

## ORIGINAL ARTICLE

# Apgar Score in Term Pregnancies with Isolated Oligohydramnios

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## ABSTRACT

Oligohydramnios is defined as amniotic fluid index (AFI)  $\leq$  5<sup>th</sup> centile for the gestational age. AFI  $\leq$  5cm or maximum vertical pocket devoid of umbilical cord or fetal limbs measures  $<$  30cm, in the presence of intact membrane. It is well established that oligohydramnios is associated with a high risk of adverse perinatal outcomes, On the other hand, oligohydramnios is a poor predictor for adverse outcome and leads to unnecessary inductions and followed by increased caesarean sections rate.

**Objective:** To determine the frequency of adverse perinatal outcome in pregnancies with isolated oligohydramnios at term.

**Study design:** Case Series.

**Settings:** The study was carried out in the Department of Obstetrics & Gynaecology unit IV, Sir Ganga Ram Hospital, Lahore.

**Duration of Study:** From 30<sup>th</sup> September 2012 to 29<sup>th</sup> March 2013

**Results:** Majority of the patients i.e. 43.5%(n=87) were between 20-25 years old, mean and SD was calculated as 28.43 $\pm$ 4.27 years. 38%(n=76) were between para 1-2, 41.5%(n=83) were para 3-4, while 20.5%(n=41) were para  $>$ 4. Frequency of perinatal outcome reveals that apgar score  $<$ 6 at 1 minute was calculated in 10.5%(n=21) and  $<$ 7 at 5 minutes in 8.5%(n=17) which is not very significant.

**Conclusion:** Isolated oligohydramnios is not associated with adverse perinatal outcome.

**Key words:** Isolated oligohydramnios, Amniotic fluid index, Perinatal outcome, APGAR score, Term pregnancy.

## INTRODUCTION

Amniotic fluid provides the fetus a protective low resistance environment suitable for growth and development.<sup>1</sup> Amniotic fluid index (AFI) is the most commonly used method to determine the amniotic fluid volume.<sup>2</sup>

Oligohydramnios is defined as amniotic fluid index (AFI)  $\leq$  5<sup>th</sup> centile for the gestational age, AFI  $\leq$  5cm or maximum vertical pocket devoid of umbilical cord or fetal limbs measures  $<$  30cm, in the presence of intact membrane.<sup>3</sup>

Isolated oligohydramnios is defined as sonographic findings of low amniotic fluid in the absence of intra-uterine growth restriction, fetal anomaly or significant maternal co-morbidity, e.g. PIH etc.<sup>4</sup> Oligohydramnios complicates 0.5-5% of all pregnancies.<sup>5</sup> The common etiological factors associated with oligohydramnios are ruptured membranes, congenital abnormalities and placental insufficiency.<sup>5</sup>

Isolated oligohydramnios in uncomplicated term pregnancies is associated with increased adverse perinatal outcome in terms of low APGAR

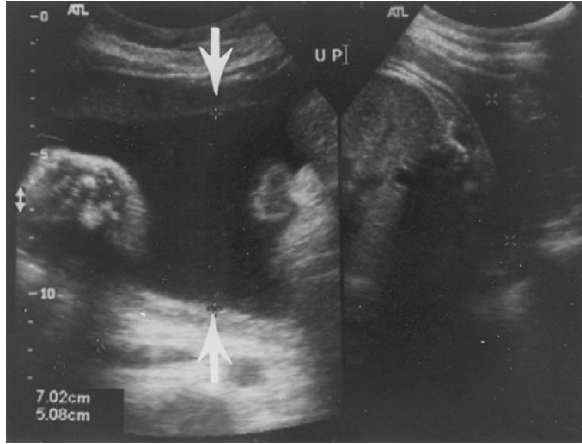
score  $<$  6 at 1 minutes.<sup>6</sup> Oligohydramnios is associated with increased chances of induction of labour, non-reassuring fetal heart rate, deceleration of fetal heart rate, caesarean delivery for fetal distress, APGAR score  $<$  6 at 1 min, APGAR score  $<$ 7 at 5 min.<sup>3</sup>



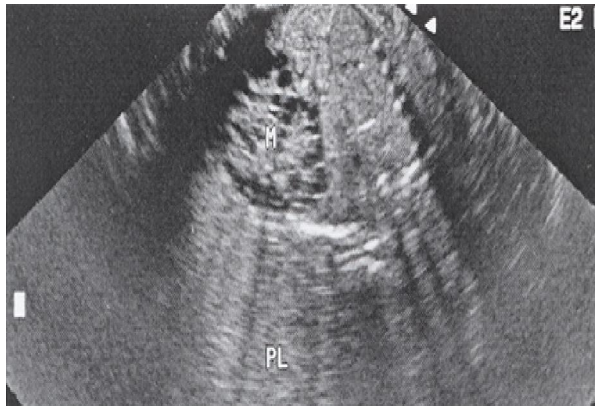
**Fig.1:** Visually normal amniotic fluid volume at 18 weeks gestation

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The possible explanation of the increased perinatal morbidity and mortality could be due to umbilical cord compression, potential uteroplacental insufficiency and increased incidence of meconium stained amniotic fluid.<sup>3</sup>



**Fig 2:** 30 weeks gestation. A single deepest pocket of amniotic fluid(7cm), indicating a normal amniotic fluid volume



**Fig 3:** Subjective assessment of amniotic fluid volume. 20 week fetus with a unilateral multicystic kidney (m) and congenital absence of the other kidney, resulting in anhydramnios (PL = placenta).

### OBJECTIVE

The objective of the study was to:

- To determine the frequency of adverse perinatal outcome in pregnancies with isolated oligohydramnios at term.

### MATERIALS AND METHODS

#### STUDY DESIGN:

- Series of case reports.

#### SETTING:

- The study was carried out in department of Obstetrics & Gynaecology Unit-IV, Sir Ganga Ram Hospital, Lahore.

#### DURATION OF STUDY:

From 30<sup>th</sup> September 2012 to 29<sup>th</sup> March 2013

#### SAMPLE SIZE:

- Sample size of 200 cases is calculated with 95% confidence level 3.5% margin of error and taking expected percentage of poor APGAR score i.e. <6 at 5 minutes i.e 6% in patients presenting at term with isolated oligohydramnios

#### SAMPLING TECHNIQUE:

- Non probability purposive sampling

#### SAMPLE SELECTION:

##### Inclusion Criteria:-

- Term pregnancy 37<sup>+0</sup> to 41<sup>+6</sup> weeks by dating scan
- Pregnancy with isolated oligohydramnios (absence of PIH ruled out by checking blood pressure at admission, diabetes by checking BSL at admission, IUGR on USG) in active phase of labour (cervical dilatation > 3cm with regular uterine contraction every 3 to 4 minutes).

##### Exclusion Criteria:-

- PROM (ruled out by P/S examination)
- Multiple gestation (by USG)

#### DATA COLLECTION:

Two hundred admitted patients fulfilling the inclusion criteria was enrolled in study and informed consent was taken, regarding inclusion of patient in study. CTG and obstetrical ultrasound for biophysical profile were done. Patient's labour was monitored closely and followed till delivery.

Whatever the mode of delivery, the new born was assessed in terms of APGAR scores at 1 and 5 minutes. Poor APGAR scores are <6 at 1 minute and <7 at 5 minutes. All information was obtained on a pre designed proforma attached.

#### DATA ANALYSIS:

Data was analyzed according to the SPSS program version 18. The variable to be analyzed is APGAR score at 1 minute and at 5 minutes. Frequency and percentages were calculated for poor APGAR score and adverse perinatal outcome. Frequency was calculated for parity. Age was presented in the form of mean  $\pm$  S.D.

## RESULTS:

A total of 200 patients were enrolled following the inclusion and exclusion criteria to determine the frequency of adverse perinatal outcome in patients with isolated oligohydramnios at term pregnancy.

**Table 1:** Age Distribution of The Patients (n=200)

Age(in years)	No. of patients	%
20-25	87	43.5
26-30	60	30
31-35	53	26.5
<b>Total</b>	<b>200</b>	<b>100</b>

Mean and SD 28.43±4.27

**Table 2:** Gestational Age Of The Patients (n=200)

Gestational age (in weeks)	No. of patients	%
37 <sup>+0</sup> -39 <sup>+0</sup>	48	24
39 <sup>+6</sup> -41 <sup>+6</sup>	152	76
<b>Total</b>	<b>200</b>	<b>100</b>

Mean and SD 40.32±2.54

**Table 3:** Parity of The Patients (n=200)

Parity	No. of patients	%
Para 1-2	76	38
Para 3-4	83	41.5
Para >4	41	20.5
<b>Total</b>	<b>200</b>	<b>100</b>

**Table 4:** Frequency Of Adverse Perinatal Outcome (n=200)

Perinatal outcome	No. of patients	%
Apgar score <6 at 1 minute	21	10.5
Apgar score <7 at 5 minute	17	8.5
Apgar score >6 at 1 minute and >7 at 5 minutes	162	81

Age distribution of the patients was done, which shows 43.5%(n=87) between 20-25 years, 30%(n=60) between 26-30 year and 26.5%(n=53) were between 31-35 years of age, mean and SD was calculated as 28.43±4.27 years. (Table No.

1).Gestational age of the patients was recorded in weeks, 24%(n=48) were between 37<sup>+0</sup>-39<sup>+0</sup> and 76%(n=152) were between 39<sup>+6</sup>-41<sup>+6</sup> weeks of gestation, mean gestational age was calculated as 40.32±2.54 weeks. (Table No. 2).Parity of the patients shows 38%(n=76) were between 1-2 para, 41.5%(n=83) were para 3-4, while 20.5%(n=41) were >4 para. (Table No. 3).Frequency of perinatal outcome reveals that apgar score <6 at 1 minute was calculated as 10.5%(n=21) while it was <7 at 5 minutes in 8.5% (n=17).(Table No. 4)

## DISCUSSION

It is well established that oligohydramnios is associated with high risk of adverse perinatal outcomes.<sup>7-8</sup> On the other hand, oligohydramnios is a poor predictor of adverse outcomes.<sup>9-10</sup> These observations seem very conflicting and are explained by the fact that all oligohydramnios are not the same and it showed that isolated oligohydramnios is not associated with poor outcome.

However, we planned the study to determine whether isolated oligohydramnios is associated with poor perinatal outcome in terms of poor APGAR score or not.

The results of the study revealed that APGAR score was <6 at 1 minute was calculated in 10.5% neonates (n=21) while 8.5% neonates (n=17) had APGAR score <7 at 5 minutes.

The findings of the study are in agreement with a study showing that there were increased chances of induction of labour (41%Vs22%), caesarean delivery (32%Vs 23%) and APGAR score <6 at 1 min (8%Vs 1.1%), APGAR score <7 at 5 min (6%Vs 0.56%) in oligohydramnios group.<sup>3</sup> (H Ahmad).

Chate P and colleagues<sup>11</sup> reported in the current year that APGAR score <7 in percentage in study group was 30% at 1 min and 16 % at 5 min, which is comparable to with other studies also.

In our study, we also found a significantly higher number of low birthweight babies in our own study population but did not include in our data analysis being the limitation of the study. But these findings are also in agreement with another study which reported that isolated oligohydramnios beyond 40 weeks of gestation increased the likelihood of small for dates babies and adverse perinatal outcome.<sup>12,13</sup>

In addition, induction of labour was performed in significantly higher number of women with isolated oligohydramnios, and these results are in

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accordance with others where 50% of low risk women with oligohydramnios underwent induction of labour.

A more than two fold higher caesarean section rate in the isolated oligohydramnios was observed in our study. The increase in caesarean section rate was not truly due to a higher rate of fetal distress but presumably due to higher rate of elective labour inductions. It is a well known fact that induced labour compared to spontaneous labour results in caesarean section regardless of the parity and the condition of the cervix.<sup>13</sup> In a Meta analysis, reduced amniotic fluid volume was associated with increased risk of Caesarean section due to fetal heart rate abnormalities.<sup>14</sup> Others have also reported similar findings.<sup>13-15</sup>

However, considering the above findings in support with other studies we are of the view that isolated oligohydromnios is not associated with adverse perinatal outcome.

There are limitations of this study because it was a hospital based study in a small number of patients and very few local studies are available for comparison.

### CONCLUSION

It is concluded that adverse perinatal outcome in patients with isolated oligohydramnios at term pregnancy is found in accordance with other local studies but this association is not significantly higher, so decision should be taken on individual basis in isolated oligohydramnios along with other parameters for fetal well being.

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