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Impact of Polyhydramnios on the Maternal and Fetal Outcome during Pregnancy

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Abstract

Background: Polyhydramnios is an obstetrical condition associated with significant perinatal and maternal morbidity and mortality. In a low resource health facility as India with poor coverage of antenatal care and malnutrition it still becomes more important to screen pregnancies for such high risk factors.

Aims: 1. To identify major etiological factors of polyhydramnios. 2. To study perinatal outcome.3.To study maternal complications associated with polyhydramnios.

Material & Method:A cross sectional clinical study to evaluate the maternal and perinatal outcome of pregnancies with polyhydramnios in the Department of Obstetrics and Gynaecology, Jawaharlal Nehru Medical College, Bhagalpur from March 2014 to August2015. All the cases identified as polyhydramnios according to AFI in four pocket were included in the study. The cases identified as having polyhydramnios but not delivered at the facility were excluded.

Results: Incidence of polyhydramnios in multiparous ie, 63% more than primiparous cases. Majority were unbooked (80%) 71% were from rural set up. 80% belonged to low socio economic status. Majority 70% of the cases had their 1st antenatal visit at term. Increased incidence of operative delivery was seen in the study. Associated maternal factors found with polyhydramnios were gestation hypertension (8%), preeclampsia (6.3%), eclampsia (3.7%), anaemia (15%), twins (9.6%), malpresentation (6%), RH negative factor (3.1%), and diabetes (2.3%). Fetal complication include prematurity 23.5%, IUFT 21.6%, congenital malformation 23.6%, cord prolapse 4.8%, birth asphyxia 3.9%. Most common congenital anomaly was anencephaly i.e., 16%.

Conclusion: The study gives us the understanding of the impact of polyhydramnios on the maternal and fetal outcome. Our study demonstrates that careful fetal examination has to be performed when polyhydramnios is diagnosed as congenital malformations are often associated with this condition. These anomalies if detected early timely termination of pregnancy can be done hence less physical and psychological trauma to mother. Also antenatal visits play important role in early diagnosis of high risk pregnancy like polyhydramnios.

Keywords: Amnioticfluidindex**,**Polyhydramnios, neural tube defects

Introduction

The probable systems which regulate quantity of amniotic fluid are still incompletely understood due to complexities inherent in the amniotic fluid dynamics. The various studies show its fetal as well as maternal system involvement. Due to active involvement of fetal system in regulation of amniotic fluid volume, it is an indicator of

fetal status. Polyhydramnios clinically defined the excessive accumulation of liquor amnii causing discomfort to the patient and are when an imaging help is needed to substantiate the clinical diagnosis of the lie and presentation of the fetus[1]

Amniotic fluid volume assessment done by USG is relatively accurate than other methods of assessment. The technique of four quadrant method of calculating amniotic fluid index (AFI) described by Phelan et al.[2] in 1987 is accepted as the most reliable. Both excessive and less amount of liquor affect fetal well being. We are concentrating on the polyhydramnios.

Aims and Objectives:

1. To identify major etiological factors of polyhydramnios.
2. To study the perinatal outcome.
3. To study maternal complications associated with polyhydramnios.

Material & Methods

A cross sectional clinical study to evaluate the maternal and perinatal outcome of pregnancies with polyhydramnios in the Department of Obstetrics and Gynaecology, Jawaharlal Nehru Medical College, Bhagalpur from March 2014 to August2015. A review of all polyhydramnios cases presenting to the Department of Obstetrics and Gynaecology were included in the study .All the cases were assessed both clinically and by USG. Patient Diagnosed but did not deliver in the facility were not included in the study.

Results

During the study period of 1½ year from March 2014 to August. 2015, there were 1000 incidences of polyhydramnios (0.70%) and majority were unbooked i.e. 80%. At this Hospital Patients of low socioeconomic group who are not aware of antenatal care. 71 % were from rural population. Most of the patients belong to Class III 61 (61.4%) and class IV 21 (21.8%) of the modified Prasad Classification. 72% reported at term. 25% underwent caesarian section most common indication being fetal distress other indication being cephalopelvic disproportion, malpresentation, cord prolapse etc. 44% babies were having wt. >2.5 kg while 56% were <2.5 kg. 23 (27.6%) cases were premature 22 (20.7%) were IUFD, 20 (18.8%) were congenital malformed. Total perinatal mortality were 41, 22 (20.7) cases were still birth 19 (17.92) cases were early neonatal death.

Table (1) shows various risk factors associated with Polyhydramnios. Maximum (18.7%) is associated by preterm followed by PROM(7.8%) followed byAbruptio Placentae (3.7%) followed by abruption placentae (3.7%) followed by PPH (3.1%).

Complications	Percentage (%)
Preterm Labour	18.7
PROM	7.8
Abruptio Placentae	3.7
PPH	3.1

Table No. 1:Complications associated with Polyhydramnios

The table (2) shows various maternal factors associated with Polyhydramnios. The maximum incidence is of PIH 16% followed by anemia 15% ; twins 9.6% , malpresentation 6% , RH neg 3.1% followed by diabetes 2.3% .

Maternal Factors	Percentage (%)
PIH	16
- Gestational Hypertension	8
- Preeclampsia	6.3
- Eclampsia	3.7
Anemia	15
Twins	9.6
Malpresentation	6
Rh neg	3.1
Diabetes	2.3

Table No. 2: Maternal Factors associated with Polyhydramnios

Majority of Congenital Anomaly were Central Nervous System 12 (11%). Fetus had Anencephaly followed by Hydrocephalus 2 (1.8%), Multiple Congenital Anomaly 2 (1.8%), Spina Bifida 1 (0.9%), Meningomyelocele 1 (0.9%), Oesophageal Atresia 1 (0.9%), Diaphragmatic Hernia 1 (0.9%), Cleft lip and palate 1 (0.9%) & Cleft lip 1 (0.9%).(Table3)

	Percentage
Anencephaly	11
Hydrocephalus	1.8
Multiple Congenital Anomaly	1.8
Spina Bifida	0.9
Meningomyelocele	0.9
Oesophageal Atresia	0.9
Diaphragmatic Hernia	0.9
Cleft lip and palate	0.9
Cleft lip	0.9

Table No. 3: Fetal Congenital anomaly & perinatal outcome

Discussion

Table No. 3: Fetal Congenital anomaly & perinatal outcome. Incidence of polyhydramnios was 0.7%. Ron Beloseky et al (2008)[3] reported incidence 0.7% similar to our study Incidence of polyhydramnios was 2% when done by Anisa Fawad and collogues (2008)[4] which is more in comparison to our study. The highest number of patient of polyhydramnios 50 (47%) were in the age group of 21-25 years. The incidence was more in age group <20 years it could be due to teenage pregnancy with malnutrition. In our study there were 12 cases of neural tube defect. Humaria and collogues (2006)[5] reported 51% cases between 30-39 yr and 10% > 40 yr. Anisa Fawad (2008)[4] in collogues reported higher incidence in age group 26-30 years. Saadia and collogues (2010)[6] reported 30% in 20-29 yr, 53% in 30-39 yr and 5% in > 40%. In our study maximum cases 72 (68%) found in multipara followed by primi 31 (29.2%) cases. Grand multigravida constituted 3 (2.8%). Anisa Fawad (2008)[4] also reported 21.43% in primigravida 57% in multigravida, 21% in grandmultigravida. In our study maximum patients (80%) cases were unbooked as ours is a tertiary care centre catering low socioeconomic group of population who are unaware of antenatal care. Humaria Akram et al. (2006)[5] also reported higher incidence 77% in unbooked and 23% in booked patients. 63% patient in our study were referred because ours is a tertiary care centre which also deals with high risk patients referred from nearby places. In our study maximum no of patients were from low socio-economic status in which malnutrition is also prevalent. Incidence of emergency cesarean section is more ie, 69% as compared to elective. Anne et al. (2007) reported similar incidence 19% in emergency and 11% elective cases. Methew et al. (2008)[7] reported 27.9% of cesarean section which is higher compare to our study. Majority of cases were associated with hypertensive disorders of pregnancy (16%). Brian and collogues (2008)[8] also reported higher incidence of PIH in polyhydramnios. Anemia was associated with 15% of cases with polyhydramnios. As the rate of anemia is high in pregnancy in developing countries so was the association. Methew et al. (2008)[7] also reported higher

incidence of anemia in polyhydramnios. (9.6%) of cases with Polyhydramnios had multiple pregnancy. Naeye and Blanc (1972) concluded that increased urine output was responsible for polyhydramnios. (5.6%) in our study out of which 3 were in Breech. two was transverse lie and another one was compound presentation. Many & Colleagues (1995), Anisha Fawad and colleagues (2008)[4] also reported higher incidence.

In our study there were four patients (3.1%) who had the negative Rh factor. In Sadia Tariq et al (2010)[6] study, there were 82 cases of polyhydramnios and the incidence of Rh isoimmunization was 2.4%. In our study we had two cases of diabetes. Hydramnios that commonly develops with maternal diabetes in the third trimester remains unexplained, however it may be due to maternal hyperglycemia causing foetal hyperglycemia that results in osmotic diuresis. Barhava and associates (1994) have provided evidence that third-trimester amniotic fluid volume in 399 gestational diabetes reflected recent glycemic status. Yasuhi and Coworkers (1994) reported increased fetal urine, production in fasted diabetic women compared with non-diabetic controls. Sadia Tariq and Colleague (2010)[6] reported 2 (2.4%) cases which is corresponded to our study.

In the present study total cases of preterm labour were (18.7%). Perinatal mortality increased further by preterm delivery even with normal fetus. May and colleagues (1195) reported that 20 percent of 275 women with an amniotic fluid index of at least 25 cm delivered preterm. Moreover, preterm delivery was more common in women with an anomalous fetus (40%).Brian et al. (2008)[8] also reported higher incidence i.e. 26% preterm labour and delivery. The incidence of PROM in the case of Polyhydramnios in the present study is 7.8% .Anisha Fawad (2008)[4] ,Brian & colleagues (2008)[8] also reported higher incidence of PROM. In our study the incidence of Abruptio Placentae in the cases of Polyhydramnios is 3.7% . It is seen that sudden decompression of he distended uterus results in Abruption. Dafallah & colleagues[9]reported higher incidence 6.5% when compare to our study. In our study the incidence of PPH was 3.1% cases. Bryon & Hibbard (1998), Ron Beloseky (2008)[3] also reported higher incidence of PPH with polyhydramnios. In the present study of 106 cases of Polyhydramnios we had 20 (18.8%) congenital malformation. Most common anomaly was neural tube defect (table 3)Using definitions similar to those described by Hill and associates (1987)[10]. These investigators observed that almost 65% of the 105 pregnancies were abnormal. There were 47 singleton with one or more anomalies gastrointestinal (15), non-immune hydrops (12), central nervous system (12), thoracic (9), skeletal (8), chromosomal (7) and cardiac (4). Among 19 twin pregnancies, only two were normal. Twelve of the remaining 17 had twin-twin transfusion. Humaria Akram (2006)[5] and colleagues reported 33 (55%) anomalies fetus with severe polyhydramnios. Sadia et al. (2010)[6] reported congenital anomaly in (31.7%) comparable to our study. (20%) fetuses were still born and 19 (17.9%) were neonatal deaths. Humaria Akram and colleagues (2006)[5] reported similar outcome i.e. 18% intrauterine death. Sadia Tariq et al. (2010)[6] give outcome 20 (24.3%) still birth & 6 (7.3%) compared to our study.

Conclusion

Pregnancy complicated by polyhydramnios is high and Incidence was high among patient in rural areas perinatal morbidity and mortality are significantly increased when polyhydramnios is present at labour. Conditions associated with Polyhydramnios are pre-eclampsia, PROM, preterm labour, abruptio placenta and Malpresentation. Neural tube defect and other serious

structural abnormalities are easily detectable by ultrasound. Amniotic fluid is methods easily identified by current diagnostic ultrasound (AFI). If early diagnosis aided by good antenatal care, timely referral to higher centres, use of sophisticated technology like USG are made then maternal morbidity and perinatal mortality can be reduced by offering termination of pregnancy at an earlier gestation in cases of congenital anomalies and labour management in these high risk cases of polyhydramnios. The study gives us the understanding of the impact of polyhydramnios on the mother and fetus which can be effectively managed if earlier detection and follow-ups are carried out.

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