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CONGENITAL MALFORMATION IN SINGLETON PREGNANCIES COMPLICATED WITH POLYHYDRAMNIOS

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Abstract:
Introduction: *Polyhydramnios refers to an excessive volume of amniotic fluid. It has been associated with an increased risk of various adverse pregnancy outcomes, including preterm birth, placental abruption, and fetal anomalies.* ***Objectives:*** *The main objective of the study is to analyse the congenital malformation in singleton pregnancies complicated with polyhydramnios.* ***Material and methods:*** *This cross-sectional study was conducted in Azra Naheed Medical College during January 2019 to December 2019. A proper history, general physical examination, and routine investigation were carried out.* ***Results:*** *There were 39 pregnant ladies with amniotic fluid index (AFI) of >25cm during the study period. One of the pregnant ladies with history of cardiac disease was excluded from the study. A total of 38 pregnant ladies with polyhydramnios were included for statistical analysis. Mean age of the pregnant ladies was 28.8±6.3 years. Polyhydramnios was categorized as mild (AFI: 25.1-30 cm), moderate (AFI: 30.1-35 cm) and severe.* ***Conclusion:*** *It is concluded that it is very important to recognize polyhydramnios, because of its contribution to the development of malformations in the fetus.*

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INTRODUCTION:

Polyhydramnios refers to an excessive volume of amniotic fluid. It has been associated with an increased risk of various adverse pregnancy outcomes, including preterm birth, placental abruption, and fetal anomalies. Polyhydramnios should be suspected clinically when uterine size is large for gestational age (fundal height [cm] exceeding the weeks of gestation by >3). The diagnosis is made prenatally based upon ultrasound examination showing excessive amniotic fluid volume (AFV) by a noninvasive quantitative technique, such as amniotic fluid index ≥24 cm or single deepest pocket ≥8 cm.

Polyhydramnios is the term used to describe an excess accumulation of amniotic fluid. This clinical condition is associated with a high risk of poor pregnancy outcomes. The reported prevalence of polyhydramnios ranges from 0.2 to 1.6% of all pregnancies. Under physiological conditions there is a dynamic equilibrium between the production and resorption of amniotic fluid. Fluid levels are influenced by fetal urination and fetal lung liquid production[1]. Amniotic fluid is reabsorbed by fetal swallowing and intramembranous and intravascular absorption. The relative attribution of each of these mechanisms varies over the course of the pregnancy. A disturbed equilibrium can be the result of compromised swallowing function or increased urination and can lead to polyhydramnios[2].

It refers to excessive accumulation of amniotic fluid, which is associated with an increased risk of adverse pregnancy outcomes. Polyhydramnios is diagnosed when a mother's amniotic fluid index elevates to >24 ± 2 cm standard deviation (SD) in the late second or third trimester. It complicates 0.4–1.9% of all pregnancies. The aetiology of polyhydramnios is diverse and involves many maternal and fetal conditions including diabetes, congenital anomalies, multiple gestation, and isoimmunisation[3]. If none of these causes can be identified, then a diagnosis of idiopathic polyhydramnios is made. Magann reported the incidence of idiopathic polyhydramnios among subjects with polyhydramnios as 50–60%[4].

However, it consistently has been documented that perinatal morbidity and mortality rates increased in association with polyhydramnios related to specific causes. A pregnancy complicated by polyhydramnios can present difficult diagnostic and therapeutic dilemmas for obstetricians. Many clinicians have viewed polyhydramnios as a prognostic factor of increased risk of pregnancy complications and have recommended an extensive evaluation of these pregnancies, including multiple comprehensive ultrasound examinations, repeat diabetes screening, and amniocentesis for fetal karyotyping. However, counselling of a couple regarding idiopathic polyhydramnios often creates significant anxiety and fosters the impression of an abnormal pregnancy[5].

Objectives

The main objective of the study is to analyse the congenital malformation in singleton pregnancies complicated with polyhydramnios.

MATERIAL AND METHODS:

This cross-sectional study was conducted in Azra Naheed Medical College during January 2019 to December 2019. 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.

Biochemical analysis

When polyhydramnios was diagnosed, an ultrasound examination was done to detect possible structural anomalies. A 75 gram 2 hour oral glucose tolerance test was carried out in all women without pre-existing diabetes mellitus. Diagnosis of gestational diabetes was confirmed according to Oman's national and WHO guidelines (a fasting cut off value of >5.8 m mol/L or above, 2 hour value >7.8 m mol/L or above). Cases and controls were compared for maternal characteristics and risk factors known to be associated with polyhydramnios, including diabetes, macrosomia, and congenital anomalies.

Statistical analysis

The Statistical Package for the Social Sciences (SPSS), Version 10 (IBM, Inc., Chicago, Illinois, USA) was used for statistical analysis.

RESULTS:

There were 39 pregnant ladies with amniotic fluid index (AFI) of >25cm during the study period. One of the pregnant lady with history of cardiac disease was excluded from the study. A total of 38 pregnant ladies with polyhydramnios were included for statistical analysis. Mean age of the pregnant ladies was 28.8±6.3 years. Polyhydramnios was categorized as mild (AFI: 25.1-30 cm), moderate (AFI: 30.1-35 cm) and severe (AFI >35 cm). Out of 38 pregnant ladies, 71.1 % had mild polyhydramnios.

Table 01: Severity of Polyhydramnios

Polyhydram-nios	Frequency	Percentage
Mild (AFI: 25.1-30 cm)	27	71.1
Moderate (AFI: 30.1-35 cm)	5	3.2
Severe (AFI >35 cm)	6	15.8
Total	38	100

Table 02: Type of Congenital Anomalies

Type of Anomalies	Frequency	
Central Nervous System	3	Meningomyelocele-1, Hydrocephalus -1, Holopros-encephaly -1
Skeletal	3	Club foot -1, Spinal kyphoscoliosis-1 and Rocker Bottom foot (Edwards Syndrome) -1
Gastrointestinal	3	Oesophageal atresia -2, Duodenal atresia-1
Mandibular Hypoplasia	1	Pierre Robin syndrome
Hydrops Foetalis	1	
Facial Anomalies	1	Cleft lip
Total	12	

Table 03: Correlation of congenital anomalies with severity of polyhydramnios

Severity of Polyhydramnios	Congenital anomalies		Total
	Absent	Present	
Mild (25.1-30 cm)	21	6	27
Moderate (30.1-35 cm)	3	2	5
Severe(>35 cm)	2	4	6
Total	26	12	38

DISCUSSION:

Recognition of polyhydramnios is of benefit as it allows identification of pregnancies that may be at increased risk of adverse outcomes. Once polyhydramnios is identified, patients need a thorough evaluation as it is associated with an increased frequency of both maternal and fetal complications. Chamberlain cited an increased rate of perinatal morbidity and mortality among patients with hydramnios[6].

In reviewing the adverse outcomes in pregnancies complicated by polyhydramnios, we found the overall incidence of polyhydramnios to be 1.8% in our population. Of those who were included in our study group, 80% were considered to have mild polyhydramnios, 17.6% of the cases were considered moderate, and 2.4% were considered

severe. This is similar to Barnhart's study, which noted polyhydramnios in 1.7% of 2,730 pregnancies[7].

A demographic analysis showed that polyhydramnios was more common in older gravida. However, parity had no significant relationship to polyhydramnios. However, Biggo *et al*. found a significant relationship between both rising maternal age and parity in polyhydramnios[8].
0 Further studies are needed to check the impact of the severity of polyhydramnios on congenital malformations.

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