

# INCIDENCE OF LOW BIRTH WEIGHT IN PREGNANT WOMEN WITH ISOLATED OLIGOHYDRAMNIOS

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## ABSTRACT

**Introduction:** Oligohydramnios affect 3% to 5% of pregnancies and is associated with increased pregnancy complications, congenital anomalies and perinatal mortality. Therefore, adequate amniotic fluid volume is critical for the normal fetal growth and development. Large scale national data showing the incidence of oligohydramnios in Pakistan is lacking. Therefore, we conducted the study to determine the frequency of low birth weight in pregnant women with isolated oligohydramnios.

**Material and Methods:** This descriptive cross-sectional study was carried out in the department of obstetrics and gynecology Hayatabad Medical Complex, Peshawar from April 2015 to Oct 2015. This study included a total of 124 patients using non probability consecutive sampling technique for sample collection. Women with singleton pregnancies at term 37 to 40 wks with non anomalous fetuses and with intact membranes and cephalic presentation and with isolated oligohydramnios were included in study.

**Results:** Our study shows that among 124 women, 67 (54%) women were primi gravida while 57(46%) women were multi gravida. Mean age was 26 years (SD  $\pm$  4.37) and mean parity was 3 (SD  $\pm$  2.02). Mean gestational age of patients was 38 weeks with SD  $\pm$  1.22. Low Birth weight among 124 patients was analyzed as 19(15%) neonates had birth weight  $\leq$  2.5 Kg, 105(85%) neonates had birth weight  $>$  2.5 Kg, Mean birth weight was 3.5 Kg with SD  $\pm$  4.62.

**Conclusion:** Our study concludes that the incidence of low birth weight was found to be 15% in pregnant women with isolated oligohydramnios.

**Key Words:** Low Birth weight, pregnant women, oligohydramnios.

## INTRODUCTION

Oligohydramnios is a decreased amount of amniotic fluid, affecting 3% to 5% of pregnancies.<sup>1</sup> An accurate and reproducible method of determining abnormality in amniotic fluid volume is sonographic assessment of amniotic fluid index (AFI).<sup>2</sup> AFI less than or equal to 5cm is termed as oligohydromnios.<sup>3</sup> The common etiological factors associated with oligohydramnios are ruptured membranes, congenital abnormalities and placental insufficiency.<sup>4</sup> Among these uteroplacental insufficiency is the most common cause of prerenal oligohydramnios and the decrease amniotic fluid is a direct result of decreased fetal renal perfusion.<sup>5</sup> However, isolated oligohydramnios refers to absence of maternal and fetal risk factors and failure to identify a recognizable underlying etiology.<sup>6</sup>

Oligohydramnios has been implemented as a sign of potential fetal compromise and associated with increased incidence of adverse perinatal morbidity and

mortality.<sup>2</sup> Isolated oligohydramnios at term is one of the major indicators for antenatal surveillance. However, conflicting data exists concerning the implication of isolated oligohydramnios on pregnancy outcome at term. Various studies have reported that antepartum oligohydramnios is associated with increased perinatal morbidity.<sup>7,9</sup> However, a study reported that isolated oligohydramnios in the absence of any other maternal or fetal complicating factor is not found to adversely affect the fetal outcome. Though the fetal weight may be slightly lower in babies born to mothers with oligohydramnios.(p value  $<$  0.05)<sup>10</sup>. Similarly another study showed oligohydramnios in the absence of maternal or fetal risk factors is not associated with an adverse perinatal outcome when compared to pregnancies managed expectantly.<sup>11,12</sup> Moreover, a woman who is at term with isolated oligohydramnios with reassuring fetal surveillance and the absence of maternal morbidity and evidence of fetal growth retardation is not associated with adverse perinatal outcome.<sup>13</sup> A metaanalysis published<sup>14</sup> also reported that in term or post-term pregnancies, isolated oligohydramnios is associated with increased risk of obstetric interventions but outcomes are similar to those of pregnancies with normal amniotic fluid. Due to this conflicting data, still the available literature is insufficient to make firm recommendations supporting intervention for isolated oligohydramnios. Here, in this study we aimed to evaluate the effect of isolated oligohydramnios at term on birth weight of babies. As there is no local study available on this topic so this

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study may prove helpful for further research purpose.

## MATERIAL AND METHODS

This descriptive cross-sectional study was conducted in department of obstetrics and gynecology Hayatabad Medical Complex, Peshawar from April 2015 to Oct 2015.

The sample size was 124 using 20% of birth weight, 95% confidence level and 8%

Sampling technique used was non probability consecutive sampling

### Inclusion criteria

Age 20-35 years.

Women with singleton pregnancies at term 37 to 40 wks with non anomalous fetuses and with intact membranes and cephalic presentation and with isolated oligohydramnios.

### Exclusion criteria

- Women with unsure gestational age
- Women with multiple pregnancy
- Women with history of preterm rupture of membranes
- Post term pregnancies, previous cesarean section, evidence of intrauterine growth retardation.
- Medical disorders like diabetes, hypertension, cardiac diseases and preeclampsia.

This study was conducted after approval from hospital ethical and research committee. All pregnant women attending antenatal clinic or labour room, who fulfill the operational definition, inclusion and exclusion criteria were included in the study after obtaining informed written consent.

All women attending OPD and labour room undergo a sonographic assessment of amniotic fluid volume as an integral part of fetal assessment. A thorough maternal history in order to establish adequate dating of pregnancy and targeted physical examination was performed to look for maternal condition that may be associated with oligohydramnios. In addition, examination also include per abdomen examination and bishop score. Eventually these mothers was induced for this indication of oligohydramnios and outcome was analysed i.e weight of the newborns was measured in kilograms by same weight machine provided in labour room. All data was recorded in a predesigned performa.

Data was entered & analysed using SPSS version 21. Quantitative data like age, parity, period of gestation was presented in the form of mean and standard deviation. Qualitative data i.e low birth weight was presented in the form of frequency and percentages.

Birth weight was stratified among age, gravida, parity. Post stratification chi square test was applied keeping P value  $\leq 0.05$  as significant value. All the results were presented in the form of tables and charts.

## RESULTS

Age distribution among 124 patients was analyzed as 56(45%) women were in age 20-25 years, 50(40%) women were in age 26-30 years, 18(15%) women were in age 31-35 years. Mean age was 26 years with SD  $\pm 4.37$ . (table no 1)

Parity distribution among 124 patients was analyzed as 97(78%) women had parity  $\leq 3$  while 27(22%) women had parity  $> 3$ . Mean parity was 3 with SD  $\pm 2.02$ . (table no 2)

Gravida distribution among 124 patients was analyzed as 67(54%) women were primi gravida while 57(46%) women were multi gravid. (table no 3)

Period of gestation among 124 patients was analyzed as 63(51%) women had POG range 37-38 weeks, 40(32%) women had POG range 38-39 weeks, 21(17%) women had POG range 39-40 weeks. Mean POG was 38 weeks with SD  $\pm 1.22$ . (table no 4)

Low Birth weight among 124 patients was analyzed as 19(15%) neonates had birth weight  $\leq 2.5$  Kg, 105(85%) neonates had birth weight  $> 2.5$  Kg, Mean birth weight was 3.5 Kg with SD  $\pm 4.62$ . (table no 5)

Stratification of low birth weight with age, parity

Table 1: Age distribution (n=124)

Age	Frequency	Percentage
20-25 years	56	45%
26-30 years	50	40%
31-35 years	18	15%
Total	124	100%

Mean age was 26 years with SD  $\pm 4.37$

Table 2: Parity Distribution (n=124)

Parity	Frequency	Percentage
$\leq 3$	97	78%
$> 3$	27	22%
Total	124	100%

Mean parity was 3 with SD  $\pm 2.02$

Table 3: Gravida distribution (n=124)

Gravida	Frequency	Percentage
Primi Gravida	67	54%
Multi Gravida	57	46%
Total	124	100%



**Table 4: Period Of Gestation (n=124)**

Pog	Frequency	Percentage
37-38 weeks	63	51%
38-39 weeks	40	32%
39-40 weeks	21	17%
Total	124	100%

Mean POG was 38 weeks with SD  $\pm$  1.22

**Table 5: Low Birth Weight (n=124)**

Low birth weight	Frequency	Percentage
$\leq$ 2.5 Kg	19	15%
$>$ 2.5 Kg	105	85%
Total	124	100%

Mean age was 3.5 Kg with SD  $\pm$  4.62

**Table 6: Stratification Of Low Birth Weight W.R.T Age Distribution (n=124)**

LBW	20-25 years	26-30 years	31-35 years	Total
$\leq$ 2.5 Kg	8	8	3	19
$>$ 2.5 Kg	48	42	15	105
Total	56	50	18	124

Chi Square test was applied in which P value was 0.9564

**Table 7: Stratification Of Low Birth Weight W.R.T Parity Distribution (n=124)**

LBW	$\leq$ 3	$>$ 3	Total
$\leq$ 2.5 Kg	15	4	19
$>$ 2.5 Kg	82	23	105
Total	97 (78.3%)	27 (21.7%)	124

Chi Square test was applied in which P value was 0.9339

**Table 8: Stratification Of Low Birth Weight W.R.T Gravida Distribution (n=124)**

LBW	Primi gravid	Multi gravida	Total
$\leq$ 2.5 Kg	10	9	19
$>$ 2.5 Kg	57	48	105
Total	67	57	124

Chi Square test was applied in which P value was 0.8940

gravid is given in table no 6,7,8.

## DISCUSSION

Oligohydramnios has been defined as amniotic fluid index (AFI)  $\leq$  5 cm and borderline oligohydramnios as AFI between 5 and 8 cm between 36–42 weeks of gestation. In pregnancies of more than 40 weeks of gestation, the incidence is more than 12 % as the amniotic fluid volume declines progressively.<sup>15</sup> Moreover, generally it is stated that oligohydramnios is associated with poor perinatal outcomes.<sup>16</sup> Women with oligohydramnios are more likely to have non-reactive fetal heart rate tracings, increased incidence of fetal distress, and thus an increased incidence of caesarean sections.<sup>17</sup> However, some studies show that AFI is a poor predictor of adverse perinatal outcome and isolated oligohydramnios should not be the only parameter for predicting perinatal outcome. The present study was carried out to find whether oligohydramnios can be used as a predictor of adverse perinatal outcome in non-complicated

pregnancies at term.

Our study shows that among 124 women, 19 (15%) neonates had birth weight  $\leq$  2.5 Kg, 105(85%) neonates had birth weight  $>$  2.5 Kg, Mean birth weight was 3.5 Kg with SD  $\pm$  4.62. Similar results were found in another study conducted by Reddy V et al<sup>18</sup> in which out of 3,567 patients 32 (0.9%) and 5 (0.15%) were diagnosed as isolated oligohydramnios and polyhydramnios, respectively. Among 32 (0.9%) newborns of isolated oligohydramnios, 5 (15.62%) were very low birth weight ( $<$  1,500gms), 14 (43.75%) were Low Birth Weight (1,500 – 2,500gms) and 13 (41%) were with normal birth weight (2,500 - 3,800gms). None of the cases were with large for gestational Age babies ( $>$  3800gms). Further, preterm and term gestations were 17 (53.12%) and 15(46.8%) respectively in this group. In another study conducted by Singhal SR et al<sup>19</sup> a total of 100 patients were observed in which 19 neonates had birth weight  $\leq$  2.5 Kg while 81 neonates had birth weight  $>$  2.5 Kg, Mean birth weight was 4 Kg with SD



$\pm 2.98$ . Further, in another study conducted by Sowmya K et al<sup>20</sup> total number of cases studied were 100, out of which 50 were in the study group and had an AFI  $>5$  and 50 were in the control group and had an AFI  $>5$ . 24 babies (48%) in the study group had birth weight  $<2.5$  kg, whereas 11 babies (22%) in the control group had birth weight  $<2.5$  kg (p value  $<0.05$ ). This difference was statistically significant. 7 babies in the study group (14%) were admitted to the neonatal intensive care unit (NICU), whereas 2 babies (4%) in the control group had NICU admission (p value  $>0.05$ ). Further, Morris RK et al<sup>21</sup>, documented that isolated oligohydramnios is associated with increased likelihood of iatrogenic preterm delivery and comparatively lower birth weights. Therefore, isolated oligohydramnios during second trimester does not increase adverse perinatal outcome significantly (but increases the caesarean section rate) and therefore, should not be an indication for termination of pregnancy<sup>22</sup>.

## CONCLUSION

Our study concludes that the incidence of LBW was found to be 15% in pregnant women with isolated oligohydramnios.

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