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Perinatal Outcome in Case of Oligohydramnios in Term Pregnancy

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Abstract

Introduction: Oligohydramnios, referring to a low level of amniotic fluid (amniotic fluid index 5 cm), is a frequent pregnancy complication, especially at term, and is linked to elevated risks for newborns. Diagnosing it promptly with ultrasonography and proper management by an obstetrician are key to minimizing negative results. This study was conducted to assess the perinatal outcomes of oligohydramnios in term pregnancies.

Methods: This was a prospective observational study conducted at the Department of Obstetrics and Gynecology of Uttara Adhunik Medical College (UAMC) hospital, Bangladesh, from January 2025 to December 2025, including 68 women with term pregnancies (≥37 weeks) diagnosed with oligohydramnios (AFI ≤5 cm) by ultrasonography. The collected data were compiled and analyzed using SPSS version 25.

Result: Adverse neonatal outcomes were notable, with 41.2% low birth weight, 20.6% low Apgar scores, and 26.5% requiring NICU admission, while 8.8% developed meconium aspiration syndrome. Fetal distress (35.3%), meconium-stained liquor (26.5%), and intrauterine growth restriction (23.5%) were the most common perinatal complications, with a perinatal mortality rate of 4.4%.

Conclusion: This study concludes that oligohydramnios in term pregnancy is associated with increased perinatal risks. A higher rate of cesarean section, predominantly due to fetal distress, was observed, along with significant Perinatal complications such as low birth weight, low Apgar scores, and increased NICU admissions.

Keywords: Perinatal outcome, oligohydramnios, term pregnancy

Introduction

Oligohydramnios refers to a condition where there is a decrease in the amount of amniotic fluid and is recognized as a major obstetric issue that can lead to poor maternal and perinatal complications. The diagnosis is usually made by using ultrasound, where the amniotic fluid index (AFI) is less < 5 or the single deepest pocket measures < 2 cm (1). The amniotic fluid has many important functions in the development of the fetus, such as allowing fetal movements, thermoregulation, protection from cord compression, and lung development. Thus, a reduction in the amount of fluid may affect the well-being of the fetus and result in unfavorable pregnancy outcomes.[1,2] The rate of occurrence of oligohydramnios depends on the time of pregnancy, with the frequency being around 15% at term and increasing markedly in post-term pregnancies.[2] There are many reasons why people get oligohydramnios; the causes can be the mother, baby, or placenta. Some of them include uteroplacental insufficiency, fetal renal anomalies, premature rupture of membranes, and idiopathic factors. Among these, uteroplacental insufficiency is considered to be the main cause,

particularly in the case of term pregnancies, when there is a decrease in fetal urine production and, as a result, a reduction in the amount of amniotic fluid.[1,3] Oligohydramnios at term pregnancy is a situation that carries special clinical significance as it is frequently the only finding and may lead to a tough decision in obstetric management. While it is true that some instances might not be complicated, multiple recent studies have shown a consistent association between oligohydramnios and the risk of having adverse perinatal outcomes. Some examples are intrauterine growth restriction (IUGR), fetal distress, meconium-stained amniotic fluid, low Apgar scores, higher cesarean section rates, and admissions to the neonatal intensive care unit (NICU).[4–6] Additionally, the identification of oligohydramnios has been linked with an increase in perinatal morbidity and mortality, which is a testament to the fact that early recognition and management are very critical.[5,6] In term pregnancies, oligohydramnios is most of the time accompanied by non-reassuring fetal heart rate patterns as a result of cord compression, leading to an escalation of operative delivery rates. Methods have shown a remarkable rise in the frequency of cesarean section, especially for fetal distress in women with an AFI of 5 cm compared to those having normal or borderline fluid levels.[4] Also, infants delivered by mothers with oligohydramnios are more prone to having low birth weight, birth asphyxia, and need for intensive neonatal care.[6,7] Yet, there is still some dispute over how isolated oligohydramnios at term should be managed. Some doctors Prefer for early labor induction to avoid bad results, whereas others think that with proper fetal monitoring, waiting without any intervention can be equally safe in selected cases.[2,8] This difference in medical conduct highlights the importance of more studies to clarify the real effect of oligohydramnios on perinatal outcomes, particularly where constant fetal monitoring is not available. Given the possible complications of low amniotic fluid level, evaluation of perinatal outcomes is very important for guiding the clinical decisions of pregnancy at term complicated by oligohydramnios. Consequently, the study is designed to evaluate the perinatal outcomes of oligohydramnios cases during term pregnancy and also to explore its effects on both maternal and neonatal health.

Methods

This prospective observational research was carried out at the Department of Obstetrics and Gynecology in Uttara Adhunik Medical College (UAMC) hospital, Bangladesh, from January 2025 to December 2025. The study population was 68 women with a term pregnancy (37 weeks) diagnosed with oligohydramnios (AFI 5 cm) by ultrasonography. Women with multiple pregnancy, pregnant preterm, fetal congenital anomalies, or major maternal comorbidities have been excluded from the study. Maternal age parity, gestational age, etc. - Maternal and obstetric data have been collected. Participants were given a routine antenatal check-up and intrapartum fetal monitoring. The mode of delivery depended on obstetrical indications and fetal condition; cesarean sections were done for fetal distress, meconium-stained, failed induction, or other complications. In order to determine the effects of oligohydramnios on maternal and perinatal outcomes, neonatal outcomes such as birth weight, Apgar scores, NICU admission, and perinatal complications were recorded. The gathered data were first organized and then subjected to analysis using SPSS version 25. Maternal characteristics, obstetric parameters, and neonatal outcomes were presented by means of descriptive statistics that included frequencies, percentages, means, and standard deviations. The Institutional Ethics Committee granted ethical clearance for the study and thus confirmed that the study was in line with the principles of the Declaration of Helsinki. Permission in writing by way of informed consent was secured from all the individuals who took part in the study.

Results

Table 1 shows the age distribution of the study participants. The majority of women (36.8%) belonged to the 26–30 years age group, followed by 32.4% in the 20–25 years category, indicating that most cases of oligohydramnios occurred in women within the optimal reproductive age group. A notable proportion (22.0%) were older than 30 years, which may reflect increased obstetric risks with advancing maternal age. Only 8.8% of participants were younger than 20 years [Table 1].

The majority of the participants were multigravida (61.8%), while primigravida accounted for 38.2% of the cases. This indicates a higher prevalence of oligohydramnios among women with previous pregnancies [Table 2].

Cesarean section was the predominant mode of delivery, accounting for 64.7% of cases, whereas only 35.3% of women delivered vaginally. This high rate of operative delivery reflects the increased obstetric intervention associated with oligohydramnios at term [Table 3].

Among the 44 cesarean deliveries, fetal distress was the most common indication, observed in 45.5% of cases. This finding highlights the strong association between oligohydramnios and compromised fetal status, likely due to cord compression and reduced placental perfusion. Meconium-stained liquor was the second most frequent indication (22.7%), suggesting intrauterine fetal stress. Failed induction accounted for 18.2% of cesarean sections, which may be related to an unfavorable cervical condition or inadequate uterine response. Other indications comprised 13.6% of cases [Table 4].

A significant proportion of neonates (41.2%) had low birth weight (<2.5 kg), suggesting a possible association between oligohydramnios and impaired fetal growth. Additionally, 20.6% of newborns had an Apgar score below 7 at 5 minutes, indicating neonatal compromise at birth. NICU admission was required in 26.5% of cases, reflecting increased neonatal morbidity. Meconium aspiration syndrome was observed in 8.8% of neonates [Table 5].

Fetal distress was the most common perinatal complication, occurring in 35.3% of cases, emphasizing the vulnerability of the fetus in oligohydramnios. Meconium-stained liquor was present in 26.5% of cases, indicating intrauterine

Table 1: Distribution of participants according to age ($n = 68$)

Age group (years)	Frequency (*n*)	Percentage (%)
<20	6	8.8%
20–25	22	32.4%
26–30	25	36.8%
>30	15	22.0%
Total	**68**	**100%**

Table 2: Distribution according to gravidity ($n = 68$)

Gravidity	Frequency (*n*)	Percentage (%)
Primigravida	26	38.2%
Multigravida	42	61.8%
Total	**68**	**100%**

Table 3: Mode of delivery among study participants ($n = 68$)

Mode of delivery	Frequency (*n*)	Percentage (%)
Normal vaginal	24	35.3%
Cesarean section	44	64.7%
Total	**68**	**100%**

Table 4: Indications of cesarean section ($n = 44$)

Indication	Frequency (*n*)	Percentage (%)
Fetal distress	20	45.5%
Meconium-stained liquor	10	22.7%
Failed induction	8	18.2%
Others	6	13.6%
Total	**44**	**100%**

hypoxia. Intrauterine growth restriction (IUGR) was observed in 23.5% of pregnancies, suggesting chronic placental insufficiency as a contributing factor. Perinatal mortality was recorded in 4.4% of cases, which, although relatively low, remains clinically significant. Only 10.3% of pregnancies had no complications [Table 6].

Discussion

In the present study, the majority of participants (36.8%) were aged 26–30 years, followed by 32.4% in the 20–25 years group, indicating that oligohydramnios predominantly affected women in the optimal reproductive age group. Similarly, Saxena et al. reported that 58% of their study population were between 21 and 30 years.[9] Nazlima et al. also observed that 46% of cases were within 20–29 years.[10] These findings are comparable to the present study, suggesting that oligohydramnios is commonly encountered in women within the reproductive age group rather than at extremes of age. Regarding gravidity, the present study demonstrated a higher proportion of multigravida women (61.8%) compared to primigravida (38.2%). In contrast, Patil et al. reported that 54% of cases were primigravida and 46% multigravida.[11] Saxena et al. also found primigravida predominance (60%),[9] whereas Shiferaw et al. reported a nearly equal distribution (primigravida 49%, multigravida 51%).[2] These variations indicate that oligohydramnios affects both primigravida and multigravida women, with no consistent pattern across studies. In terms of mode of delivery, cesarean section was performed in 64.7% of cases in this study, while 35.3% had vaginal delivery. Saxena et al. reported a cesarean rate of 62% and vaginal delivery in 38% of cases.[9] Patil et al. observed cesarean delivery in 56% and vaginal delivery in 44%.[11] Jagatia et al. also demonstrated a significantly higher cesarean rate of 51% in oligohydramnios compared to 32% in normal AFI pregnancies.[12] Fetal distress was the most common indication for cesarean section in this study (45.5%), followed by meconium-stained liquor (22.7%) and failed induction (18.2%). Saxena et al. reported fetal distress in 48% and meconium-stained liquor in 26% of cases undergoing cesarean section.[9] Nazlima et al. also found fetal distress in 50% and meconium-stained liquor in 30% of cases.[10] With respect to neonatal outcomes, 41.2% of neonates in this study had low birth weight (<2.5 kg), 20.6% had an Apgar score <7 at 5 minutes, and 26.5% required NICU admission. Patil et al. reported low birth weight in 48% of neonates, Apgar score <7 in 18%, and NICU admission in 22%.[11] Saxena et al. observed low birth weight in 52%, low Apgar score in 25%, and NICU admission in 28% of cases.[9] Jagatia et al. found NICU admission rates of 20% in oligohydramnios compared to 8% in normal pregnancies.[12] Additionally, Rossi and Prefumo reported low Apgar scores in 21% and increased NICU admissions in oligohydramnios cases.[13] In the present study, fetal distress (35.3%), meconium-stained liquor (26.5%), and intrauterine growth restriction (23.5%) were the most common perinatal complications, while perinatal mortality was observed in 4.4% of cases.

Table 5: Neonatal outcomes (n = 68)

Outcome	Frequency (n)	Percentage (%)
Birth weight <2.5 kg	28	41.2%
Birth weight ≥2.5 kg	40	58.8%
Apgar score <7 at 5 min	14	20.6%
NICU admission	18	26.5%
Meconium aspiration syndrome	6	8.8%

Table 6: Perinatal complications (n = 68)

Complication	Frequency (n)	Percentage (%)
Fetal distress	24	35.3%
Meconium-stained liquor	18	26.5%
Intrauterine growth restriction (IUGR)	16	23.5%
Perinatal mortality	3	4.4%
No complications	7	10.3%
Total	**68**	**100%**

Saxena et al. reported fetal distress in 40%, meconium-stained liquor in 28%, and IUGR in 20% of cases.[9] Nazlima et al. observed perinatal mortality of 6% and IUGR in 25% of cases.[10] Shiferaw et al. reported perinatal mortality of 7.2% and a significantly increased risk of adverse outcomes.[2] Compared to these studies, the present study shows similar complication patterns, although the slightly lower mortality rate (4.4%) may reflect improved obstetric care and timely intervention.

Limitations of the Study

The relatively small sample size (n = 68) might restrict the extent to which the results can be generalized to the broader population. As it was a single-center study, the results might be indicative of the local clinical practices and thus may not be characteristic of a wider range of settings. Also, the lack of a control group with normal amniotic fluid volume limits the possibility of making firm comparative conclusions.

Conclusion

The present study points out that oligohydramnios in term pregnancy leads to higher risks for both the mother and the baby. A bigger proportion of cesarean deliveries were performed, mostly because of fetal distress; at the same time, there were serious neonatal complications characterized by low birth weight, low Apgar scores, and more NICU admissions. The results imply that oligohydramnios is a significant marker for predicting negative perinatal outcomes, demanding thorough antenatal monitoring.

Recommendation

Oligohydramnios should be identified early with routine antenatal ultrasonography and close fetal surveillance at term. Preventative measures against fetal distress should be taken by timely decision-making, either induction of labor or operative delivery. Along with strengthening the intrapartum monitoring, improvement of neonatal care facilities, including support of the NICU, will help in reducing the adverse perinatal outcomes.

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