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Original Research Article

Clinico-epidemiologic profile and perinatal outcome of patients with oligohydramnios in third trimester in a tertiary care hospital

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ABSTRACT

Background: Oligohydramnios has an incidence of around 1-5% of total pregnancies. It is associated with adverse perinatal outcomes like preterm delivery, low birth weight, foetal distress, and passage of meconium and NICU admission. Aims and objectives were to study the risk factors associated with oligohydramnios in pregnancy and to evaluate the perinatal outcome in patients with oligohydramnios.

Methods: The present study was a prospective observational study of six months, which included 60 patients with gestational age >28 weeks, selected after verifying the inclusion and exclusion criteria. A detailed history and clinical examination done and relevant investigations sent. Patients were followed up postpartum till discharge from hospital.

Results: The prevalence of oligohydramnios is found to be 8.5% in our study and there were more primigravida (55%). Oligohydramnios was idiopathic in 50% of our patients, followed by presence of hypertensive disorders in 20%. Caesarean delivery was required in 48.3% of the patients. In terms of perinatal outcome, 46.6% of the babies were low birth weight, 38.3% preterm, NICU admission in 26.6% and stillbirth rate was found to be 6.6%.

Conclusions: Oligohydramnios was an isolated finding in half of the cases and in these only adverse perinatal outcome noted was small for gestational age. When associated with risk factors, oligohydramnios was associated with increased perinatal morbidity and mortality in terms of prematurity, foetal distress, low birth weight, NICU admission, stillbirth.

Keywords: Clinico epidemiological profile, Oligohydramnios, Perinatal outcome

INTRODUCTION

Oligohydramnios is described as a condition with decreased amniotic fluid relative to gestational age. Phelan et al originally defined it as amniotic fluid index (AFI) of ≤ 5 cm.¹ The amniotic fluid volume when less than the 5th percentile or 2 standard deviation below the normal for that gestation is a specific criteria for oligohydramnios.²

Every pregnancy with Oligohydramnios is considered high risk due to the possibility of umbilical cord compression of the foetus. The reported incidence of Oligohydramnios varies from 1-5% of total pregnancies.³ The most common cause of oligohydramnios at term pregnancy is idiopathic. However, some studies revealed that hypertensive disorders, intrauterine growth restriction (IUGR), cardiac, renal and diabetic vasculopathy, abruptio placenta,

medications and congenital anomalies can contribute to its occurrence.^{4,5}

Oligohydramnios is associated with adverse perinatal outcomes such as preterm delivery, low birth weight, foetal distress in labor, passage of meconium, low APGAR score, neonatal resuscitation and NICU admission.³ A recent study found significant difference in delivery complications; hemorrhage, foetal malposition and cesarean section were significantly more common in women with oligohydramnios.⁶ Oligohydramnios is also associated with increased maternal morbidity in terms of increased rates of caesarean section.⁷

Our hospital, being a tertiary centre, gets many referred patients with oligohydramnios and secondly, no such study has been done in the Malwa region of Punjab, hence, this

study was conducted to find out the maternal high risk factors associated with oligohydramnios and to determine the perinatal outcome of these patients.

Aims and objectives

Aim and objectives were to study various risk factors associated with oligohydramnios in pregnancy. To study the perinatal outcome in patients with oligohydramnios.

METHODS

The present study was a prospective observational hospital based study carried out for a period of six months from October 2021 to March 2022 at the labor and maternity ward, department of obstetrics and gynecology, Guru Gobind Singh medical college, Faridkot, Punjab.

During this period, 702 patients underwent ultrasound screening for AFI in third trimester of pregnancy and 60 patients with oligohydramnios were selected using convenience sampling. The patients were enrolled after checking the inclusion and exclusion criteria.

The inclusion criteria in our study were patients with sonographically proven cases of oligohydramnios (AFI <5 cm), gestational age more than 28 weeks, singleton pregnancy and intact membranes. Patients with AFI > 6 cm, multiple gestation and who did not give consent were excluded from the study.

Obstetric ultrasound was carried out on the women who reported in third trimester of pregnancy and AFI was calculated. The maternal abdomen was divided into four virtual quadrants. The largest vertical pocket in each quadrant was measured sonographically and the sum of the four measurements was computed as the AFI.

Oligohydramnios was defined when the maximum vertical pocket of liquor was less than 2 cm or when AFI was less than 5 cm.

After selection of cases of women with oligohydramnios, a written informed consent was taken from the participants. The pregnant women who met the inclusion criteria were included in the study and underwent history taking and thorough clinical examination.

Routine and indicated investigations like haemogram, blood grouping and Rh typing, TFTs, VDRL, viral markers, Ultrasound doppler study, urine routine and microscopy were done.

Various outcomes were noted with respect to maternal age, gestational age at delivery, mode of delivery, fetal distress, FHR tracings, Intrauterine growth restriction, birth weight, APGAR at 5 minutes, NICU admission, requirement for neonatal resuscitation, perinatal morbidity and mortality.

Data was collected in Microsoft excel sheet and analyzed accordingly. The results were presented as percentages and the analyzed data was compared with different studies and discussed.

RESULTS

The present prospective study was conducted in the department of obstetrics and gynecology, Guru Gobind Singh medical college and hospital, Faridkot for a period of six months. During the study period, 702 patients underwent ultrasound screening for AFI in third trimester of pregnancy and 60 patients with oligohydramnios were detected. The prevalence of oligohydramnios in third trimester was found to be 8.5% in our study.

These 60 patients were followed up till delivery and discharge from the hospital. The associated risk factors and perinatal outcome of these patients was studied,

In our study, 50 of our patients, (83.3%) were in the age group of 20-29 years, 6 (10%) were less than 20 years, and only 4 patients (6.6%) were more than 30 years.

Table 1: Distribution of patients according to obstetric characteristics, (n=60).

Variables	N	Percentage (%)
Parity		
Primigravida	33	55
Multigravida	27	45
Gestational age (weeks)		
<37	23	38.3
37-40	29	48.3
>40	8	13.3

Table 1 shows distribution of patients according to obstetric characteristics. According to gravidity, 55% of our patients were primigravida and 45% were multigravida. Considering the gestational age, almost half of our patients were of the gestational age 37-40 weeks. Patients with gestational age more than 40 weeks were only 13.3%.

Table 2: Risk factors identified for oligohydramnios, (n=60).

Risk factors	N	Percentage (%)
Idiopathic	30	50
Hypertensive disorders	12	20
Post dated pregnancy	8	13.3
Congenital anomaly	4	6.6
Foetal growth restriction	4	6.6
Placental insufficiency	2	3.3

Table 2 shows the distribution of patients according to the risk factors identified with oligohydramnios. Half of our patients (50%) did not have any specific cause for oligohydramnios. Hypertensive disorders were associated with 20% of cases and post-dated pregnancy in 13.3% of the cases. Foetal risk factors occurred in a few patients as shown in the table.

In our study, spontaneous labor occurred in 9 (15%) patients, Induction of labor was done in 24 (40%) patients. Mode of delivery was normal vaginal delivery in 45% and 6.6% required assisted vaginal delivery. LSCS was the mode of delivery in 48.3% of the cases.

Table 3: Indications for LSCS in patients with oligohydramnios, (n=29).

Indication of LSCS	N	Percentage (%)
Elective	12	41.3
Abnormal NST	8	27.5
Foetal distress	6	20.6
Meconium-stained liquor (MSL)	5	17.2
IUGR	4	13.7
Malpresentation	3	10.3
CPD	1	3.4

Table 3 shows the indications of LSCS in our patients with oligohydramnios. Elective LSCS being the most common (41.3%), followed by abnormal NST (27.5%), foetal distress (20.6%) and MSL (17.2%). In some patients emergency LSCS was required for malpresentation and CPD.

Table 4: perinatal outcome in patients, (n=60).

Perinatal outcome	N	Percentage (%)
Preterm	23	38.3
Low birth weight	28	46.6
NICU admission	16	26.6
MSL	12	20
Foetal distress	17	28.3
Apgar at <7 at 5 minutes	10	16.6
IUGR	4	6.6
Required resuscitation	5	8.3
IUD/stillbirth	4	6.6

Table 4 depicts perinatal outcome in mothers with oligohydramnios. Preterm births occurred in 38.3% of our patients and 46.6% were low birth weight. Neonatal resuscitation had to be carried out in 8.3% newborns. NICU admission was required in 26.6% due to presence of factors like prematurity, respiratory distress, presence of MSL, IUGR.

Incidence of IUGR was 6.6%, mostly associated with pre-eclamptic mothers.

Intrauterine death (IUD) and stillbirth rate was found to be 6.6% associated with patients having anhydramnios.

Out of the patients with Idiopathic oligohydramnios, only 8 babies (20%) were preterm and LBW. It is pertinent to mention that among patients with isolated oligohydramnios, none of the babies required resuscitation or NICU admission and there were no stillbirth in these patients.

DISCUSSION

The present study was conducted on 60 cases with oligohydramnios, having gestational age more than 28 weeks and these patients were analyzed for any associated risk factors and perinatal outcome.

During the study period, 702 patients underwent ultrasound screening for AFI in third trimester of pregnancy and 60 patients with Oligohydramnios were detected.

Hence, the prevalence of oligohydramnios in third trimester was found to be 8.5% in our study. Similar prevalence (9.4%) was found in a study in Uganda, by Twesigomwe et al.⁸ Much higher prevalence estimates of 17% compared to ours have been reported previously in India.⁹ Prevalence of 11% was found in Italy in a hospital setting.¹⁰

In our study, most of the patients (83.3%) were in the age group of 20-29 years which is most likely because of the high pregnancy rate in this age group. In the study by Rachakonda et al 76% patients were in the age group of 20-29 years.¹¹

More than half of our patients (55%) were primigravida which was almost similar to the incidence of 56% reported by Bhat et al.¹² This higher incidence in primigravida as compared to multigravida was similar to the study by Twesigomwe et al.⁸

A higher incidence of 52% was also reported by Jagatia et al and 51% by Molla et al.^{13,14} Reasons postulated for higher occurrence of oligohydramnios in primigravidae are that disorders of pregnancy are exaggerated in primigravidas compared to multigravidas. Moreover, some complications, such as hyperemesis gravidarum, and infections (e.g., malaria), have been reported to be associated with oligohydramnios.¹⁵

The medical and obstetric risk factors were noted, and it was found that 50% patients in our study had no risk factor, so in this group, etiology of oligohydramnios was idiopathic.

This was similar to the findings of Zhang et al where around half of the cases had isolated oligohydramnios with no risk factor.¹⁶

We found that hypertensive disorders of pregnancy was the second most common risk factor, associated in almost 20% of the cases, which is commensurable to the study conducted in 2018 by Naik et al.¹⁷ Postdated pregnancy was found in 13.3% of our cases which is at par with the study conducted by Bansal et al who found it to be 16.5%.¹⁸

In our study, the proportion of IUGR (7%) was very low as compared to the study conducted by Rachakonda et al in which the incidence of IUGR was 38%.¹¹

Nearly half (48.3%) of patients underwent caesarean section which was similar to the observations of Rathod et al.¹⁹ Higher LSCS rates have been found by other authors.^{20,21} Due to risk of intrapartum complications and perinatal morbidity and mortality, rate of caesarean section are rising but the decision between vaginal delivery and caesarean section should be a well-balanced one to avoid unnecessary maternal morbidity.

In terms of perinatal outcome, the rate of low birth babies was 46.6% and 38.3% of the babies were born preterm. Similar observations were found by Saxena et al where low birth weight babies were found in (51.43%) of patients and Panda et al showing LBW in 32% of patients.^{21,22}

NICU admission was required in almost 26.6% of the newborns correlating with 26.1% in the study by Molla et al and 28% in the study by Rita et al.^{14,23} No neonate required NICU admission in the study by Nankali Anisodowlel et al but they found meconium-stained liquor in around 20% of the cases which was comparable to our findings.²⁴

We found foetal distress in 17% of the cases, slightly higher than the study by Jagatia et al and lower than the study by Ray et al who found it to be 41%.^{13,25}

IUD rate was 6.6% in our study which is less than the rate of 29% in the study by Rachakonda et al.¹¹

In the present study, 50% patients had isolated oligohydramnios and their perinatal morbidity was found to be low. In this category, only 8 babies (20%) were SGA. It is worth noting that none of these babies required resuscitation or NICU admission and there were no stillbirth in these patients. A study done in 2016 has also shown that the only perinatal outcome for which the risk was higher in term pregnancies with isolated oligohydramnios was SGA.²⁶ In a similar study done by Zhang et al and Ahmad et al, pregnancies with isolated oligohydramnios were not associated with adverse perinatal outcome.^{7,16}

Regular antenatal surveillance in third trimester helps to detect oligohydramnios, which requires close foetal monitoring and timely intervention, for a good perinatal outcome.

Limitations

This was a single-centre study in a regional referral hospital; hence our findings may not be generalised in all the pregnancies.

CONCLUSION

Oligohydramnios was an isolated finding in 50% of the cases in third trimester in which the only perinatal morbidity found was SGA. In oligohydramnios associated with other risk factors, increased perinatal morbidity and mortality was noted in terms of prematurity, foetal distress, low birth weight, NICU admission and stillbirth.

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