International Journal of Medicine Research
ISSN: 2455-7404; Impact Factor: RJIF 5.42
www.medicinesjournal.com
Volume 2; Issue 4; July 2017; Page No. 40-42

Study of idiopathic polyhydramnios

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Abstract
Objectives: Polyhydramnios is present in approximately1- 2% of pregnancies and it has been associated with a variety of adverse pregnancy outcomes. Idiopathic polyhydramnios is the most common type of hydramnios without definet aetiological factors. The aim of our study is to evaluate the association between idiopathic polyhydramnios and adverse pregnancy outcomes.
Methods: This an observational study, conducted on pregnant woman with idiopathic polyhydramnios. Delivered at Government Victoria Hospital /Andhra Medical College Visakhapatnam from June 2016 to May 2017. 50 consecutive cases of idiopathic polyhydramnios were compared with 50 cases of controls. Maternal examination, workup to exclude other aetiological factors for hydramnios and, feto maternal outcome were studied and tabulated. The values obtained were analyzed using SPSS software.
Results: The mean maternal age was 24.58 ±2.16yrs for study group and 25.14±2.896yrs for controls Most of the cases were multiGravida. The gestational age at the time of delivery ranged from 30 to 41 weeks. Mild polyhydramnios was the most common type(86.4%)Obstetric complications were preterm delivery, PROM, abruption placenta, cesarean sections due to CPD, fetal distress mal presentations and cord prolapse which were more than in the control group with perinatal deaths (4)8% .NICU admissions(6%).
Conclusion: Polyhydramnios is an obstetric risk factor. It is associated with adverse maternal complications and perinatal outcome. Excluding etiological factors and surviallence of idiopathic hydramnios is also important to get better foetal outcome as well as to avoid the maternal morbidity.

Keywords: idiopathic polyhydromnios, fetal maternal outcome

Introduction
Abnormally increased amniotic fluid volume is termed hydramnios or polyhydramnios [1]. Fetal urination, fetal swallowing fetal lung fluid secretion intramembranous flow across fetal vessels on the placental surface transmembranous flow across amniotic membrane are major causes which effect the volume of amniotic fluid regulation late in pregnancy [2]. Polyhydramnios develops as a consequence of disturbed equilibrium between production, fetal resorption, and secretion of amniotic fluid. At term, the average volume is approximately 1000 mL, although this may vary widely in normal and especially abnormal conditions. Amniotic fluid serves several roles during pregnancy. It creates a physical space for fetal movement, which is necessary for normal musculoskeletal development. It permits fetal swallowing, essential for gastrointestinal tract development, and fetal breathing, necessary for lung development. Amnionic fluid guards against umbilical cord compression and protects the fetus from trauma. It even has bacteriostatic properties. Amnionic fluid volume abnormalities may reflect a problem with fluid production or its circulation, such as underlying fetal or placental pathology. These volume extremes may be associated with increased risks for adverse pregnancy outcome. Hydramnios is an abnormally increased amnionic fluid volume, and it complicates 1 to 2 percent of pregnancies [3, 4, 5].
.Amniotic fluid index (AFI) is determined by directly measuring the vertical pocket (free of any foetal part) in four quadrants of abdomen in a pregnant woman. Polyhydramnios is ranked as mild, moderate or severe according to AFI 24.0-29.9 cm, 30.0- 34.9 cm and 35.0 cm or more respectively Maternal disorders, such as diabetes, in utero infections, drug usage, placental abnormalities, and fetal conditions like congenital and chromosomal abnormalities, Rh is immunization, and multiple gestations, are generally associated with half of the cases with polyhydramnios [6, 7]. However, in about half of the cases, none of the aforementioned etiologies is found, and it is referred to as idiopathic polyhydramnios. Thus, idiopathic polyhydramnios can be defined as polyhydramnios that is not associated with congenital anomalies (especially of the central nervous system or gastrointestinal tract), maternal diabetes, isoimmunizaton, fetal infection (Cytomegalovirus or toxoplasmosis), placental tumors, or multiple gestations. A thorough investigation of the mother and the fetus is mandatory to rule out all these conditions in order to refer to a case of polyhydramnios as ‘‘idiopathic’’ polyhydramnios.
In this perspective, an increasing number of clinical and molecular studies is designed to define the molecular architecture of biologic membranes, which are involved with amniotic fluid regulation. Most recently, increased aquaporin expression has been reported in the fetal membranes of cases complicated with idiopathic polyhydramnios [8, 9]. Various studies have proven adverse perinatal outcomes with cause-specific polyhydramnios [10, 11]. As idiopathic polyhydramnios is a matter of debate in obstetric practice, the aim of this analysis is to investigate maternal and fetal outcomes of idiopathic polyhydramnios and to evaluate whether it is associated with adverse events.

Materials and Methods
This study is an observational study, conducted on singleton pregnant woman with polyhydramnios. Delivered at Government Victoria Hospital /Andhra Medical College

Visakhapatnam a territiary care centre, from June 2016 to May 2017. Maternal examination, workup to exclude aetiological factors for hydramnios like fetal congenital anomalies, maternal diabetes, Rhisoimmunisation,twin gestation, TORCH infections. 50 consecutive cases of idiopathic polyhydramnios were compared with 50 cases of controls with normal AFI. Factors like gestational age, maternal obstetric and medical complications, feto maternal outcome were studied These findings were compared by means of the chi(2) test with those of 50 matched control subjects with normal amniotic fluid volume (<24 cm) and SPSS software used to analyse data.

Results

The incidence of hydramnios in our centre is1.7%. Out of them 50 cases of idiopathic polyhydramnios were studied and compared with 50 normal cases with normal AFI as control group.The mean maternal age was24.58 ±2.167yrs for study group and 25.14±2.896yrs for controls. Mild polyhydramnios was the most common type (92.4%) Most of the cases were multiGravida (77.6%)(Table1,2).The gestational age at the time of delivery ranged from 30 to 41 weeks(Table3).Maternal parameters, medical and obstetric complications were studied(Table4).Maternal complications like preterm delivery, PROM, abruptio placenta, cesarean sections due to CPD, fetal distress malpresentations and cordprolapse which were more than in the control group(24%). In polyhydramnios group, the alive and perinatal death rate was 88%, and 8% respectively. IUD and Still births were 2% and 6% NICU transfers more compared to control group. Perinatal outcome measures of the groups are shown in _(Table5). All the case contol comparisons were not statistically significant p value >0.05

Table 1: Distribution of Idiopathic Polyhydramnios in relation to age

	Cases		Controls	
	Number	**%**	**Number**	**%**
< 20 Yrs.	13	26	11	22
21-25 Yrs.	27	54	35	70
26-30 Yrs.	8	16	4	8
> 30 Yrs.	2	4	0	0
Total:	50	100	50	100

Chi square value: 4.532 P value: 0.209
There is no significant association (p > 0.05) between distribution of age in relation to Polyhydramnios

Table 2: Distribution of Idiopathic Polyhydramnios in relation to Gravid status

	Cases		Controls	
	Number	**%**	**Number**	**%**
Primigravida	11	22	17	34
Gravida 2	28	56	26	52
Gravida > 2	11	22	7	14
Total:	50	100	50	100

Chi square value: 2.25 P value: 0.325.There is no significant association (p > 0.05) between gravid status and Polyhydramnios

Table 3: Distribution of Idiopathic Polyhydramnios in relation to gestation age

	Cases		Controls	
	Number	**%**	**Number**	**%**
< 32 weeks	2	4	0	0
33 to 36 weeks	1	2	4	8
Term	46	92	46	92
Past dates	1	2	0	0
Total:	50	100	50	100

Chi square value: 2.843.P value: 0.241.There is no significant association (p > 0.05) between gestational age and Polyhydramnios

Table 4: Distribution of Idiopathic Polyhydramnios in relation to Maternal complications

	Cases		Controls	
	Number	%	Number	%
C.P.D.	3	6	3	6
PIH	2	4	0	0
PROM	2	4	0	0
Breech	2	4	3	6
Others Mal Presentation	2	4	1	2
Abruptio Placenta	1	2	1	2
Total:	12	24	8	16

Chi square value: 6.663.P value: 0.155.There is no significant association (p > 0.05) between maternal complications and Polyhydramnios

Comparison of Caesarean delivery and fetal weight with Student T test

Caesarean	N	Mean Fetal weight (Kgs)	Std. Deviation	P value
YES	12	2.96	.38	0.310
NO	38	3.01	.39	

There is no significant association (p > 0.05) when fetal weight is compared in women who underwent CS.

Table V: Fetal outcome in Idiopathic Polyhydramnios

	Cases		Controls	
	Number	%	Number	%
Live	44	88	48	96
Dead	2	4	0	0
NICU Transfer	4	8	2	4
Total:	50	100	50	100

Chi square value: 4.167.P value: 0.125.There is no significant association (p > 0.05) between fetal outcome and Polyhydramnios

Discussion

In our study of 50 cases of idiopathic hydramnios, the mean maternal age was 24.58±2.167yrs. Analysis of our demographic data showed that polyhydramnios was more common in younger women while in the literature it is more common in older women. Biggio et al. found a relationship between idiopathic polyhydramnios and rising maternal age and parity[12]Mild polyhydramnios was the most common type (92.4%) It is also reported in previous studies. (Dashe, 2002; Lazebnik, 1999; Pri-Paz, 2012) [3, 4, 5]. Most of the cases were multi Gravida (77.6%), similar to other studies. There are conflicting reports in the literature with regard to the association of polyhydramnios with preterm delivery. In our study preterm delivery was 6% lesser than in control group 8%. Similar results were found in some other studies [4, 13]. But some studies Odibo *et al.* [14, 15] found increased preterm and macrosomia. Malpositions like breech,occipito

posterior and oblique lie were more than in control group[4].Severe hydramnios with PROM was responsible for one case of cord prolapsed and IUD. In this study, we found that idiopathic polyhydramnios had an influence on mode of delivery.72% had vaginal deliveries There was increase in caesarean section rates, which was12.1% as compared to 6% for controls with normal AFI, Increased nonvertex presentation, and cesarean delivery were also increased in study. Zeino S *et al.* [16].

In our study we did not find any relation of polyhydramnios to low Apgar scores. Some authors reported low Apgar scores at one minute and five minutes[17,18].Growth retardation was not recorded in our cases.,

The rate of fetal distress was 12.1% for the cases as compared to 6.9% for the control group. The majority of the women in our study had live born babies (88%).There was one case of IUD and one still births inthe polyhydramnios group. These were due to cord prolapse and fetal distress in prematurity. There was one neonatal death with undiagnosed tracheooesophageal fistula and duodenal atresia did not recover from surgical correction in case diagnosed as idiopathic polyhydramnios. In a study by Abele H et al. concluded that in about 40 % of pregnancies, polyhydramnios remains unexplained during the course of pregnancy, and in 10 % of these cases, an anomaly will only be found after birth [19]. Although this was not significant, small numbers limit the value of comparison, and a higher IUD perinatal mortality rate has been identified in other studies [8, 20] with very few showing no increased rate

Limitations

Small study group and hospital based study.Even though it has not been extensively addressed in scientific literature, idiopathic polyhydramnios should be managed with reasonable diligence in light of available reports. Further larger studies are needed to resolve complex mechanisms and to establish universal guidelines

Conclusion

In contrast to various studies on polyhydramnios related to specific causes (congenital anomalies, diabetes mellitus, isoimmunization) is associated with adverse perinatal outcomes, such as prematurity, low birth weight, and perinatal death, idiopathic polyhydramnios is not associated with higher rates of these traditional measures of poor outcome..Even if these factors for hydramnios are excluded in idiopathic hydramnios, still is associated with specific adverse outcomes. Therefore, close surveillance of these pregnancies is required, especially near term and parturition and neonatal follow up to get better foetomaternal outcome.

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