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Original Research Article

A CLINICAL STUDY OF FETO-MATERNAL OUTCOME IN PREGNANT WOMEN WITH POLYHYDRAMNIOS

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ABSTRACT

Background: To study feto-maternal outcome in pregnant women with polyhydramnios.

Materials and Methods: This prospective study will be carried out in the Department of Obstetrics and Gynaecology, Government Maternity hospital, Tirupati. Pregnant women attending Government Maternity hospital with Gestational age between 22 and 40 weeks, with polyhydromnios (AFI > 25) diagnosed using ultrasound during late second and third trimester will be selected .These pregnant women will be closely monitored throughout pregnancy, labour and puerperium for maternal and fetal complications.

Results:100 cases of polyhydramnios with foetal and maternal outcome. The majority of the patients in our series were multigravida. The majority of patients were diagnosed at term (more than 37 weeks). Mild polyhydramnios was the most common type. The majority of cases (75%) were idiopathic, while 15% of cases were associated with foetal congenital abnormalities. The most frequent congenital anomaly associated with polyhydramnios was Oesophageal abnormalities. Foetal congenital abnormalities, maternal distress, and severe pre-eclampsia accounted for 18% of cases that required induction. The rate of caesarean sections was 25% as the indications were foetal distress, CPD, unstable lie, compound presentation and prior caesarean section . The three main maternal complications were preterm labour, PROM and maternal distress. Maternal mortality was nil. The percentage of alive babies was 82%, while perinatal deaths were 10%.

Conclusion: From this study we conclude that pregnancy with polyhydramnios is a high risk pregnancy which requires proper antepartum care and intensive intrapartum maternal and fetal surveillance for better fetomaternal outcome.

Keywords: Polyhydraminos, Foetal distress, CPD, Ultrasound, Perinatal Deaths.

INTRODUCTION

A moderate excess of amniotic fluid up to two or three quarts is typical but of little clinical consequence, whereas extreme levels of 15 to 25 litres provide genuine clinical issues, stated Lizenberg in 1940, before the development of obstetrical ultrasound (US).[1]

Polyhydramnios is defined as amniotic fluid volume above the normal range for gestational age ,AFI >25 or single vertical pocket >8 cms or amniotic fluid index >90th centile.Its incidence ranges from 0.2% to 3.3%.[2]

From study done in Paris 1980, about hydramnios and fetal malformations, the incidence of hydramnios was 0.29%.[3] While in study in Switzerland in 1993 about the prevalence and etiology of hydramnios, the incidence was 1.08%.

Polyhydramnios during antepartum and intrapartum period increases maternal and perinatal morbidity

and mortality. Polyhydramnios can be idiopathic(60%), associated with maternal diabetes (20%) ,associated with congenital fetal anamolies(20%) and other causes. Even in the absence of identifiable cause, polyhydramnios is associated with increased rate of caesarean section, placental abruption, malpresentation, ,cord prolapse and large for gestational age infant and increased perinatal mortality. Major congenital malformations (open neural tube defects, upper gastrointestinal defects or deformity etc.) and foetal hydrops(immune and non-immune hydrops) are foetal conditions associated with polyhydramnios.The complications of polyhydramnios during postpartum period include cord prolapse, uterine inertia, retained placenta, and postpartum haemorrhage. These maternal complications can be avoided by detecting polyhydramnios early and proper antepartum and intrapartum management . Terminate of pregnancy can be done if foetal malformations are diagnosed. It is extremely challenging to estimate the volume of amniotic fluid before delivery using only clinical methods. Current diagnostic ultrasonography techniques make it simple to estimate amniotic fluid volume by Amniotic fluid index .

The purpose of the study is to determine the relationship between polyhydramnios and outcome of mother and fetus.

Aim & Objectives

Aim

To study feto-maternal outcome in pregnant women with polyhydramnios

Objectives

- To evaluate maternal outcome in pregnant women with polyhydramnios
- To evaluate neonatal outcome in polyhydramnios
- To evaluate the causes of polyhydramnios

MATERIAL AND METHODS

Study Design: A Prospective Observational study

Study Area: Government Maternity Hospital, Tirupati.

Study Subjects: Patients with polyhydramnios attending to obstetric op and delivering at Government Maternity Hospital, Tirupati.

Duration of Study: 1 ½ Year from the date of Institute Scientific and Ethics Committee approval.

Sample Size: 100 Cases of polyhydramnios attending to obstetric OP and delivering at Government Maternity Hospital, Tirupati during the study period.

Sampling Criteria Inclusion Criteria

1. Pregnant women with polyhydramnios(22-40 weeks) attending to Obstetric OP and delivering at Government Maternity Hospital, Tirupati.
2. Pregnant women willing to give informed and written consent.

Exclusion Criteria

1. Patient with polyhydramnios who are attending to Obstetric OP and not delivering at GMH Tirupati.
2. Multifetal gestation.

Method of Data Collection

1. Details of study protocol explained to subjects
2. Informed consent was obtained
3. Demographic details like name ,age, addres, socioeconomic status, BMI, parity and others were taken
4. Detailed obstetric, menstrual, and medical history of each pregnant women was taken. General physical examination, systemic examination, per abdominal examination were done.
5. Routine blood investigations like Blood Grouping & typing, Complete Blood Count, Renal function tests, Liver function tests, OGTT, Ultrasound for fetal gestational age, biometric parameters, AFI, congenital malformations were done.
6. Non Stress Test and Biophysical Profile were done.

This prospective study was carried out in the Department of Obstetrics and Gynaecology, Government Maternity hospital, Tirupati.

Pregnant women with Gestational age between 22 and 40 weeks, with polyhydramnios (AFI>25) diagnosed using ultrasound during late second and third trimester were selected. Pregnants diagnosed with clinically excess liquor have reconfirmed AFI by USG using 4 Quadrant method of AFI (Phelan's method) done with curvilinear ultrasound probe. These pregnant women were closely monitored throughout pregnancy, labour and puerperium. Necessary data was recorded and investigations carried out to all patients diagnosed with polyhydromnios. During subsequent follow up of cases, repeat ultrasound was done and amniotic fluid index is estimated by Phelan's method[2, 4] every 4 weeks between 22-28 weeks , every 2 weeks between 29-35 weeks and every week between 36-40 weeks. Associated risk factors that may be present along with polyhydramnios were noted and evaluated. Any complications that may arise during further follow ups in pregnancy, during labour and in puerperium(followed up till 6 weeks postpartum) were also recorded in detail.

Ethical Issues: Before collection of data all the subjects were briefed about the purpose of the study and consent was obtained. All investigations were done free of cost, no financial burden was imposed on the patient.

RESULTS

Results and Analysis: The primary outcome variables were expressed in terms of rate(%).The data maintenance and statistical analysis was done

using MICROSOFT EXCEL SOFTWARE and EPI INFO VERSION 7.0.

100 cases of Pregnant women with polyhydromnios attending Obstetric Out Patient clinic at Government Maternity Hospital were included in the study.

Overall about 13145 deliveries occurred during our study period. About 110 pregnant women were diagnosed with polyhydromnios during one and half years duration. Finally ,100 cases with polyhydromnios that met the inclusion criteria were included in the study.

These cases were followed up during antepartum intrapartum and postpartum period for feto-maternal outcome .

The age ranges of 100 polyhydromnios patients are displayed in the above table .Majority i.e., 51% of the patients were between the ages of 21-25years, 26 % were over 25 and 23 % were between the ages of 16 and 20.[Table 1]

The gravid status of 100 cases is displayed in the above table. Only 33 % of the cases were primigravida, while 67% of the cases were multigravida. [Table 2]

The above table shows the gestational age at which polyhydromios diagnosed. Majority of polyhydromnios (63%) were diagnosed at term(more than 37 weeks), 8% cases were between 24 ad 27 weeks ,19% cases were between 28 and 32 weeks,10% cases were between 33 and 37 week.[Table 3]

Only 13% of the patients with acute polyhydramnios in this study had clinical signs of an excess of amniotic fluid, such as stomach pain, discomfort, respiratory difficulty, etc and 87%cases with chronic polyhydramnios had no symptoms. [Table 4]

According to the aforementioned data, there may be a 9% correlation between first degree consanguinity and polyhydramnios, although this cannot be regarded as an etiological component for polyhydramnios. [Table 5]

The above table lists maternal conditions associated with polyhydramnios, including anaemia in 54 %cases, pre-eclampsia in 4%, gestational hypertension in 2%, gestational diabetes mellitus in 2%, and Rh negative pregnancies in 8% of the cases. [Table 6]

The severity of polyhydramnios in 100 cases is displayed in the table above. Majority (84%)of cases had mild polyhydramnios. [Table 7]

The correlation between gestational age and severity are shown in the table above; 84% cases had mild polyhydramnios, 8% cases had moderate,and8 % cases had severe polyhydramnios. The majority of cases, which were mild polyhydramnios, were detected at term. Most cases of severe polyhydramnios were discovered when the pregnancy was under 37 weeks. [Table 8]

Foetal malformations were discovered in 15%cases, multiple pregnancies in 2, gestational diabetes mellitus in 2%, Rh-isoimmunization in 8% and idiopathic in 75 %cases. [Table 9]

Among all congenital defects, Oesophageal abnormalities is the most prevalent. [Table 10]

In the present study, majority of congenital abnormalities were associated with mild polyhydramnios. [Table 11]

Of the 8% abortion cases, 7 %were induced due to the congenital anomalies, and one% was spontaneous.Out of 8% cases, 2% had severe polyhydramnios and 6% had mild polyhydramnios. [Table 12]

Maternal complications during pregnancy, 2% had placenta previa. Due to past LSCS and foetal distress, both cases required Caesarean sections. 15% were preterm deliveries. 3% of cases had premature rupture of the membranes and they were delivered vaginally. One % had compound presentation that required a Caesarean. Right occipito posterior position case was1%, delivered vaginally (face to pubis delivery). Caesarean section was performed 10% of cases who had CPD. 2%patients who delivered vaginally had face presentation. One of those was a vaginal delivery of a breech baby. [Table 13]

Neonatal outcome showed 82% of babies are live born . Perinatal deaths occurred in 10% of the cases as a result of birth asphyxia, Prematurity, congenital anomalies of the foetus. Of this, 4% were IUDS,4% were fresh stillbirths (caused by Prematurity and intrapartum asphyxia). Early neonatal deaths occurred in 2%of the cases due to Prematurity, intrapartum asphyxia. Every dead foetus had a congenital defect. [Table 14]

In majority of the cases, mild polyhydramnios was associated with a live births (73%)of the cases [Table 15]

Table 1: Age distribution

AGE(YEARS)	NO. OF CASES (%)
16-20	23
21-25	51
26-30	24
31-35	1
>35	1
TOTAL	100

Table 2: Gravida

GRAVIDA	NO. OFCASES (%)
Primi	33
2-3	56

4-5	11
TOTAL	100

Table 3: Duration of Amenorrhoea

DURATION (WEEKS)	NO. OF CASES (%)
24-27	8
28-32	19
33-37	10
>37	63
TOTAL	100

Table 4: Types of Polyhydramnios

TYPE OF POLYHYDRAMNIOS	NO. OF CASES (%)
Acute	13
Chronic	87
TOTAL	100

Table 5: Consanguinity

CONSANGUINITY	NO. OF CASES(%)
1st degree	9
2nd degree	19
3rd degree	8
Non-Consanguineous	64
TOTAL	100

Table 6: Maternal Conditions Associated with Polyhydramnios

MATERNAL CONDITIONS	NO. OF CASES (%)
Pre-eclampsia	4
Gestationalhypertension	2
Gestationaldiabetesmellitus	2
Anaemia	54
Rh-veMother	8

Table 7: Severity of Polyhydramnios

SEVERITY	NO. OF CASES (%)
Mild	84
Moderate	8
Severe	8
TOTAL	100

Table 8: Gestational Age Associated with Severity of Polyhydramnios

GESTATIONAL AGE(WEEKS)	NO.OFCASES	SEVERITYOF POLYHYDRAMNIOS		
		Mild N(%)	Moderate N(%)	Severe N(%)
24-27	8	6 (75)	-	2 (25)
28-32	19	15(79)	1(5)	3 (16)
33-37	10	6 (60)	2 (20)	2 (20)
>37	63	57(90)	5(8)	1(2)
Total	100	84	8	8

Table 9: Etiology of Polyhydramnios (N = 100)

ETIOLOGY OF POLYHYDRMNIOS	NO.OF CASES (%)
Foetalanomalies	15
Multiplepregnancies	2
GestationalDiabetesmellitus	2
Twins	2
Rh-isoimmunization (2caseswereassociatedwithfoetalcongenital anomalies)	8
Idiopathic	75

Table 10: Foetal Congenital Anomalies

	CONGENITALANOMALIES	NO.OFCASES	PERCENTAGE
1	Anencephaly	1	6.65
2	Anencephaly+spinabifida	1	6.65
3	Hydrocephalus	1	6.65
4	Hydrocephalus + lumbarmeningomyelocele+cervicalspina bifida+clubfoot	1	6.65

5	C left palate and c left lip	1	6.65
6	Hydrocephalus+lumbarmeningocele	1	6.65
7	Hydropsfoetalis	1	6.65
8	Foetalascites	1	6.65
9	Nonimmunehydropsfoetalis	1	6.65
10	Diaphragmatichernia	1	6.65
11	Multicystickidney	1	6.65
12	Clubfoot	1	6.65
13	Tracheoesophagealfistula	1	6.65
14	Oesophagealatresia+imperforateanus	1	6.65
15	Tracheoesophagealfistula+analatresia	1	6.65

Table 11: Severity of Polyhydramnios Associated with Congenital Anomalies

CONGENITALANOMALIES	SEVERITYOFPOLYHYDRAMNIOS		
	MILD(%)	MODERATE(%)	SEVERE(%)
1.Anencephaly	1		
2.Anencephaly+spinabifida	1		
3.Hydrocephalus	1		
4. Hydrocephalus + lumbarmeningomyelocele+cervicalspinabifida +club foot	1		
5.Cleftpalateandcleftlip	1		
6.Hydrocephalus+lumbar meningocele	1		
7.Hydropsfoetalis	1		
8.Foetalascites		1	
9.Nonimmunehydropsfoetalis			1
10.Diaphragmatichernia	1		
11.Multicystickidney	1		
12. Clubfoot	1		
13.Tracheoesophagealfistula			1
14.Oesophagealatresia +imperforateanus	1		
15Tracheoesophagealfistula+analatresia	1		

Table 12: Type of Delivery / Abortion

Sl.No.	TYPES	NO.OFCASES (%)
1	Abortion InducedSpontaneous	7 1
2	Vaginal PretermTerm	26 41
3	Caesareansection	25
	TOTAL	100

Table 13: Maternal Complications During Pregnancy

MATERNALCOMPLICATIONS	NO.OFCASES (%)
Placentaprevia	2
Pretermlabour	15
Prematureruptureofmembrane	3
Transverseliewithhandprolapse	1
Unstablelie	1
Compoundpresentation	1
Rightoccipito-posterior position	1
Cephalopelvicdisproportion	10
Facepresentation	2
Breechpresentation	1

Table 14. Foetal outcome

Sl.NO.	FOETALOUTCOME	NO.OFCASES (%)
1	Alive	80+2setsoftwin
2	Intrauterinedeath	4
3	Stillbirth	4
4	Earlyneonataldeath	2
5	Abortion	8

Table 15: Foetal Outcome Associated with Severity of Polyhydramnios

FOETALOUTCOME	SEVERITY OF POLYHYDRAMNIOS		
	MILD(%)	MODERATE(%)	SEVERE(%)
Alive	73	6	3
Intrauterinedeath	2	1	1
Stillbirth	2	1	1
Earlyneonataldeath	1	-	1
Deadabortus	6	-	2

TOTAL	84	8	8

DISCUSSION

Polyhydramnios is one of the ominous indicator of pregnancy that necessitates a thorough evaluation.
High perinatal mortality and morbidity, in addition to maternal morbidity, necessitates evaluation of cases of polyhydramnios in a specialized centre.
This prospective observational study examines the feto-maternal outcome in pregnant individuals with polyhydramnios. The research involved 100 patients of polyhydramnios who gave birth in Government maternity hospital Tirupati over the study period of18 months. We examined the numerous etiological causes of polyhydramnios, maternal complications and foetal outcomes. Ultrasonography was used to confirm the presence of polyhydramnios by using amniotic fluid index (AFI).
Nezaam M. et al. (1982) examined 78 cases of polyhydramnios in the second and third trimesters of pregnancy[3]
R. William Quinlan et al.(1983) done a study on polyhydramnios and its causes[4]
Lyndon M. Hill et al. (1987) conducted a research on 102 cases of polyhydramnios identified by ultrasound over a period of 4.5 years at the Mayo clinic in Rochester, southeasternMinnesota.[6]
We discovered that the incidence of polyhydramnios was 0.81 percent every year. According to William et al.4, the incidence rate was 0.33 percent.
In the present study, nearly 98% of cases were in the 20-30 age range, whereas in the study by S Vaid et al only 60% of cases were in this age range.
In the present study, the majority of cases (67%) were multigravida. In the present study, close to 13% of participants experienced clinical symptoms associated with excessive amniotic fluid. There are no available studies that compare the prevalence of consanguinity and polyhydramnios.
In the present study, 4% of cases had pre-eclampsia compared to 13% of patients in the study by S.Vaidet al.[7]
In the present study, 2% of cases had gestational diabetes mellitus, whereas 5% of patients in the study by S.Vaid et al,[7] were diabetic.
In the present study, 54% of patients were anaemic, whereas S.Vaid et al,[7] found that 53% of patients were anaemic.
In the present study, 8% of pregnancies were Rh-negative, compared to 1% in the study by Lyndon M. Hill et al.[6]In the present study, 84%, 8%, and 8% of patients had mild, moderate, and severe polyhydramnios, as compared to Ariel Many et al,[9] in which 72.3%, 20%, and 7.7% of patients had mild, moderate, and severe polyhydramnios, respectively. In the present study, the majority of severe polyhydramnios was diagnosed at less than 37 weeks, whereas the majority of mild polyhydramnios was diagnosed at term.
According to the present study the most common cause of polyhydramnios is idiopathic (84%). 66.7%, according to Lyndon M. Hilll,[6] were idiopathic. In the present study, foetal anomalies comprised approximately 15%, whereas in the study by Lyndon M. Hill et al,[6]foetal anomalies comprised 12.7%. In contrast to Lyndon M. Hill et al,[6]in which 14.7% of participants were diabetic, Diabetes Mellitus accounted for approximately 2% of participants in the current study. Multiple pregnancies (diamniotic–dichorionic) accounted for approximately 2% of pregnancies in the present study compared to Lyndon M. Hill et al,[6]where multiple pregnancies accounted for approximately 4.9% of pregnancies, almost double that of the present study.
In the present study, there were 8% Rh isoimmunization, whereas in the study by Lyndon M. Hill et al 6, there were only 1% Rh isoimmunization, which was significantly lower than the present study. Compared to S.Vaid et al,[7]where 42.86 percent of babies were alive and 57.14 percent were perinatal deaths, the current study found that 82 percent of babies were alive and there were 10 percent of perinatal deaths.
In the present study, majority of perinatal deaths occurred in mild polyhydramnios.
In the present study, 6.6% of the infants weighed more than 4kgs, 20% weighed less than 2.5kgs, and 6.7% had an APGAR score of less than 7 at 5 minutes. 3.3% of newborns were admitted to a NICU.
In a study 43 done on patients with clinically excess liquor,ultrasound confirmed polyhydramnios in ninety to ninety-three percent. Among them,polyhydramnios was associated with foetal congenital anomalies in 31.1%, diabetes mellitus in 20%, pulmonary arterial hypertension 17.7%, twin pregnancy 6.6%, and Rh incompatibility
4.4%. 40% of polyhydramnios pregnancies were complicated by preterm labour. The incidence of congenital anomalies (14%) and perinatal mortality (20%) was significantly higher (P 0.001) in subjects with abnormal liquor volume than in women with normal liquor volume (0.3% and 2.3%, respectively; P 0.001)48.
Supporting the present study is a study conducted by TARIQ et al. According to the findings of a study conducted by TARIQ et al. on polyhydramnios and feto maternal outcome, polyhydramnios can develop in both primigravida and multigravida. The majority of etiological factors are idiopathic, with prenatal malformations being the most relevant. In 26.8% of instances, diabetes is also related with polyhydramnios. The influence of polyhydramnios on neonatal outcome is that the majority of newborns were born with no noticeable effects. There were only 26 infants (31.5%) with abnormalities and neural tube defects were prevalent. This study concludes that idiopathic

polyhydramnios is the most prevalent kind. Improved prenatal and antenatal screening, as well as early diagnosis of congenital defects, may aid in reducing patient morbidity.[8]

CONCLUSION

Excessive production of amniotic fluid during pregnancy is an alarming sign and the cases should be evaluated. The best method to identify early polyhydramnios is ultrasound. An expert sonographer can identify high risk instances simply by seeing that there is excess amniotic fluid present, which frequently results in a successful search for congenital anomalies. Most of the polyhydramnios cases in the current study were considered to be mild. To enhance the prognosis for the foetus and avoid maternalcomplications, a thorough evaluation must be done in order to identify the etiological reasons in all cases of polyhydramnios. From this study we conclude that, cases with polyhydramnios is a high risk pregnancy which requires proper antepartum care and intensive intrapartum maternal and fetal surveillance for a good maternal and neonatal outcome.

Declaration of Conflict of Interest

This study was carried out for academic purposes.The investigator had no conflict of interest to disclose.

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