Original Article

Congenital Malformation in Singleton Pregnancies Complicated with Polyhydramnios

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Abstract

Objective: To determine the frequency of congenital malformation among females with pregnancy along with polyhydramnios from 28 – 37 weeks of gestational age.

Methodology: This cross sectional study was conducted at CMH Okara from December 2016 to December 2017. A total of 130 pregnant women with childbearing age 18 – 42 years were enrolled in this study. Furthermore, women diagnosed case of polyhydramnios confirmed through ultrasonography (amniotic fluid index greater than 25cm) and vertical pocket of liquor >8cm, gestational age should be between 28 – 37 weeks (on history taking). and patients of polyhydramnios with and without associated congenital anomalies were also selected for this study. Data was entered and analyzed by SPSS 20.inc.

Results: The mean age was 29.6±4.67 years. The majority of the females were having single parity 52(40%) while parity was 5 in just 4(3.1%) of the female. Mean BMI of the female in the study was 23.47±1.30. The mean gestational age in all the pregnant females was 33.21±2.35 weeks. Congenital Malformations were noted in 16(12.3%).

Conclusion: Hence, it is concluded that there is a need to monitor the amniotic fluid level in pregnancy so lesser the chances of congenital malformations.

Keywords: Polyhydramnios, congenital malformations, amniotic fluid.

Cite this article as: Sadiq A, Sadiq U, Hotiana NA, Raja A,. Congenital Malformation in Singleton Pregnancies Complicated with Polyhydramnios. J Soc Obstet Gynaecol Pak. 2020; Vol 10(1):35-39.

Introduction

Polyhydramnios is operationally defined if a pregnant female carrying single pregnancy had amniotic fluid >2000ml and amniotic fluid has an index >95th centile. Polyhydramnios is also considered present when there is maximum vertical pocket of liquor >8cm. The rise in the level of amniotic fluid is due to the urination of the fetus with a little contribution of the fetus's lungs and membrane. The main determinate of its turnover is fetal swallowing. Physiological turnover is the increased or decreased due to the excess amount of the amniotic fluid which could be determined by pathological evaluation. [1]

As epidemiological data is concern, 1-3.5% pregnancies are complicated with polyhydramnios. Multiple factors could be the reason for polyhydramnios of which fetal malformation and presence of maternal diabetes and multiple gestations are main reasons. Polyhydramnios was noted to be a factor for the increase mortality rate in the pregnant female which further enhance its potency to mortality if present along with maternal age, diabetes,

Authorship Contribution: [1] Conceived and planned the idea of the study, did data collection and wrote the manuscript, [2] Support in the literature review.[3] Reviewed analyzed data and interpretation, provided reference, [4]Supervised the study all along and reviewed the manuscript, [5] Data Analysis & interpretation of the statistics.

Funding Source: none
Conflict of Interest: none

Received: Nov 28, 2019
Accepted: April 04, 2020

fetal anomalies, and fetal macrosomia. Kaukab reported the rate of mortality with polyhydramnios as 42 per 1000 live births, close monitoring of the cases in the different phases of pregnancy like antepartum, intrapartum, and postpartum periods is needed so that management of complications of polyhydramnios could be done.[2]

A combination of the Low- birth weight along with polyhydramnios or maternal diabetes can be vital for the malformations.[4] various modalities are used for the detection of the polyhydramnios like glucose tolerance test, complete ultrasonography, and TORCH serological evaluation. Keeping in view the multiple factors, it is should be part of regular monitoring that mothers with diabetes and polyhydramnios should deal with great care. for malformations.[3]

Research on women with polyhydramnios showed that normal babies were seen in 80% while (20%) had congenital malformations. [1]

It is not sure that which anomaly will be present in the fetus upon observing the amount of amniotic fluid. Anyway, the degree of polyhydramnios in pregnancies with fetal abnormalities relates to the danger of preterm birth of the neonate. In a retrospective study 272 pregnancies. In 89 (32.7%) there was a fetal anomaly. [5]

There was a variability of frequency of congenital malformation in singleton pregnancies complicated with polyhydramnios from 28 – 37 weeks of gestational age in different studies; we want to know the exact frequency so that patients can be diagnosed at the proper time for better management. The result of this study highlights the actual frequency of congenital malformation s that future treatment plans could be made and executed.

Methodology

After approval from the hospital ethical committee, 150 patients verified by the inclusion criteria were recruited from OPD who was visiting the hospital for an antenatal checkup after informed consent. By using WHO sample size calculator and taking a confidence interval 95% and prevalence 20% of congenital anomalies and margin of error 7%. A proper history, general physical examination, and routine investigation were carried out. Women who were included having childbearing age 18 – 42 years, women should be a diagnosed case of polyhydramnios on ultrasound (Amniotic fluid>25cm; vertical pocket liquor >8cm, gestational age should be between 28 – 37 weeks (on history taking) and patients of polyhydramnios with and without associated congenital anomalies. While females with multiple pregnancies complicated with polyhydramnios assessed on ultrasound and patients who did not give their consent were excluded from the study.

Diagnosis of polyhydramnios with amniotic fluid level > 25cm and a maximum vertical pocket of liquor > 8cm and associated congenital anomalies were confirmed on ultrasonography by the department of radiology at CMH. After taking informed consent, the fetus was evaluated at the time of delivery to access the congenital anomalies. Congenital anomalies were considered if the fetus has any structural or functional abnormality on biochemical and clinical parameters. All data was collected through proforma.

The data analysis was carried out SPSS 23 inc. Descriptive statistics was calculated viz mean and Sd for quantitative variables like age and gestational age frequency and % age were calculated for the qualitative variable as gender, Live Births, Congenital Malformations. The effect of the modifier was controlled through stratification. Stratification was done for age and gestational age. Post-stratification, chi – square test was applied by taking $P \leq 0.05$ as a significant.

Results

The mean age of the women was 29.69 with a standard deviation of 4.67 years. (Figure 1)

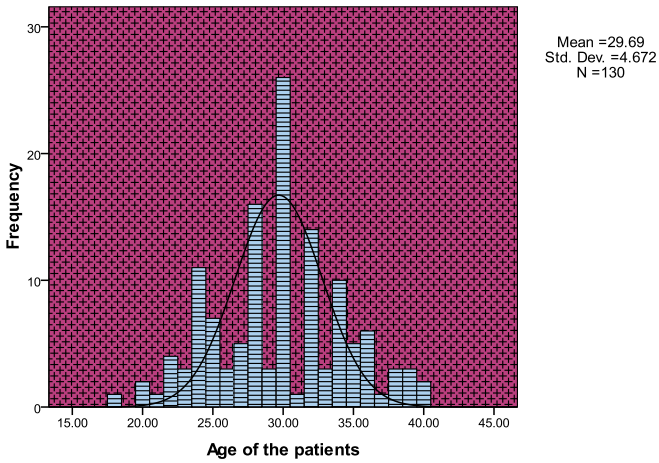

Figure 1. Distribution of the age of the females

Majority of the female were having single parity 52(40%) while parity was 5 in just 4(3.1%) of the female (Table I).

Mean BMI of the female in the study was 23.47±1.30. Mean gestational age in all the pregnant females was 33.21±2.35 weeks. Congenital Malformations was noted in 16(12.3%) and it was absent in 114(87.7%). (Table I)

There was the non-significant difference concerning age on the malformations but the significant difference for gestational age (Table II)

Table I: Mean factor and outcome variables of the study. (n=130)

Variables	Factor	Frequency (%)
Parity	1	52(40%)
	2	32(24.6%)
	3	24(18.5%)
	4	17(13.1%)
	5	4(3.1%)
Mean BMI Score (mean and SD)		23.47±1.30
Mean gestational age (mean and SD)		33.21±2.35
Congenital Malformations	Yes	16(12.3%)
	No	114(87.7%)

Table II: Impact of age and gestational age on the occurrence of malformations

		Congenital Malformations		P-value
		Yes	No	
Age group	18-30 years	3 (18.8%)	50 (43.9%)	0.04
	30-40 years	13 (81.3%)	64 (56.1%)	
Gestational age	28-35 week	15 (93.8%)	85 (74.6%)	0.07
	>35 week	1 (6.3%)	29 (25.4%)	

Discussion

Polyhydramnios is an overabundance collection of amniotic liquid sooner or later during pregnancy. It has an announced frequency which fluctuates from 0.2% to 3.3%. The rate relies on how this variation from the norm is characterized. The etiology of polyhydramnios can be because of an assortment of maternal and neonatal issues. Maybe the most striking maternal issue related to polyhydramnios is diabetes mellitus. Most arrangements quote diabetes as a typical reason for expanded amniotic liquid. These cases, under further assessment, are quite often in patients. Polyhydramnios is an overabundance gathering of amniotic liquid sooner or later during pregnancy. It has a detailed rate which differs from 0.2% to 3.3%. The frequency relies on how this variation from the norm is characterized. The etiology of polyhydramnios can be because of an assortment of maternal and neonatal issue. Maybe the most striking maternal issue related with polyhydramnios is diabetes mellitus. Most arrangements quote diabetes as a typical reason for expanded amniotic liquid. These cases, under further assessment, are quite often in patients with poor diabetic controlees with poor diabetic control.[6]

Polyhydramnios convolutes somewhere in the range of 0.5 and 3% of pregnancies. It is evaluated clinically by patient assessment and sonography. Clinically, there is a fast increment in fundal tallness and strain of the uterine dividers.[7] on stomach palpation, the liquid wave sign is seen. On vaginal assessment, the fetal head may introduce when exposed to development. There are a few potential reasons for polyhydramnios as pregnancy advances. These causes are known and incorporate diabetes, rhesus isoimmunisation, chromosome irregularities, fetal pallor, viral diseases (toxoplasmosis, rubella, CMV, herpes and so on.) and fetal malformation.[8]

Abnormality of the central nervous system, as indicated by the inscription, are the most widely recognized reason for distortion experienced in polyhydramnios. Overabundance amniotic liquid is believed to be brought about by liquid creation through the meninges, conceivably joined with decreased loss of amniotic liquid because the embryo experiences issues gulping.[9, 10]

Malformations analyzed postnatally were higher than that of everyone. The hazard for intrinsic mutations fluctuates between examines, going from 2% to 6%, and relies upon the populace explored and the definition utilized. Rate of fetal mutations in the benchmark group was 10%, which is higher than beforehand reported.[11,12] The hazard for significant inconsistency within the sight of polyhydramnios and ordinary point by point sonographic assessment was additionally higher than recently announced by Dashe et al. A potential clarification is that investigations of innate abnormalities depend on records from the perinatal and neonatal periods, though we likewise considered deformities analyzed a very long time after birth. The most widely recognized distortions in our examination were of the cardiovascular framework. This is predictable with the consequences of Dashe et al. In their partner, the antenatal location pace of heart peculiarities was the most minimal and arrived at just 40%.[13]

In a Retrospective examination of all instances of polyhydramnios over 7 years in a bustling fetal medication unit. An aggregate of 136 being cases was segregated finding at the underlying sweep and negative

for the standard tests. 133 children were live conceived while there were three intrauterine mortality. There were two neonatal mortality, one because of rashness. A sum of 13 infants (9.5%) had inborn abnormalities.[14]

In another investigation on a variety of amniotic liquid, it was seen that many cases had anencephalic hatchling. The commonness of polyhydramnios, with a wide variety going from 27% to 90%. On the off chance that we look alone, right now was available in half of the cases.15 Authors, in examines found a relationship among polyhydramnios and innate oddities in 81.1% of pregnancies analyzed.[16]

A reviewing framework was built up that separated gentle from serious polyhydramnios utilizing the constant or static sonographic gear. Gentle polyhydramnios was available in 138 (71%), and extreme polyhydramnios was available in 57 (29%). Beforehand it has been accounted for that 60% of instances of polyhydramnios are idiopathic and the pregnancies have a typical result. 20% are related to maternal irregularities and 20% are related to fetal oddities. Right now, with serious polyhydramnios had a lot more prominent pervasiveness of fetal oddities (75%) than pregnancies with polyhydramnios (29%). [17] this was a constraint of our investigation as we didn't stratify the information for the seriousness of the polyhydramnios.

Lazebnik likewise revealed that the overall danger of inherent deformities expanded with the seriousness of polyhydramnios, even though in his examination polyhydramnios was resolved by amniotic liquid index.[18] which is inconsistent with the consequences of our investigation. Expanded quantities of fetal abnormalities (73%) were recognized in the age bunch 30 – 40 years (73%) and for the most part in multiparous ladies (83%).

These outcomes are in concurrence with previous investigations, who uncovered that ladies who were 35 years or more established were altogether bound to have explicit bet Partum difficulties and fetal anomalies[19] so similar with the impact old enough in our examination and more case with peculiarities revealed in whom maternal age was higher.

One of the confinements of the investigation was little example size and not considering the seriousness of the polyhydramnios as there was no ongoing information on the genuine commonness of inborn oddities in a female with polyhydramnios so this examination was executed. Be that as it may, future inquiries about are expected to additionally gather the data about various parts of this condition.

Conclusion

It is very important to recognize polyhydramnios, because of its contribution to the development of malformations in the fetus. Further studies are needed to check the impact of the severity of polyhydramnios on congenital malformations.

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