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Research Article

Maternal and perinatal outcome in oligohydramnios: study from a tertiary care hospital, Bangalore, Karnataka, India

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ABSTRACT

Background: Oligohydramnios is a condition where the liquor amnii is deficient in amount to the extent of less than 200ml at term. Maternal complications can be prolonged labor due to inertia, increased operative interference.

Methods: The present hospital based study was conducted in the department of obstetrics and gynaecology, East Point hospital, Bidrahalli, Bangalore, Karnataka, India. Duration of the study was for 6 months from November 2015 to April 2016. All pregnant women of gestational age >37 weeks attending the outpatient department were subjected to routine ultrasound examination.

Results: Out of the total 410 pregnant women of gestational age >37 weeks in the study duration, the incidence of oligohydramnios was found to be 14% (n=58). 36 patients (62%) underwent lower segment caesarean section with fetal distress being most common indication for it. Incidence of low birth weight (<2.5 kg) was seen in 22 newborns (38.6%). One fourth of them had Apgar score less than 7 at 1 minute and 10 babies had less than 7 score at 5 minutes. Neonatal intensive care unit (NICU) was required in 23 newborns (40%).

Conclusions: A higher incidence of oligohydramnios was seen in the present study with increased maternal and perinatal complications associated with it.

Keywords: Oligohydramnios, Incidence, Maternal and perinatal outcome, Low birth weight, Growth retardation

INTRODUCTION

Amniotic fluid is a clear, slightly yellowish liquid that surrounds the fetus during pregnancy. It is contained in the amniotic sac. The fluid is faintly alkaline with low specific gravity of 1.010. Amniotic fluid volume is related to gestational age. It measures about 50 ml at 12 weeks, 400 ml at 20 weeks and reaches peak of 1 litre at 36-38 weeks. Thereafter the amount diminishes till at term it measures about 600-800 ml.¹

In the first half of pregnancy, the composition of fluid is almost identical to a transudate of plasma. But in late pregnancy, the composition is very much altered. The composition includes water 98-99% and solids (1-2%).

Solid constituents are organic, inorganic and suspended particles.¹

The main function of amniotic fluid is to protect the fetus. During pregnancy, it acts as a shock absorber, maintains even temperature, allows for growth and free movement of the fetus and prevents adhesion between fetal parts and amniotic sac. During labour, the amnion and chorion are combined to form a hydrostatic wedge which helps in dilatation of cervix, it guards against umbilical cord compression.

Oligohydramnios is a condition where the liquor amnii is deficient in amount to the extent of less than 200 ml at term. Sonographically, it is defined when the maximum

vertical pocket of liquor is less than 2 cm or when amniotic fluid index (AFI) is less than 5 cm. The common clinical features are smaller symphysiofundal height, fetal malpresentation, and undue prominence of fetal parts and reduced amount of amniotic fluid.

Oligohydramnios is a severe and common complication of pregnancy and the incidence of this is reported to be around 1 to 5 % of total pregnancies.² Complications: Maternal complications can be prolonged labor due to inertia, increased operative interference due to malpresentation ultimately leading to increased maternal morbidity. Fetal complications include abortion, deformity due to intra-amniotic adhesions, cord compression.³

The present study has been done with an objective to determine the incidence of oligohydramnios and the maternal and perinatal outcome associated with it in a tertiary care hospital of Bangalore, Karnataka, India.

METHODS

The present hospital based study was conducted in the department of obstetrics and gynaecology, east point hospital, Bidrahalli, Bangalore, Karnataka, India.

All pregnant women with gestational age >37 weeks within the study duration of 6 months were included in the study.

Exclusion criteria

Multiple gestations, pregnant women with any other co morbidities were excluded from the study.

Duration of the study was for 6 months from November 2015 to April 2016.

Socio demographic data, relevant history, physical examination and baseline investigations were done in all the pregnant women and recorded in a pre-designed proforma. An informed written consent was taken from all the study participants.

Ultrasonography of all pregnant women of gestational age >37 weeks attending the outpatient department were subjected to routine ultrasound examination. Amount of liquor amnii in the present study was assessed by Ultrasonography. Though there are various methods for sonographic assessment of amniotic fluid, amniotic fluid index (AFI) was taken as the criteria.

Amniotic fluid index technique

Patient placed in supine position and a linear, curvilinear or sector transducer used. Maternal abdomen is divided into quadrants taking the umbilicus, symphysis pubis and the fundus as the reference points. With ultrasound, the

largest vertical pocket in each quadrant is measured. The sum of the four measurements (cm) is the AFI.⁴

Oligohydramnios was defined when the maximum vertical pocket of liquor is less than 2 cm or when amniotic fluid index (AFI) is less than 5 cm. AFI 5-8 cm as borderline oligohydramnios and AFI 8-18 cm as normal amniotic fluid index.

Statistical analysis

Data entry was done using the Microsoft Excel 2010 version and analysis using EPI INFO version 7. Data was presented in percentages and proportions.

RESULTS

In the study duration of 6 months, a total of 410 pregnant women of gestational age >37 weeks were screened. Out of those, the incidence of oligohydramnios was found to be 14% (n=58).

The mean age of the study participants was 22.4±3.5 year with majority (64%) belonging to the age group of 21-25 years. More than three fourth were Hindu religion and were home makers by occupation.

Mean gestational age in the present study was 38.5±2.1 weeks. One third of them were primigravidae and two thirds were multigravidae.

In the present study, 22 out of the 58 patients (38%) had vaginal delivery and 36 patients (62%) underwent lower segment caesarean section. The most common indication was fetal distress (42%) followed by intra uterine growth retardation (18%) and failed induction (13.4%).

Meconium stained liquor was seen in 21 patients (36.2%). Caesarean section rate was more (65%) in primigravidae compared to multigravidae.

Incidence of pregnancy induced hypertension (PIH) was seen in one fourth of the study population (24.4%).

Neonatal outcome

Incidence of low birth weight (<2.5 kg) was seen in 22 newborns (38.6%), out of which 4 babies had very low birth weight (<2 kg).

APGAR (appearance, pulse, grimace, activity, respiration) score was calculated in all the new-borns at 1 minute and 5 minutes. One fourth of them had Apgar score less than 7 at 1 minute and 10 babies had less than 7 score at 5 minutes.

Fetal anomalies were seen in 02 cases and meconium aspiration in 05 cases.

Neonatal intensive care unit (NICU) was required in 23 new-borns (40%). Four babies required ventilator support and no neonatal deaths had occurred.

Table 1: Outcome of labor in oligohydramnios.

Outcome of labor	Number (%)
Lower segment caesarean section (LSCS)	36 (62%)
Meconium stained amniotic fluid	21 (36.2%)
Prolonged labor	05 (8.5%)

Table 2: Neonatal outcome in study participants.

Neonatal outcome	Number (%)
Birth weight <2.5 kg	22 (38.6%)
1 minute APGAR <7	15 (26%)
5 minute APGAR <7	10 (18.2%)
Growth retardation	18 (31%)
Resuscitation required	21 (36%)
Admission in NICU	23 (40%)

DISCUSSION

The primary objective of the antenatal screening is to detect any conditions which can lead to a high risk pregnancy. Ultrasound examination during that period is a sensitive and reliable method of assessing the amniotic fluid and to detect oligohydramnios or polyhydramnios. In the present study which has been conducted in a tertiary care hospital in Bangalore, a high percentage of incidences of oligohydramnios (14%) have been observed. Similar kind of findings was observed in study by Satyanarayana P et al where 20% of the cases had oligohydramnios in the study duration of 7 months.⁵

In contrast to the above findings, study by Bansal et al found that the incidence of oligohydramnios to be 3% of total admission in one year.⁶

Mean age of the pregnant women with oligohydramnios was found to be 22.4±3.5 year with majority (64%) belonging to the age group of 21-25 years. Similar findings were seen in Vidyasagar V et al where the mean age of women with oligohydramnios was 23.98±3.89 years and 80.49% belonged to age group 20-29 years.⁷ Similar findings were also observed in studies by Krishna Jagatia et al, Bhat et al.^{8,9}

Mean gestational age in the present study was 38.5±2.1 weeks. One third of them were primigravidae and two thirds were multigravidae. In Vidyasagar V et al study, the mean gestational age of women with oligohydramnios was 36.395±3.396 weeks.⁷ 46.34% women were primigravidae and 53.66% were multigravidae.

In the present study, 22 out of the 58 patients (38%) had vaginal delivery and 36 patients (62%) underwent lower segment caesarean section. The most common indication

was fetal distress (42%) followed by intra uterine growth retardation (18%) and failed induction (13.4%). Caesarean section rate was more (65%) in primigravidae compared to multigravidae.

Similar findings were seen in Patel PK et al where 81.25% underwent caesarean section and 16.67% induced labour.¹⁰ In contrast to above findings, Bangal V B et al found that 56% of oligohydramnios women had spontaneous vaginal delivery and 44% had operative/assisted delivery.¹¹ Sowmya K et al observed that in patients with oligohydramnios, 50% underwent caesarean section for fetal distress, 26.47% for intrauterine growth restriction (IUGR) with doppler changes, 14.7% for failed induction and 8.82% for cephalopelvic disproportion.¹²

Neonatal outcome

Present study found that the incidence of low birth weight was seen in 22 newborns (38.6%), one fourth of them had Apgar score less than 7 at 1 minute and 18.2% had less than 7 score at 5 minutes. Fetal anomalies were seen in 02 cases and meconium aspiration in 05 cases. Neonatal intensive care unit (NICU) was required in 23 newborns (40%).

In study by Sowmya K et al, low birth weight was seen in 48%, Apgar score <7 seen in 14% and 14% were admitted in NICU.¹² Another study by Madhavi K et al found the incidence of meconium stained liquor in 36%, 20% had Apgar score less than 7 at 5 minutes, incidence of NICU admission in 34%, incidence of meconium aspiration syndrome (MAS) in 6%.¹³

CONCLUSION

A higher incidence of oligohydramnios was seen in the present study. There was higher incidence of caesarean section. Perinatal and neonatal complications were also increasingly associated with oligohydramnios. Hence, every case of oligohydramnios needs extremely careful evaluation and proper preventive and curative measures should be taken accordingly.

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