

## Perinatal Outcome in Oligohydramnios at Term Pregnancy

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### Abstract

**Background:** In this Modern era, Obstetrics is very conscious with the health and well-being of both the mother and the newborn. Identifying the fetus at risk for intrauterine death, against the various complications of neonates and assessing the perfect time and the way of intervention for delivery of the unborn fetus are the milestones of the modern Obstetrics. Identification of volume of the amniotic fluid is an important characteristics in USG evaluation for well-being of the fetus at term.

**Objectives:** To study the Perinatal outcome in Oligohydramnios (AFI <6) at term pregnancy. **METHODS:** A Prospective study was done at Silchar Medical College & Hospital with 200 cases of Oligohydramnios with AFI <6.

**Results:** In this study the rate of Oligohydramnios was obtained to be 2%. 35.5% had Caesarean delivery of which 20% was due to liquor having stained meconium. The incidence of Low birth weight was 53%. 39.5% of patients had non-reactive CTG. 71.5% required NICU Admissions. 46.5% had APGAR SCORE lower than 7 at 1 minute and 27% had APGAR SCORE lower than 7 at 5 minutes.

**Conclusions:** Oligohydramnios is related with more maternal and perinatal morbidity. There are high chances of respiratory distress syndrome, meconium stained liquor, birth asphyxia, low birth weight in cases of Oligohydramnios. Amniotic fluid index of <6 has a poor perinatal outcome. Timely interventions, skilled obstetrician and paediatrician can reduce the perinatal morbidity in cases of Oligohydramnios.

**Keywords:** Oligohydramnios, Perinatal outcome, Amniotic fluid.

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### Introduction

Amniotic fluid is present in the cavity of amnion that surrounds the embryo. It is a very important part of amniotic sac and helps in the growth of fetus. Amount of amniotic fluid rises roughly from 30 ml at 10 weeks to 200 ml by 16 weeks and rise upto 800 ml by the

middle of third trimester of pregnancy (Brace 1989, Magnan 1997) [1]. The fluid contains roughly 98% of water. A complete term fetus contains about 2800 mL of water and the placenta contains 400 ml of water so that the uterus at term has approximately 4 litres of

water [2]. It is one of the common obstetric complications which is found with congenital anomalies, perinatal morbidity and mortality. Oligohydramnios is present in 1 to 5 percent of all pregnancies [3].

Although there are many other methods available, in this study assessment of amniotic fluid was done by ultrasonography, AFI (amniotic fluid index) was used as the criteria.

### Materials and Methods

This study was performed in the Department of Obstetrics and Gynecology of Silchar Medical College & Hospital during the period 1<sup>st</sup> June 2021 to 31<sup>st</sup> May 2022. This study consisted of 200 women with Oligohydramnios (AFI<6) at term pregnancy who presented at labour room.

### Inclusion Criteria

1. Single Pregnancy with age of gestation >37weeks
2. Pregnancies that are not having any congenital anomalies
3. AFI<6

### Exclusion Criteria

1. Single Pregnancy with age of gestation< 37 weeks
2. Multiple Pregnancy
3. Patient with fetus with congenital anomalies such as renal agenesis, polycystic kidney diseases etc.

4. Polyhydramnios
5. Uterine anomaly
6. Essential Hypertension
7. Diabetes mellitus
8. Chronic renal diseases, Cardiac diseases

### Methodology

All the cases of Oligohydramnios admitted to labour room were studied. Study was done during the intrapartum and the postpartum period till the patients were discharged

### Data Collection

Data was collected according to the cases including the particulars of all the patients, history, general, clinical and obstetrical examinations, investigations of all the antenatal patients diagnosed with Oligohydramnios during the study period.

The type of delivery whether vaginally or through caesarean sections was recorded. Maternal and perinatal outcomes were observed. It was then subjected to statistical analysis with the help of biostatistification. All the individual cases cooperated voluntarily and a written consent was taken prior to our present study.

### Results

In the present study, out of 10,000 patients admitted during one year study, 200 patients were diagnosed with Oligohydramnios. The incidence in the present study was 2%.

**Table 1: Allotment of Subjects of the study as per the Maternal Age**

Age	No. of Patients	Percentage
<20 Years	28	14.0%
20-25 Years	108	54.0%
26-30 Years	40	20.0%
>30 Years	24	12.0%
Total	200	100.0%

**Table 2: Allotment of Subjects of the study as per the risk factors**

Risk factors	No of Patients	Percentage
Pre-eclampsia	37	18.5%
Post-dated	34	17.0%

PROM	31	15.5%
Anaemia	45	22.5%
Breech	28	14.0%
IUGR	25	12.5%
Total	200	100.0%

It was observed in Table 1 that 108 patients (54%) patients were existing in the age group 20-25 years, 40 patients (20%) were existing in the age group 26-30 years, 28 patients (14%) were existing in age group less than 20 years, 24 patients (12%) were existing in age group more than 30 years.

In Table 2, 45 patients had Anaemia (22.5%), 37 patients had pre-eclampsia (18.5%), 34 patients had post-dated pregnancy (17%), 31 patients had premature rupture of membrane (15.5%), 28 patients had breech presentation (12.5%), 25 patients had intrauterine growth restrictions (12.5%).

**Table 3: Allotment of Study Subjects as per the the amniotic fluid index**

Amniotic fluid index	Number of patients	Percentages
<1	11	5.50%
1 (One)	20	10.00%
2 (Two)	34	17.00%
3 (Three)	37	18.50%
4 (Four)	55	27.50%
5 (Five)	43	21.50%
Total	200	100.00%

Table 3: 55 patients had AFI 4(27.5%), 43 patients had AFI 5 (21.5%), 37 patients had AFI 3 (18.5%), 34 patients had AFI 2 (17%), 20 patients had AFI 1(10%),11 patients had AFI less than 1(5.5%).

**Table 4: Allotment of Study Subjects as per the type of delivery**

Type of Delivery	Number of Patients	Percentages
Vaginal	129	64.5%
LSCS	71	35.5%
Total	200	100.0%

64.5% had normal vaginal delivery and 35.5 % had undergone LSCS, Table 4.

**Table 5: Allotment of Subjects as per the indications of LSCS**

Indications of LSCS	Number of Patients	Percentages
Breech	10	5.0%
Fetal distress	40	20.0%
IUGR	6	3.0%
Failed induction	8	4.0%
Repeat LSCS	7	3.5%
Total	71	35.5%

It was observed that 40 patients had LSCS due to fetal distress (20%), 10 patients had LSCS due to breech presentation (5%), 8 patients had LSCS due to failed induction (4%), 7 patient had LSCS due to previous LSCS (3.5%), 6 patients had LSCS due to IUGR(3%), Table 5.

**Table 6: Allotment of Study Subjects with respect to the status of liquor**

Status of Liquor	No of Patients	Percentage
Normal	136	68.0%
Meconium stain	64	32.0%
Total	200	100.0%

It was observed that 68 % i.e. 136 patients had normal colour liquor and 32% i.e. 64 patients had meconium stained liquor, Table 6. Table 7 shows allotment of study Subjects with respect to the perinatal outcome

**Table 7: Allotment of Study Subjects with respect to the perinatal outcome**

Perinatal Outcome	Number of Patients	Percentage
Still Birth	2	1.0%
RDS	64	32.0%
MAS	28	14.0%
LBW	106	53%
Total	200	100%

**Table 8: Allotment of Study Subjects according to the baby weight**

Birth Weight	No of Patients	Percentage
<2 Kg	47	23.5%
2-<2.5 KG	66	33.0%
2.5-<3 Kg	57	28.5%
>3 Kg	30	15.0%
Total	200	100.0%

It was observed that 106 patients had Low birth weight babies (53%), 64 babies had respiratory distress syndrome (32%), 28 babies had Meconium aspiration syndrome (14%), 2 babies had still birth (1%), 66 babies were obtained to have birth weight between 2 and <2.5kg(33%), 57 babies were obtained to have birth weight between 2.5 and <3kg (28.5%), 47 babies were obtained to have birth weight less than 2 kg(23.5%), 30 babies were obtained to have birth weight greater than 3 kg (15%), Table 8.

**Table 9: Allotment of Study Subjects as per the CTG**

CTG	No of Patients	Percentage
Reactive	121	60.5%
Non-Reactive	79	39.5%
Total	200	100.0%

It was observed that 60.5% had reactive CTG and 39.5 % had non-reactive CTG, **Table 9.**

**Table 10: NICU Admissions**

NICU Admission	Number of Patients	Percentage
Yes	143	71.5%
No	57	28.5%
Total	200	100.0%

71.5% babies required NICU admissions and 28.5 % did not require NICU admissions, Table 10.

**Table 11: APGAR score**

APGAR Score at 1 Minute	Number of Patients	Percentage	APGAR Score at 5 Minutes	Number of Patients	Percentage
<7 at 1 min	93	46.5%	<7 at 5 min	54	27.0%
>7 at 1 min	107	53.5%	>7 at 5 min	146	73.0%
Total	200	100.0%	Total	200	100.0%

46.5% had APGAR Score <7 at 1minute and 53.5% had APGAR score >7 at 1minute. 27% had APGAR score lower than (<7) at 5 minutes and 73% at APGAR score greater than (>7) at 5 minute, Table 11.

In this study there were 4 Neonatal deaths of which 2 were early neonatal death and 2 were late neonatal death.

### Discussions

In this study the common group of antenatal patients who presented with Oligohydramnios were found to be 20-25 years (54%) followed by 26-30 years (20%).

The similar result has been found in study that was conducted by Guin gita *et al*, they conducted one study on abnormal liquor volume and found in Oligohydramnios the highest number of groups of patient were between 21-25years of age [4]. In a study conducted by Chauhan *et al*, they found 67% patients were present in 20-25 years group and 23% patients were present in 26-30 years group [5]. In our study, it has been observed that 22.5% of patients presented with anemia. Most of the patients in our study belong to poor socioeconomic backgrounds. Most of them were illiterates. So, lack of awareness and malnutrition may be one of the important causes of anemia: Anemia is one of the most familiar maternal complications in pregnancy. So, for the obstetrician, it is a matter of concern as it badly affects the health of mother. The study conducted by Bansal *et al*, they found 55 % patients had anemia and malnutrition [6]. Pre-eclampsia is also found to be associated with Oligohydramnios. In our study 18.5% of patients suffered from pre-eclampsia. Bansal *et al* in their study had

obtained 13% of patients suffered from hypertensive disorder amongst which 7.5% have pre-eclampsia. In a study conducted by Guin Gita *et al*, they have found 5% of patients had preeclampsia [4].

In our study, 17% of patients had postdated pregnancy. Bansal *et al* have found 16.5% of patients have postdated pregnancy [6]. Guin Gita *et al* has found in their study 15% patient had postdated pregnancy [4]. In our study, 15.5% of patients had premature rupture of membrane. Bansal *et al* they have found the incidence of PROM was 24% [6]. Guin gita *et al* found 7.1% PROM in their study [4]. In this present study, we found that the breech presentation was 14%. In a study of Guin Gita *et al*, they found the presence of mal presentation to be 13.5%. Bansal *et al* found that 10.5% patients had breech presentation in their study.

In our study, the incidence of IUGR was 12.5%. Gita guin *et al* obtained the rate of IUGR is 14.2%

In this study, we have found that 69.5% of patients had delivered vaginally. Caesarean section was performed in 35.5%. Bansal *et al* found 47% had LSCS and 53% had NVD. As per the study done by Deepa *et al*, they found

83.7% of Oligohydramnios were delivered by caesarean section which was much higher than our study [7].

In our study, we have found that in 20% of cases caesarean section were done for fetal distress, 5% were due to malpresentations, 4% of cases were due to failed induction, 3.5% of cases were due to repeated LSCS, 3% of patients were due to IUGR. In study of Jagatia *et al*, they obtained 21% cases were due to fetal distress, 8% were due to IUGR, 2% were due to malpresentations and 2% were due to other causes [8].

In our study 68% have normal colour liquor and 32 % have meconium stained liquor. In a study performed by Chetana *et al*, 53.33% had clear liquor and 46.66% had meconium stained liquor [9].

In our study 27.5 % have AFI 4 followed by AFI 5 (2.5%) followed by AFI 3 (18.5%) followed by AFI 2 (17%) followed by AFI 1 (10%) followed by AFI less than 1 (5.5%).

In a study done by Kiran *et al*, 46% patients were having AFI between 2-3cm, 33% between 4-5 cm, and 21% of patients between 0-2 cm [10].

In our study 60.5% had reactive CTG and 39.5% had non-reactive CTG. In the study that was done by Chetana *et al*, [9] 60% had reactive CTG and 40% had non-reactive CTG. In our study, we have found the existence of birth asphyxia along with respiratory distress syndrome was 32%. The existence of birth asphyxia and respiratory distress syndrome was found significantly more among the babies born to Oligohydramnios.

Study conducted by Tripathi *et al*, they have found the existence of birth asphyxia and the existence of respiratory distress syndrome was 34% [11].

Low birth weight is one of the main parameters of perinatal morbidity and

mortality. In our study, we have found that the rate of low birth weight was higher i.e. 53%. In our study Meconium Aspiration syndrome was 14% and still birth was 1%. Jagatia *et al*, they obtained that the low-birth weight was 36% [8].

In this study, we have found the incidence of APGAR score of lower than (<7) at 1 minute was 46.5% and lower than (<7) at 5 minutes was 27%.

In a study done by Chauhan SP *et al*, Morris JM *et al* [12] and Guin G *et al* [4] and Chate P *et al*, [13] decreased APGAR score was found among cases of Oligohydramnios. In a study obtained by Raj shariya *et al*, they found 38% of babies had APGAR score <7 [14].

According to the NICU admission, in the present study, we had found 71.5% babies required NICU admissions and 28.5% did not require NICU admissions. In a study conducted by Julie M Jhonson *et al* [15], 20% newborns were required NICU admissions which is much lower compared to our study.

Casey BM *et al* [16] in their study have found 7% were admitted to the NICU in cases with Oligohydramnios.

In our study, Neonatal death was 2 % whereas in a study conducted by Golan *et al*, they found 6.3% neonatal death in cases of oligohydramnios [17].

Oligohydramnios is found with high maternal morbidity by rising the number of caesarean sections, loss of blood and it also rises perinatal morbidity by increasing the risk of growth retardation of fetus, aspiration of meconium, birth asphyxia, decreased APGAR scores and birth defects of unborn fetus [18-20].

## Conclusions

In this study, the rate of Oligohydramnios is 2%. Oligohydramnios is a high-risk pregnancy. It has got more hurdles for both

mother and the baby. Maternal complications like anemia, pre-eclampsia are exaggerated in Oligohydramnios. Babies of mothers having Oligohydramnios are having more chances of reduced birth weight, respiratory distress syndrome, aspiration of meconium. The complications can be minimized by adequate antenatal care, planned delivery and good pediatric care. A good effort of skilled obstetricians and pediatricians, timely delivery and good NICU facilities play a major role for good perinatal outcome in cases of Oligohydramnios.

**Approval of Ethical Committee:** The study was approved by the Ethical Committee of the Institute.

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