International Journal of Health Sciences and Research
www.ijhsr.org ISSN: 2249-9571

Original Research Article

Maternal and Perinatal Outcome in Oligohydramnios at Guru Gobindsinh Hospital, Jamnagar, Gujarat

Hinabahen M. Rathod[1], Ravikant R. Patel[2], Priti S. Punatar[3]

[1]Assistant Professor, Obs. & Gynec. Department, GMERS Medical College, Valsad
[2]Associate Professor, Community Medicine Department, GMERS Medical College, Valsad
[3]Associate Professor, Obs. & Gynec. Department, Shri MP Shah Medical College, Jamnagar, Gujarat, India.

Corresponding Author: Hinabahen M. Rathod

Received: 03/07//2014 *Revised: 29/07/2014* *Accepted: 04/08/2014*

ABSTRACT

Background: Decrease in amniotic fluid is known as "Oligohydramnios". It is correlated with adverse maternal and perinatal outcomes in terms of intrauterine growth retardation, meconium aspiration syndrome, low birth weight, low APGAR scores, congenital anomalies and increase rate of caesarean deliveries. Early detection of Oligohydramnios and its management may help in reduction of maternal and perinatal morbidity and mortality.
Objectives: 1. To study the effects of oligohydramnios on perinatal outcome in form of foetal distress, growth retardation, NICU admission 2. To study the APGAR score in new born babies in relation to oligohydramnios 3. To study the incidence of congenital anomalies in new born babies. 4. To study the early neonatal and maternal morbidity and mortality.
Methods: This prospective and observational Study was carried in Obstetrics and Gynecology Department of G.G.Hospital, Jamnagar over a period from March 2010 to June 2011. In this study 70 singletone pregnant females in their third trimester of pregnancy with oligohydramnios were analysed for maternal and perinatal outcome. A detail history taking and through examination was done along with various laboratory investigation as per requirement. Ultrasonography guided four quadrant technique was used for measurement of AFI described by Phelan et al. Data were expressed as number (percentage). Proportion test was performed for comparison between two groups. P value <0.05 was taken as level of significance and data were entered and analysed by Epi info software.
Results: The incidence of oligohydramnios was found to be 1.19%. The rate of caesarean section was significantly higher in mother with oligohydramnios (55.71%). Itrapartum complication was reported from 17.14% of cases. 62.86% babies were Low birth weight. Perinatal death was 11.43% and 1 baby born with congenital anomaly (1.43%).
Conclusion: Oligohydramnios is associated with higher incidence of pregnancy complication and adverse perinatal outcome in terms of morbidity and mortality. Oligohydramnios is frequent occurrence and demands intensive fetal surveillance and proper antepartum and intrapartum care.

Keywords: Oligohydramnios, Amniotic Fluid Volume (AFV), Amniotic Fluid Index (AFI), Ultrasonography (USG)

INTRODUCTION

As we know water is very essential for human existence, same can applies to fetus in utero. Nature has made a floating bed in form of amniotic fluid cavity filled with liquor amnii for the requirement of fetus, for its existence and growth in sterile environment, regulation of temperature, avoidance of external injury and reduction of impact of contractions, so on and so forth. Amniotic fluid which surrounds developing fetus in amniotic sac provides several benefits to fetus.[1] Despite decades of investigations, the regulation of amniotic fluid volume and composition remains incompletely understood. Decrease in amniotic fluid volume which has been correlated with increased risk to the mother and fetus in utero.

Decrease in amniotic fluid volume which is known as "Oligohydramnios" "It is defined as a condition where the liquor amnii is deficient in amount to the extent of less than 200ml at term". [2] About 8% of pregnant women can have low level of amniotic fluid, with about 4% diagnosed with Oligohydramnios. Amniotic fluid can be measured by a few different methods, most commonly through Amniotic fluid index (AFI) evaluation or deep pocket measurements. If an AFI shows a fluid level less than 5cm (or less than the 5^{th} percentile), the absence of fluid pocket 2-3 cm in depth, or a fluid volume less than 500 ml at 32-36 weeks of gestation, then a diagnosis of oligohydramnios would be suspected. [3]

Oligohydramnios is associated with increased maternal complications, LBW babies, low APGAR score, congenital anomalies and perinatal morbidity and mortality. [1] Many studies have been showed that maternal & perinatal outcome is significantly affected by low amniotic fluid volume (Oligohydramnios) during pregnancy therefore Increase inductions of labour and elective cesarean deliveries are currently practiced for better perinatal outcomes.

Early detection of Oligohydramnios and its management may help in reduction of maternal complication as well as perinatal morbidity and mortality associated with oligohydramnios.

Since Oligohydramnios significantly impacts on maternal and perinatal outcome, it has prompted us to study the condition.

MATERIALS AND METHODS

This study was a prospective observational study conducted in the Obstetrics and Gynecology Department, Shri M.P. Shah Medical College, Jamnagar from March-2010 to June-2011.

A total of 121 cases of Oligohydramnios were enrolled during study period. Out of 121 total cases, 70 cases were eligible for study purpose as per exclusion and inclusion criteria for case selection.

Antenatal case having Heart disease, Polyhydramnios, premature rupture of membranes (PROM), twin and multiple pregnancies were excluded from this study. Antenatal patient in their third trimester with intact membranes were included for study purpose.

The purposes of the study were explained to study subject and written informed consent were taken. All the information regarding cases was noted in systemic way in the preformed proforma. These include detail History taking, through examination, USG and all other required investigations.

Oligohydramnios was confirmed sonographically by measuring AFI. Amniotic fluid index was measured by four-quadrant technique by dividing the uterus in four quadrants. The measurements were summed in centimeter and the result was recorded as the amniotic fluid index. (AFI)

On admission, foetal surveillance was done by biophysical profile (BPP) which includes NST and USG. Gestational age at the time of delivery was recorded.

Liquor was assessed at the time of rupture of membrane, during labour and at the time of caesarean section. Mode of delivery, APGAR score & neonatal birth weight was recorded. The subjects were studied for maternal and perinatal outcomes and other effect of Oligohydramnios.

All relevant information recorded were appropriately analysed by Epi info software. Data were calculated as mean, standard deviations (SD), numbers, frequency (%) and appropriate statistical test was applied.

RESULT

A total 121 cases of Oligohydramnios were enrolled during study period, of which 70 cases were found to be eligible for study purpose. In our study the incidence of oligohydramnios was 1.19% which is comparable with other studies also.

Table-1 shows the characteristics of pregnant mother with oligohydramnios which includes age, S.E. class, gravidity, gestational age and mode of delivery.

Mean maternal age was 23.7±6.7 standard deviation and all of these (55.71%) are between age group of 21-25 years. 68.57% of pregnant women belong to lower socio-economic class. 65.71% of pregnant women were primigravida and 34.29% were multigravida. 44.29% women had vaginal delivery while 55.71% women delivered by cesarean section.

Table-2 shows that caesarean section was significantly higher in severe oligohydramnios groups than in borderline oligohydramnios groups.In our study severe oligohydramnios itself as well as in association with other condition act as a main indication for caesarean section (41.02%) followed by foetal distress(20.52%) and malpresentation (20.52%) (Table-3).

Out of 70 cases 17.14% women had intrapartum complication. As shown in table-4 81.42% of women had some associated condition with oligohydramniosis like Pregnancy Induce Hypertension (PIH), Anaemia, postdatism etc. Table-5 shows that prevalence of SGA babies (64.28%) is almost double than AGA babies (35.72%)

Table:-1 Characteristics of patients with Oligohydramnios

Characteristics	Numbers	Percentage
Age groups (Years)		
18-20	12	17.14
21-25	39	55.71
26-30	17	24.29
>30	02	2.86
S.E. Class		
Upper	00	00
Middle	22	31.43
Lower	48	68.57
Gravidity		
Primigravida	46	65.71
Multigravida	24	34.29
EGA at delivery (weeks)		
<37 completed wks	45	64.28
>37 completed wks	25	35.72
Mode of Intervention		
Vaginal	31	44.29
LSCS	39	55.71

Table:-2 Comparison of caesarean section between borderline and sever oligohydramnios

Types of Oligohydramnios	No. of LSCS (%)	No. of NVD (%)
Borderline Oligohydramnios	20 (40.82)	29 (59.18)
Sever Oligohydramnios	19 (90.48)	02 (09.52)
Total	39 (55.71)	31(44.29)

x^2=12.75, P < 0.001

Table:- 3 Indications of Caesarean Section in patient with Oligohydramnios(n=39)

Indications of caesarean	Number	Percentage
Foetal distress	08	20.52
Malpresentation	08	20.52
Previous LSCS	07	17.94
Sever Oligohydramnios	16	41.02

Table:-4 Associated conditions among patients with Oligohydramnios

Associated conditions	Numbers	Percentage
PIH	11	15.71
Anaemia	35	50.00
Infection	02	02.86
Postdatism	04	05.71
Rh -Ve	05	07.14

Table-6 shows the various perinatal outcomes, including Low birth weight, IUGR babies, perinatal death, APGAR score

< 7 at 5 min, admission in neonatal ward etc. Among 70 babies, low birth babies were 62.86%, APGAR score < 7 was found in 17.14% of babies, 18 babies were admitted in neonatal intensive care unit.

Table:-5 Distribution of Newborn according to their gestational age

Gestational Age	Numbers	Percentage
Appropriate for Gestational Age (AGA)	25	35.72
Small for Gestational Age(SGA)	45	64.28
Total	**70**	**100**

Table:-6 The various perinatal outcomes in patients with Oligohydramnios

Outcomes	Numbers (%)
Low Birth Weight	44 (62.86)
Preterm	21 (30.00)
IUGR	24 (34.29)
Still Birth	06 (08.57)
Neonatal Death	02 (02.86)
APGAR < 7 at 5 minutes	12 (17.14)
NICU Admission	18 (25.72)
Congenital anomaly	01 (01.43)

Among 70 babies perinatal death (Still birth+Neonatal death) was 11.43% and 1 baby born with congenital anomaly (1.43%).

DISCUSSION

It is well established that Oligohydramnios is associated with adverse perinatal outcomes and on other hand, Oligohydramnios is a poor predicator for adverse outcomes. [4,5] But Oligohydramnios is often used as an indicator for delivery. So assessment of amniotic fluid volume during antenatal period is a helpful tool in determining who is at risk for potentially adverse perinatal outcome.

In our study the incidence of Oligohydarmnios was 1.19% which is comparable with studies done by Raj Sriya et al. (1.51%) and Case BM et al (2.31%). [6,7]

In present study, maximum numbers of women were in the age groups 21-25 Years (55.71%) this may because of high pregnancy rate in younger age groups. In Casey et al [7] study mean maternal age was 23.9 years which comparable to the present study. Magann et al, Casey et al in their study shows that there was no significant relation of age with oligohydramnios. [5,7] 65.71% women were primigravida which is comparable with study done by Charu Jandial et al. (60.0%). [8]

In our study NST was considered when the risk factors for adverse perinatal outcome were present and found that 37.5% had non-reactive NST. Kaushik Das et al. in their prospective case control study found that occurrence of non-reactive NST was 38.0% and caesarean section was higer if Oligohydramnios was associated with non-reactive NST. [9] Hoskins IA in their study found that Non-reactive NST resulted in 75.0% caesarean section. [10]

In our study the rate of caesarean section (55.75%) was higher in patient with amniotic fluid index <5 cm as compare to those having AFI 5.1-8cm and the rate of caesarean section was also higher in primigaravida as compare to multigravida and both these differences were statistically significant. Elizabeth G et al. [11] Lawrence Leeman et al. [12] and Akhter et al. [13] also noted in their studies that rate of caesarean section was higher in AFI <5 cm as compared to AFI >5 cm.

In our study, foetal distress leading to caesarean section (20.52%) as well as severe Oligohydramnios alone and other associated conditions was the main indication for caesarean section (41.02%). Elizabeth et al also found the increase rate of cesarean section (14.7%) due to foetal distress in Oligohydramnios groups. Voxman EG [14] also found increase rate of caesarean section (14.7%) for foetal distress in oligohydramnios but it was not significantly higher as it is found in this study. Probably due to less facilities for foetal monitoring well being during antepartum and intrapartum period. So for avoidance of adverse effects on perinatal out

come in most cases caesarean section was done.

Sarno et al. [15] noted a significantly higher rate of foetal distress and low APGAR score in women with AFI 5 cm. This may due to head or cord compression. Golam et al. [16] reported low APGAR score at 5 minutes in 4.6% of babies in contrast to a figure of 17.14% noted by us. This difference in rates observed is because of better intrapartum foetal assessment facilities available in developed countries.

Oligohydramnios is recognized as a clinical hallmark of impending severe perinatal compromise. We have found 11.43% perinatal deaths (6 still birth and 2 neonatal deaths).Where as studies done by Charu Jandial et al. [8] and Case BM et al. [7] perinatal death was 10.0% and 6.4% respectively.

In present study 62.86% of babies having Low birth weight (< 2.5 Kg) and mean birth weight was 2.26 Kg which is comparable with study done by William Ott et al. [17] Study done by Charu Jandial et al. [8] and Akhetar et al. [13] showed that prevalence of LBW babies was 58.0% and 60.0% respectively. The incidence of LBW babies is higher in Oligohydramnios expect in post maturity where the babies may have average birth weight. In Philipson EH et al [18] 60% AGA and 40% SGA. In Raj Sariya et al [6] 83.4% AGA and 16.6% SGA. This high percentages of SGA babies suggesting corelation of IUGR with Oligohydramnios.

In our study 25.72% of newborn required admission in NICU. While studies done by Charu Jandial et al., [8] Akhetar et al., [13] and Julie M Jhonson et al [19] rate of NICU admission was 16.0%, 10.0% and 20.0% respectively. In present study one baby was born with congenital anomaly (1.43%).

CONCLUSION

Oligohydramnios is frequent occurrence and associated with high rate of maternal complication and adverse perinatal outcome so it demands intensive foetal surveillance and proper antepartum and intrapartum care. Oligohydramnios is a frequent finding in pregnancy involving IUGR, PIH and pregnancy beyond 40 weeks of gestation.

Amniotic fluid volume is a predictor of foetal tolerance in labour and its decrease is associated with increased risk of abnormal heart rate and meconium stained fluid. Due to intrapartum complication and high rate of perinatal morbidity and mortality, rate of caesarean section are rising, but the decision between vaginal delivery and caesarean section should be well balanced so that unnecessary maternal morbidity prevented and on other side timely intervention can reduce perinatal morbidity and mortality.

REFFERENCES

1. Jagatia K, Singh N, Patel S. Maternal and fetal outcome in oligohydramnios: A study of 100 cases. Int J Med Sci Public Health 2013; 2; 731-734.
2. D.C.Dutta, Text book of Obstetrics: Oligohydramnios, Seventh edition, 215
3. Phelan JP, Ahn MO, Smith LCDR, Carl V. Amniotic fluid index measurements during pregnancy. J Repord Med. 1987; 32 ; 601-04.
4. Chauhan SP, Senderson M, Hendrix NW et al. Perinatal outcome and amniotic fluid index in the antepartum and intrapartum periods: A meta-analysis. Am J Obstet Gynecol 1999:181: 1473-1478
5. Magann EF, Kinsella JM, Chauhan SP, McNamanra MF et al. Dose an amniotic fluid index of <5 cm necessitate delivery in high risk pregnancies? A case control study. Am J Obstet Gynecol 1999; 181: 1473-1478
6. Raj Sriya, Singhai S, et al. “Perinatal outcome in patients with amniotic fluid

index ≤ 5cm" J Obstet and Gynecol of India 2001;51(5):98-100
7. Casey BM, McIntireDD, Bloom SL et al. Pregnancy outcome after antepartum diagnosis of oligohydramnios at or beyond 34 weeks of gestation. Am J Obstet Gynecol 2000; 182: 909-912.
8. Charu jandial, Shashi Gupta, Sudha sharama, Manju Gupta. Perinatal outcome after antepartum diagnosis of oligohydramnios at or beyond 34 weeks of gestation. Vol. 9, No. 4, Dec-2007, 213-214
9. Kaushik Das et al, "Pregnancy outcome after diagnosis of Oligohydramnios at term" Dept. of Obstet. & Gynec., Adichunchanagiri Institute of medical sciences, Bellur, September 2006.
10. Hoskins IA, Frieden FH, Young BK. "Variable decelerations in reactive non stress tests with decreased amniotic fluid index predict fetal compromise" Am J Obstet Gynecol 1991;165:1094-8.0
11. Elizabeth G. Voxman, Susan Tran, Deborath A. Wing, "Low Amniotic Fluid Index as a Predictor of Adverse Perinatal Outcome" Journal of Perinatology(2002) 22, 282-285.
12. Lawrence Leeman at al. "Isolated Oligohydramnios at term" Is induction indicated?". The J Family Practice 2005; 54(1).
13. Akhetar H, Guha K, Daisy KP, "Amniotic Fluid Index in High Risk Pregnancies and Pregnancy Outcome" Dinajpur Med Col J 2010, Jan; 3(1): 1-5.
14. Voxman EG, Train S and Wing BA. Low amniotic fluid index as a predicator of adverse peinatal out come, J of Perinatology 2002;22(4);282-285.
15. Sarno AP Jr, Ahn MO, Brar HS et al, Itrapartum Doppler velocimetry amniotic fluid volume and foetal heart rate as predicator of subsequent foetal distress. Am J Obstet & Gynecol 1989; 161;1508-1514
16. Golan A, Lin G, Evron S et al. Oligohydramnios: Maternal complication and foetal outcome in 145 cases. Gynaecol Obstet Invest. 1994;37; 91-95.0)
17. Ott WJ. Reevaluation of the relationship between amniotic fluid volume and perinatal outcome. Am J Obstet gynecol 2005;192(6):1803-9.
18. Philipson EH, Sokol RJ, Williams T. Oligohydramnios: Clinical Associations and Predictive Value for Intrauterine Growth retardation. Am J Obstet Gynecol 1983;146(3):271-278.
19. Johnson JM, Chauhan SP, Ennen CS, Niederhauser A. Magann EF. A comparison of 3 criteria of Oligohydramnios in identifying peripartum complications: A secondary analysis. Am J Obstet Gynecol 2007; 197(2):207.e1-7.

How to cite this article: Rathod HM, Patel RR, Punatar PS. Maternal and perinatal outcome in oligohydramnios at Guru Gobindsinh hospital, Jamnagar, Gujarat. Int J Health Sci Res. 2014;4(9):91-96.

****