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Original Research Article

A Prospective Observational study of outcome of pregnancy and perinatal outcome in Amniotic Fluid Index of more than or equal to 18cm Polyhydramnios in Term Pregnancy

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Abstract:

Background: The amniotic fluid begins to develop from the mother's plasma through a process called transudation. Its quantity varies over the course of the pregnancy. Throughout the intrauterine life, the amniotic fluid serves a number of purposes. The amniotic fluid index (AFI), the most popular ultrasonography technique for the identification of amniotic fluid, has been proposed in 1987 by J.P. Phelan and colleagues. AFI greater than the 95th percentile for gestational age is considered a polyhydramnios. The severity of polyhydramnios is inversely correlated with the probability of congenital malformations and perinatal mortality.

Aim of the study is to study the obstetric outcome in pregnancies with polyhydramnios; to determine the maternal and perinatal outcome in pregnancies complicated by polyhydramnios; to determine the possible factors causing polyhydramnios.

Methodology: This was a Prospective Observational study done in 100 cases over 2 years period in the Department of OBG, Government General Hospital.

Inclusion Criteria: Singleton pregnancies with gestational age 37 – 40 weeks and AFI >18cm.

Exclusion Criteria: Multiple gestations, < 18 cm AFI, < 37 or > 40 weeks gestation.

Results: Idiopathic polyhydramnios was the common type, followed by gestational diabetes and congenital anomalies. PROM was major problem during the labor.No maternal mortality was noted but a 7% perinatal mortlality was noted and the majority of the deaths were due to respiratory distress.

Conclusion: In all cases with abnormal liquor volume, a thorough history, clinical examination, and relevant investigations should be performed to identify the various etiological factors in order to improve the prognosis for the foetus and prevent any complications for the mother.

Keywords: Polyhydramnios, premature rupture of Membranes, GDM, Congenital anomalies, Maternal Outcome, Perinatal Outcome.

Introduction

Beginning in the seventh week of pregnancy, the amniotic fluid begins to develop from the mother's plasma through a process called transudation. Its quantity varies over the course of the pregnancy. Throughout the intrauterine life, the amniotic fluid serves a number of purposes. By providing the necessary physical space, it aids in the development of the foetal skeleton, encourages lung development, and shields the umbilical cord from compression during labour. The most frequent clinically discernible intrinsic abnormality[1] that forms the basis of our analysis is an excessive quantity of amniotic fluid.

The amniotic fluid volume was previously measured clinically by bimanual palpation and symphysio-fundal height, which were later discovered to be unreliable. This was before the age of the invention of ultrasound use in obstetrics. The use of ultrasound for medical diagnostics was first demonstrated and documented in 1950 by Prof. Sir Ian Donald[2]. Due to its non-invasiveness, accuracy, and repeatability, ultrasonography is now an essential tool in the armamentarium of obstetricians almost like an extension of the doctor's finger when performing examinations. Because abnormal amniotic fluid volume is a sign of a poor perinatal outcome, it is an essential component of antepartum foetal surveillance.

The amniotic fluid index (AFI), the most popular ultrasonography technique for the identification of

amniotic fluid, has been proposed. This approach was suggested in 1987 by J.P. Phelan[3] and colleagues. The frequency with which it is carried out continues to rise and it exceeds more than 30% in many hospitals.[4]

AFI greater than the 95th percentile for gestational age is considered a polyhydramnios. The cause of polyhydramnios in more than 50% of women was unknown. The severity of polyhydramnios is inversely correlated with the probability of congenital malformations and perinatal mortality.[5]

A useful tool to detect a fetus at risk for a poor obstetric and perinatal outcome is hence amniotic fluid volume evaluation. As a result, the current study is carried out to determine the perinatal and maternal outcome.

Aim: To study the obstetric outcome in pregnancies with polyhydramnios; to determine the maternal and perinatal outcome in pregnancies complicated by polyhydramnios; to determine the possible factors causing polyhydramnios.

Materials and Methods

This was a Prospective Observational study done in 100 cases over 2 years period in the Department of OBG, Government General Hospital.

Inclusion Criteria: Singleton pregnancies with gestational age 37 – 40 weeks and AFI >18cm.

Exclusion Criteria: Multiple gestations, < 18 cm AFI, < 37 or > 40 weeks gestation.

A thorough obstetrics history was obtained at the time of admission, including information on both the current pregnancy and prior pregnancies. The measurement of height and weight as well as the nutritional status were done. Basic investigations like haemoglobin estimation, total leukocyte count, differential leukocytes, blood grouping and Rh typing, urine examination, viral screening, random blood sugar, Renal function test, liver function test, bleeding time, clotting time were done for each case. Ultrasonography was done for estimation of gestational age, location of placenta and AFI. Labour monitored by partogram and intrapartum CTG. Decision for mode of delivery was made based on evaluation of progress of labour, foetal indication and maternal indications. All intra operative details were recorded and complications were managed accurately. All the neonates were attended by the pediatrician. Maternal postoperative complications and newborn complications were monitored regularly till they were discharged from the wards. At the time of discharge, the patients were explained about the importance of spacing, contraception and immunization. Neonatal Intensive Care Unit (NICU) admission, birth weight, five-minute Apgar, the fetal outcome, and perinatal morbidity and mortality were also recorded. These many factors were tabulated and analyzed after all of these data were entered into the premade proforma.

Results:

Table 1: Age Distribution

Age group	No. of subjects(n=100)	Percentage (%)
15- 20 yrs	16	16%
21-25 yrs	45	45 %
26-30 yrs	32	32 %
Above 31 yrs	7	7 %
Minimum 18yrs	**Maximum 36yrs**	**Mean 24.79yrs, SD 3.945**

Table 2: Gestational age

Gestational age	No. of subjects (n=100)	Percentage (%)
37 weeks	21	21
38 weeks	21	21
39 weeks	33	33
40 weeks	25	25
Minimum 37 weeks	**Maximum 40 weeks**	**Mean 38.62weeks, SD 1.080**

Table 3: Socio Economic Status

Socio Economic Status	No. of subjects (n=100)	Percentage (%)
Upper	11	11
Middle	32	32
Lower	57	57

Table 4: Booking Status

Booking Status	No. of subjects (n=100)	Percentage (%)
Booked	72	72
Unbooked	28	28

Table 5: Glycemic Index

HbA1C	No. of subjects (n=100)	Percentage (%)
Normal	89	89
Uncontrolled	11	11
RBS		
<140	97	97
>140	3	3

Table 6: Amniotic Fluid Index

AFI Index	No. of subjects	Percentage (%)
19	30	30
20	29	29
21	0	0
22	27	27
23	0	0
24	7	7
25	1	1
26	4	4
27	1	1
28	0	0
29	0	0
30	1	1

Table 7: Gravida Status

Gravida	No. of subjects	Percentage (%)
G1	43	43
G2	28	28
G3	15	15
G4	7	7
G5	6	6
G6	1	1

Table 8: New borns requiring admission in NICU and Indications

Particulars	No. of Subjects	Percentage
Admitted to NICU	31	31
Jaundice	**23**	**74**
Respiratory Distress Syndrome	**7**	**23**
Transient Tchypnoea of New Born	**1**	**3**
Not Admitted	69	69

Table 9: Mode of Delivery, Anomalies, APGAR Score

Particulars	No. of subjects (n=100)	Percentage (%)
Normal Vaginal Delivery	33	33
Caesarean Section	67	67
Indications for Sections		
Prior LSCS	16	24
Malpresentations	31	46
CPD	5	7
Fetal Distress	14	21
Failed Induction	1	2
Anomalies		
Anomalies Present	6	6
No Anomalies	94	94
APGAR Score		
Excellent	93	93
Moderately depressed	4	4
Severely Depressed	3	3

High Risk Pregnancies		
Associated with other risks	57	57
Only Polyhydramnios	43	43

Table 10: Maternal conditions observed among study group

Particulars	**No. of subjects**	**Percentage (%)**
Nill	49	49
Transverse Lie	1	1
PPH	24	24
GDM	3	3
Retro Placental Clots	2	2
Hypoprolactinermia	1	1
Hypothyroidism	3	3
Jaundice	1	1
Arcuate Uterus	1	1
PIH	3	3
Rh Negative	3	3
Ruptured uterus	1	1
Retained placenta	1	1
Overt DM	1	1
Ovarian cyst	1	1
LSCS	5	5

Table 11: Birth Weight: Descriptive statistics

Birth weight	**No. of subjects**	**Percentage (%)**
Normal	98	98
Low Birth weight	1	1
Overweight	1	1

Discussion:

Various studies have been presented to know the perinatal morbidity and mortality in pregnancy with abnormal liquor volume. In the same way present study was carried out to reveal the fetomaternal outcome in excess liquor volume in the department of Obstetrics and Gynecology, Government general hospital.

In this present study, 45% were in the age of 21-25yrs and 32% were in the age of 26-30 yrs in polyhydramnios group. This was comparable to Guin et al[4] study in 2011, in which the sample size was 50 and 32% subjects belonged to 21–30 years age group. In this present study, among the parity distribution, In polyhydramnios group majority of the women were multigravidas 57% and primigravida 43%, which was comparable to study by Guin et al[4] study 2011 in which multigravidas were 88%.

In present study, majority of the women in the gestation age of weeks, 21% were in 37 weeks, 21% were in 38 weeks 33% were in 39 weeks, 25% were in 40 weeks. In present study, GDM was present in 10% as compared to Guinet al.[4] study where 20% cases were GDM and 5% cases were GDM in Vaid et al.[6] study done in 2020.

In present study, 8% cases had hypertensive diseases as compared to 17.7% in Guinet al.[4]study done in 2011 and 13% in Vaid et al[6] study done in 2020.

In present study, 4% cases were Rh negative pregnancy as compared to Guinet al.[4] where Rh negative pregnancy were 4.4%, 1% in Lyndon M Hill et al.[7] study done in year 2019.

In present study, total of 6% have congenital anomalies which was comparable to Guin et al[4] study in 2011 where 31.1% were associated with congenital anomalies. In present study, exact cause of polyhydramnios was not detected in 79% which was comparable with Brady et al.[8] study in year 2018. Gestational diabetes in 10% and overt diabetes mellitus in 1% and congenital anomalies in 6%, RH association in 4%. In polyhydramnios group only 20% cases were induced as compared to 13.6% in Guinet al.[4]study in year 2011.

In polyhydramnios group only 67% underwent caesarean section as compared to 22.2% in Guin et al[4] in year 2011.and 33% were NVDs, Instrumental delivery rate was not significant in polyhydramnios group in our study.

In present study, cases presented to the hospital with polyhydramnios group, 22%cases were PROM as compared to 44.5% in Guinet al.[4] in year 2011, 51% with labour pains, 19% with back pain, 6% were referral cases, 2% were for safe in-

stitutional confinement.

In present study, atonic PPH were occurred in 24% of cases as compared to 4.4% in Guinet al.[4] study in year 2011. Retained placenta was seen in 1% cases in our study.

In present study, polyhydramnios group had high perinatal mortality rate 7%. This was comparable with Guinet al.[4] study in year 2011 where perinatal mortality were 42.25 in polyhydramnios. This high perinatal mortality In polyhydramnios group was due respiratory distress.

In polyhydramnios group delivered 92% babies with birth weight between 2.5 - 4kg, 6% with >4kg and 1% with ≤2.5kg and 1% with 5kg in our study. Socio economic status distribution, 67% were belonging to low socio economic status, 32% were belong to middle socio economic status, and 11% were belong to upper socio economic status. Distribution based on booking status, 72% were booked cases, and 28% were unbooked cases. The HbA1C levels, 89% of cases have the values HbA1C <5.7 and 11% of cases have the values HbA1C >5. accounted for 14%.

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