

A Prospective Observational Assessment of Fetal Outcome in a Case of Oligohydramnios after 34 Weeks of Pregnancy

Geeta Rani¹, Sachin Kr Singh²

¹Assistant Professor, Department of Obstetrics and Gynaecology, JLN Medical College and Hospital, Bhagalpur, Bihar, India

²Assistant Professor and Head, Department of Radiology, JLN Medical College and Hospital, Bhagalpur, Bihar, India

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Corresponding author: Dr. Sachin Kr Singh

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Abstract

Aim: The aim of the present study was to know the maternal and fetal outcome in oligohydramnios after 34 weeks of gestation.

Methods: This study was carried out in the Department of Obstetrics and Gynaecology at JLN Medical College and Hospital, Bhagalpur, Bihar, India over a period of 2 years. 200 consenting pregnant women who had presented to our department in OPD or Labour room for antenatal care after 34 weeks of gestation and diagnosed with oligohydramnios with AFI ≤ 5 cm was enrolled in this study. Outcome was observed in terms of type of delivery, low birth weight, prematurity and NICU admissions and neonatal mortality.

Results: In present study, most of patient presented after term pregnancy (70%), the incidents of preterm pregnancies was (30%), while no patient was presented after 42 weeks of gestation. In present study, most of patient had AFI between 1-4 cm (71%) while 15% patient had AFI of 0-1cm. Mean AFI in my study was 2.08 cm. Out of 200 delivery of oligohydramnios patients, 48% had vaginal and 52% had LSCS. This shows that incidence of LSCS is higher in patients having oligohydramnios (52%). In present study, the incidence of LBW was 53%, 2.40 kg was mean birth weight. Out of 200 deliveries of oligohydramnios patients, 54% required NICU admission and remaining 46% do not required NICU admission. In present study, most common neonatal complications are Low birth weight (50%) and prematurity (30%). In others, 9% had Transient tachypnea of newborn, Meconium aspiration syndrome in 8%, Respiratory distress syndrome (6%), sepsis (5%), and less common complications were jaundice (2%) and hypoglycemia (1%) and out of them, more than half were associated with low birth weight and prematurity. There was no early neonatal death reported in this study.

Conclusion: Oligohydramnios is a frequent occurrence and demands intensive fetal surveillance and proper antepartum and intrapartum care. AFI is an important component of biophysical profile scoring and its assessment in early third trimester helps to identify women who need more ante partum surveillance so that proper management can be done for the improvement of maternal and perinatal outcome.

Keywords: Oligohydramnios, Amniotic Fluid Index, Perinatal Outcome.

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Introduction

Oligohydramnios is described as a condition with decreased amniotic fluid volume relative to gestational age. The amniotic fluid (AF) is a part of the baby's life support system. Amniotic fluid is produced soon after the amniotic sac is formed at about 12 days after conception. It is first made up of effusion that is provided by the mother's circulation and then around the 20th weeks fetal urine becomes the primary substance. [1] If the measurement of AF is too low it is called oligohydramnios. If the measurement of AF is too high it is called polyhydramnios. [2] Oligohydramnios was defined as Amniotic fluid index (AFI) ≤ 5 (or less than the 5th percentile) or the absence of a pocket measuring at least 2×1 cm. [3]

With the help of method of amniotic fluid estimation by AFI using four quadrant techniques during transabdominal USG, as per described by Phelan et al in 1997, better identification of fetus at high risk can be done. [4] Oligohydramnios is a common complication of pregnancy and the incidence of this is reported to be around 1 to 5 % of total pregnancies. [5] The accurate diagnosis of oligohydramnios has become possible by ultrasonographic examination during pregnancy. It can occur at any time during pregnancy, but it is most common during the last trimester. Amniotic fluid levels decrease by half once a pregnant patient reaches 42 weeks gestation. Oligohydramnios can complicate 12% of pregnancies that go past 41 weeks. [6] Usually the degree of Oligohydramnios is proportional to the severity of placental hypoperfusion and IUGR (Intra Uterine Growth Restriction). The most likely cause of oligohydramnios in IUGR babies is decreased urine output. [7] There are numerous maternal and fetal risk factors associated with a reduction of AFI.

Pregnancies with oligohydramnios have shown outcome such as immediate

caesarean delivery, meconium aspiration, non-reactive non-stress tests, fetal heart rate (FHR) deceleration, LBW, NICU admission and SGA in comparison with control subject with normal amniotic fluid level. Also the low amniotic index may increase the operative delivery rate. [8] Oligohydramnios can be associated with fetal congenital anomalies and IUGR, it is usually proportionate to degree of IUGR and it indicates placental dysfunction. Oligohydramnios can also cause asymmetrical fetal growth, contracture of joints and hypoplasia of fetal lungs by decreasing the lung expansion due to compression of the fetal abdomen which limits the movements of the fetal diaphragm and decrease the flow of amniotic fluid into and out of fetal lung. It is also associated with IUGR, cord compression, poor tolerance of the labor by the fetus, low APGAR scores with a poor perinatal outcome. [9] Early detection of oligohydramnios and its management may help in reduction of perinatal morbidity and mortality on one side and decreased caesarean deliveries on the other side. [10]

The aim of the present study was to know the maternal and fetal outcome in oligohydramnios after 34 weeks of gestation compared with women who had normal volume of amniotic fluid.

Materials and Methods

This study was carried out in the Department of Obstetrics and Gynaecology at JLN Medical College and Hospital, Bhagalpur, Bihar, India over a period of 2 years. 200 consenting pregnant women who had presented to our department in OPD or Labour room for antenatal care after 34 weeks of gestation and diagnosed with oligohydramnios with AFI ≤ 5 cm were enrolled in this study. Outcome was observed in terms of type of delivery, low birth weight, prematurity and NICU admissions and neonatal mortality.

Inclusion Criteria

- All consenting pregnant woman having diagnosed with oligohydramnios after 34weeks of gestation.

Exclusion Criteria

- Gestational age of less than 34 weeks
- Multifetal gestation
- Fetal congenital anomalies and IUDF
- PROM
- Not consenting for study

Induction of labour was done for women with high risk factors like PIH, by PGE 2 gel and accelerated with oxytocin. Spontaneous onset was allowed for women with no risk factors along with twice a week NST and weekly Biophysical profile

(BPP). All cases were monitored thro continuous fetal monitoring during labour. After ARM nature of AF noted. Those who developed significant variable deceleration/ late decelerations, with or without meconium stained liquor were delivered by cesarean section. All newborn babies were seen by pediatrician. Labour outcome of the women were recorded includes, spontaneous /induced, nature of A F, FHR tracings, mode of delivery, indication for cesarean section or instrumental delivery. Perinatal findings such as APGAR score <7 at 1 mt and 5 mt, birth weight, admission to NICU, perinatal morbidity and mortality were noted.

Results

Table 1: Gestational age distribution, Distribution according to AFI and Mode of delivery

| | Number (n=200) | Percentage (%) |
|-------------------------|----------------|----------------|
| 34-37 weeks | 60 | 30% |
| 37-40 weeks | 120 | 60% |
| 40-42 weeks | 120 | 10% |
| >42 weeks | 0 | 0% |
| AFI | | |
| 0-1 | 30 | 15% |
| 1-2 | 50 | 25% |
| 2-3 | 40 | 20% |
| 3-4 | 52 | 26% |
| 4-5 | 28 | 14% |
| Mode of delivery | | |
| Vaginal | 96 | 48% |
| LSCS | 104 | 52% |
| Instrumental | 0 | 0% |

In present study, most of patient presented after term pregnancy (70%), the incidents of preterm pregnancies was (30%), while no patient was presented after 42 weeks of gestation. In present study, most of patient had AFI between 1-4 cm (71%) while 15%

patient had AFI of 0-1cm. Mean AFI in my study was 2.08 cm. Out of 200 delivery of oligohydramnios patients, 48% had vaginal and 52% had LSCS. This shows that incidence of LSCS is higher in patients having oligohydramnios (52%).

Table 2: Birth weight and NICU admission

| | Number (n=200) | Percentage (%) |
|------------|----------------|----------------|
| < 1.5 Kg | 4 | 2% |
| 1.5-2.5 Kg | 102 | 51% |
| 2.6-3.5 Kg | 92 | 46% |

| | | |
|-----------------------|-----|-----|
| >3.5 Kg | 2 | 1% |
| NICU admission | | |
| NICU admission | 108 | 54% |
| No admission | 92 | 46% |

In present study, the incidence of LBW was 53%, 2.40 kg was mean birth weight. Out of 200 deliveries of oligohydramnios patients, 54% required NICU admission and remaining 46% do not required NICU admission.

Table 3: Neonatal complications

| Complications | Number | Percentage (%) |
|--------------------------------|--------|----------------|
| Low birth weight | 100 | 50% |
| Prematurity | 60 | 30% |
| Transient tachypnea of Newborn | 18 | 9% |
| Meconium aspiration syndrome | 16 | 8% |
| Respiratory distress syndrome | 12 | 6% |
| Sepsis | 10 | 5% |
| Jaundice | 4 | 2% |
| Hypoglycemia | 2 | 1% |
| Early neonate death | 0 | 0% |

In present study, most common neonatal complications are Low birth weight (50%) and prematurity (30%). In others, 9% had Transient tachypnea of newborn, Meconium aspiration syndrome in 8%, Respiratory distress syndrome (6%), sepsis (5%), and less common complications were jaundice (2%) and hypoglycemia (1%) and out of them, more than half were associated with low birth weight and prematurity. There was no early neonatal death reported in this study.

Discussion

The fluid that collects within the amniotic cavity surrounding the embryo is called amniotic fluid. Hippocrates was the first person to attribute the development of amniotic fluid to fetal urine. Fetal urination is the major source of amniotic fluid, once the fetal kidney function begins at 10 -12 weeks. Fetal lung fluid is a minor contributor of amniotic fluid. Amniotic fluid volume rises progressively until 32 weeks of gestation. From 32 weeks to term the mean amniotic fluid volume is relatively constant about 600-800 ml. After 40 weeks there is progressive decline in amniotic fluid volume average of about 400 ml at 42 weeks. Amniotic fluid is

removed by fetal swallowing. Normal amniotic fluid volume is critical for normal fetal growth and development. [11] Nature has made floating bed in the form of amniotic cavity filled with liquor amnii for the requirement of fetus for its existence and growth in sterile environment, avoidance of external injury and reduction of impact of uterine contractions. Decrease in amniotic fluid volume or oligohydramnios has been correlated with increased risk of intrauterine growth retardation, meconium aspiration syndrome, severe birth asphyxia, low APGAR scores and congenital abnormalities. Oligohydramnios is also associated with maternal morbidity in the form of increased rates of induction and/or operative interference. [12]

In present study, most of patient presented after term pregnancy (70%), the incidents of preterm pregnancies was (30%), while no patient was presented after 42 weeks of gestation. In Dr Amit S et al [13] study to evaluate the effect of Oligohydramnios on the obstetric and perinatal outcome in 74 antenatal patients between 20-42 weeks gestational age diagnosed to have oligohydramnios on ultrasonography.

LSCS (55.40%) was higher than the vaginal delivery (39.19%). 35.13% of neonates were needed NICU admission. In present study, most of patient had AFI between 1-4 cm (71%) while 15% patient had AFI of 0-1cm. Mean AFI in my study was 2.08 cm. Out of 200 delivery of oligohydramnios patients, 48% had vaginal and 52% had LSCS. This shows that incidence of LSCS is higher in patients having oligohydramnios (52%).

In present study, the incidence of LBW was 53%, 2.40 kg was mean birth weight. Out of 200 deliveries of oligohydramnios patients, 54% required NICU admission and remaining 46% do not required NICU admission. Chandra P et al [13] had 61.53% and Sriya R et al [14] had 58.38%. The higher incidence of low birth weight might be because of chronic placental insufficiency causing fetal growth restriction. In Chandra P et al [13] study 46.15% of neonates were required NICU admission. And in Sriya R et al [14] study 88.88% neonates required NICU admission. Krishna J et al reported 22 % NICU admissions and 1 % neonatal death due to septicemia. [15] According to Enas M et al NICU admission was required for 7.6% in babies of study group and 6% babies of control group. Manisha S et al reported higher rates of NICU admissions, 44% in study group and 13% in control group because 57% women in study group had preterm labour. [16] According to Patel P et al NICU admissions was 20% in study group and 18.75% in control group. [17] Deepika B et al reported 36% NICU admissions and 15% perinatal mortality. [18] Reddy P et al reported NICU admission was needed in 32% and meconium aspiration syndrome was seen in 5.33%, still birth was 0.67% and perinatal death was seen in 2%. [11]

In present study, most common neonatal complications are Low birth weight (50%) and prematurity (30%). In others, 9% had Transient tachypnea of newborn, Meconium aspiration syndrome in 8%,

Respiratory distress syndrome (6%), sepsis (5%), and less common complications were jaundice (2%) and hypoglycemia (1%) and out of them, more than half were associated with low birth weight and prematurity. There was no early neonatal death reported in this study. Out of 55 patients of oligohydramnios delivery in Monir F et al [19] study 55% neonates required NICU admission. 65.5% neonates had low birth weight, 21% had meconium aspiration syndrome and 13% had respiratory distress syndrome. In Chauhan SP et al [20] study 9% neonates had respiratory distress syndrome. [21]

Conclusion

Oligohydramnios is a frequent occurrence and demands intensive fetal surveillance and proper antepartum and intrapartum care. AFI is an important component of biophysical profile scoring and its assessment in early third trimester helps to identify women who need more ante partum surveillance so that proper management can be done for the improvement of maternal and perinatal outcome. Due to intrapartum complication and high rate of perinatal morbidity and mortality, timely intervention is required to reduce perinatal morbidity and mortality.

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