compression during labour is common with oligohydramnios which increases the risk for caesarean delivery, because of foetal distress and 5 minutes apgar score less than 7.2.<sup>5</sup> The decrease of amniotic fluid volume is associated with the increased labour induction, still birth, non-reassuring foetal heart pattern, meconium aspiration syndrome and neonatal death.

This present study was undertaken to study the effect of maternal and fetal outcome in oligohydramnios at term pregnancy.

## MATERIALS & METHODS

This Prospective study was conducted at department of Obstetrics and Gynaecology Dr Ram Manohar Lohia Combined Hospital, Lucknow, (U.P.), India, from August 2020 to July 2021. A total of 100 patients meeting the inclusion and exclusion criteria were recruited for this study.

Detailed history was taken and examination done after proper consent. Both booked and un-booked cases were included in the study. All baseline and required investigations were done. Oligohydramnios was confirmed by measuring AFI with ultrasound. Fetal

surveillance was done by NST and Biophysical profile. Cases were then studied for maternal and fetal outcome.

All gave their written consent to participate in the study.

History regarding age, parity, duration of gestation, menstrual history, obstetric history and history of any complications in present pregnancy was noted.

General clinical examination was done. Pulse rate, blood pressure & temperature were noted. Symphysis-fundal height was measured. Uterine size, presentation & adequacy of amniotic fluid clinically, were noted. Foetal heart rate was counted. Per-speculum & per vaginum examination was done to see any leaking (rupture of the membranes). Necessary investigations were done. Non stress test was done. An ultrasound examination was done for foetal wellbeing and amniotic fluid index was measured by the technique described by Phelan et al.<sup>6</sup>

A curvilinear transducer used. By marking, the uterus was divided into four quadrants using the maternal sagittal midline vertically and an arbitrary transverse line approximately half way between the symphysis pubis and upper edge of uterine fundus. The transducer was kept parallel to the maternal sagittal plane and perpendicular to the maternal coronal plane throughout. The deepest, unobstructed and clear pocket of amniotic fluid is visualized and the image was frozen. The ultrasound calipers were manipulated in such a way to measure the pocket in a strictly vertical direction. The process was repeated in each of the four quadrants and pocket measurement was summed to give the AFI. The patients were followed up by observing the mode of delivery, if delivery is made by caesarean section, the indication was recorded. The condition of babies was assessed by birth weight, apgar score, color of liquor and the need for neonatal admission. These babies followed till 28 days after birth. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

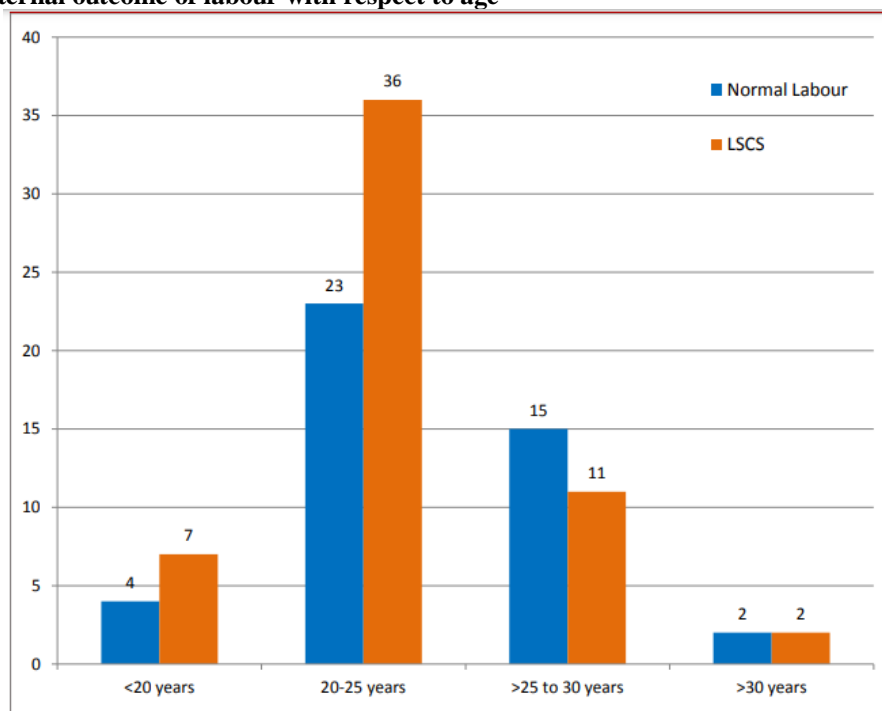
## RESULTS

**Table I: Distribution of patients**

Age groups	Number of patient (%)
Below 20 years	11 (11%)
>20 to 25 years	59 (59%)
>25 to 30 years	26 (26%)
Above 30 years	4 (4%)
Total	100

Table I shows that 11 (11%) patients below 20 years, 59 (59%) patients between 20 to 25 years, 26 (26%) patients between 25 to 30 years age group and 4 (4%) patients found above 30 years among our study population.

**Graph I: Maternal outcome of labour with respect to age**



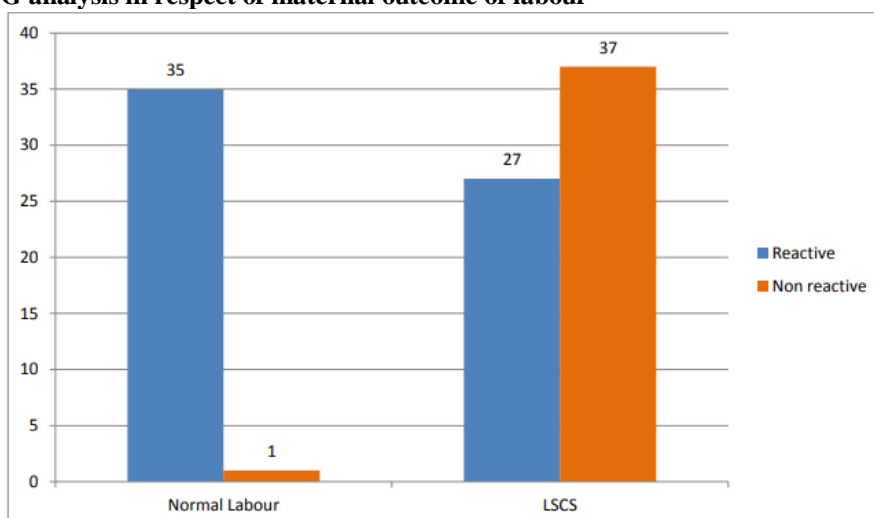
Graph I shows that maternal outcomes of labour with respect to age. In our study among 11 (11%) of below 20 years patients 4 (36%) normal delivery and 7 (64%) were LSCS cases. Among the 59 patients of 20 to 25 years age group, 23 (39%) patients were normal delivery and 36 (61%) were LSCS. Among the 26 patients of 25 to 30 years age group 15 (58%) were normal delivery and 11 (42%) were LSCS. Among 4 patients of above 30 years age group 2(50%) were found normal delivery and another 2 (50%) patients were found LSCS.

**Table II: Parity distribution in respect to maternal outcome of labour**

Parity	Normal Labour	LSCS	Pvalue
Primi	21	41	0.016
Multi	15	23	0.068
Total	36	64	-

Table II shows that among 62 patients of primigravida 21 were normal labour and 41 were LSCS, where 38 patients of multi gravida 15 were normal delivery and 23 were LSCS.

**Graph II: CTG analysis in respect of maternal outcome of labour**



Graph II shows that CTG analysis in respect of maternal outcomes of Labour. Among 62 CTG reactive patients, 35 were normal labour and 27 were LSCS and p value was not significant (p=0.098). Among 38 patients of CTG non- reactive patients 1 was normal labour and 37 were LSCS, the p value was significant (p<0.001).

**Table III: Meconium analysis in respect of maternal outcome of labour**

Meconium	Normal Labour	LSCS	Pvalue
Meconium cases	31	8	0.001
Meconium cases	5	56	<0.001

Table III shows that among 39 patients of normal meconium cases 31 were normal labour and 8 were LSCS, where p value was highly significant ( $p < 0.001$ ) and among 61 patients of meconium cases 5 were found normal delivery and 56 were found LSCS, where p value was highly significant.

**Table IV: Assessment of parameters**

Parameters	Variables	Number	P value
Onset of labour	Induced	61	0.01
	Spontaneously	39	
Still birth	Yes	1	0.01
	No	99	
NICU admission	Yes	7	
	No	92	
Final outcome	Discharged	71 (71%)	0.02
	Death	1 (1%)	
	Death IUGR	13 (13%)	
	IUGR	15 (15%)	
Comorbidities	Chronic hypertension	7	
	Pre-eclampsia	19	
	Post Dated	14	
	IUGR	14	
	Uncomplicated	46	

Table IV shows that onset of labour was induced in 61 and spontaneously in 39 cases. There was 1 still birth, 92 (92%) were found no requirement of NICU where 7 (7%) babies were admitted in NICU. Among 100 participants neonatal outcome found as 71 (71%) were discharged, 1 (1%) Death, 13 (13%) Death IUGR and 15 (15%) IUGR. among 100 patients, 7 were chronic hypertension, 19 were pre-eclampsia, 14 were postdated, 14 were IUGR and 46 were uncomplicated. The difference was significant ( $P < 0.05$ ).

**DISCUSSION**

Oligohydramnios is frequent occurrence and demands intensive fetal surveillance and proper antepartum and intrapartum care.<sup>7</sup> Oligohydramnios is a frequent finding in pregnancy involving IUGR, PIH, and pregnancy beyond 40 weeks of gestation.<sup>8</sup> 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.<sup>9,10</sup> This present study was undertaken to study the effect of maternal and fetal outcome in oligohydramnios at term pregnancy.

We found that 11 (11%) patients below 20 years, 59 (59%) patients between 20 to 25 years, 26 (26%) patients between 25 to 30 years age group and 4 (4%) patients found above 30 years among our study population. We found that maternal outcomes of labour with respect to age. In our study among 11 (11%) of below 20 years patients 4 (36%) normal delivery and 7 (64%) were LSCS cases. Among the

59 patients of 20 to 25 years age group, 23 (39%) patients were normal delivery and 36 (61%) were LSCS. Among the 26 patients of 25 to 30 years age group 15 (58%) were normal delivery and 11 (42%) were LSCS. Among 4 patients of above 30 years age group 2 (50%) were found normal delivery and another 2 (50%) patients were found LSCS.

among 62 patients of primigravida 21 were normal labour and 41 were LSCS, where 38 patients of multi gravida 15 were normal delivery and 23 were LSCS. Chauhan and associates et al<sup>11</sup> performed meta-analysis of 18 studies comprising more than 10,500 pregnancies in which the intrapartum AFI was less than 5 cm. Compared with controls whose index was greater than 5 cm, women with oligohydramnios had a significantly increased 2.2-fold risk for caesarean delivery because of foetal distress and a 5.2-fold increased risk for a 5-minute apgar score of less than 7. Cord compression during labour is common with oligohydramnios.

We observed that CTG analysis in respect of maternal outcomes of Labour. Among 62 CTG reactive patients, 35 were normal labour and 27 were LSCS and p value was not significant ( $p = 0.098$ ). Among 38 patients of CTG non-reactive patients 1 was normal labour and 37 were LSCS. K Jagatia et al<sup>12</sup> concluded that Oligohydramnios is frequent occurrence and demands intensive fetal surveillance and proper antepartum and intrapartum care. Oligo-hydramnios 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.

We found that among 39 patients of no meconium cases 31 were normal labour and 8 were LSCS, where p value was highly significant ( $p < 0.001$ ) and among 61 patients of meconium cases 5 were found normal delivery and 56 were found LSCS. We found that onset of labour was induced in 61 and spontaneously in 39 cases. There was 1 still birth, 92 (92%) were found no requirement of NICU where 7 (7%) babies were admitted in NICU. among 100 participants neonatal outcome found as 71 (71%) were discharged, 1 (1%) Death, 13 (13%) Death IUGR and 15 (15%) IUGR. among 100 patients, 7 were chronic hypertension, 19 were pre-eclampsia, 14 were postdated, 14 were IUGR and 46 were uncomplicated. Ghosh R et al<sup>13</sup> observed in their study that Oligohydramnios in obstetrics is a frequent occurrence and it points towards intensive surveillance and proper ante-natal and post-natal care. Due to high perinatal morbidity and mortality, the incidence of LSCS increases. However, vaginal delivery has similar outcome, but strict vigilance in labor is mandatory. The presence of any other risk factor with oligohydramnios increases the chances of caesarean delivery.

The limitation the study is small sample size.

## CONCLUSION

Authors found that Oligo-hydramnios 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 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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