ORIGINAL ARTICLE

Frequency of Polyhydramnios among Patients with Preterm Delivery at Lady Reading Hospital, Peshawar

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ABSTRACT

Background: The elevated risk of premature delivery should be discussed with polyhydramnios patients. It is advisable to measure the cervical length to evaluate whether or not it is necessary to administer steroids to encourage foetal lung maturity. Patients should also be made aware of the dangers associated with unstable labour necessitating caesarean delivery, umbilical cord prolapse, abruptio placentae, and postpartum haemorrhage.
Aim: To determine the frequency of polyhydramnios among patients with preterm delivery presenting to Lady Reading Hospital Peshawar.
Study design: Cross-sectional study.
Place and duration of study: Department of Obstetrics & Gynaecology, Lady Reading Hospital Peshawar from 1st November 2019 to 25th April 2020.
Methodology: One hundred and eighty one women with preterm delivery, gestation age of 24-36 weeks and age between 18-45 years were included. The obstetrical records of these patients were evaluated for the presence of polyhydramnios using AFI they were classified as mild, moderate, and severe polyhydramnios based on AFI.
Results: The mean age was 30.39±3.53 years, mean weight of 68.33±7.52 Kg and mean height of 1.59±.0.07 meters, mean BMI 27.07±3.71 kg/m^2, mean gestational age 32.30±1.89 weeks and mean AFI was 18.38±6.85 cm. Polyhydramnios was seen in 17.7% of patients. Mild polyhydramnios was 28.1%, moderate 40.6%, and severe was 31.3%.
Conclusion: Preterm labour appeared to be influenced more by the underlying aetiology of polyhydramnios than by the relative excess of amniotic fluid as identified by this investigation
Keywords: Preterm delivery, Polyhydramnios, Severity

INTRODUCTION

Polyhydramnios describes an overabundance of amniotic fluid in the amniotic sac[1]. This medical condition can be commonly complicated in 1-3% of all pregnancies. About 50 to 60 percent of instances of polyhydramnios are idiopathic. Preterm labour, early membrane rupture, cord prolapse, and other poor perinatal outcomes are all linked with polyhydramnios and are well known. Fetal abnormalities (such as those affecting the heart, central nervous system, or gastrointestinal tract) are responsible for some occurrences of polyhydramnios. Isoimmunization, foetal infections, fetal-maternal bleeding, multiple gestations, and placental malignancies are other foetal diseases connected to polyhydramnios[2]. A meta-analysis showed significant correlations between hypertensive disorders of pregnancy, height below 1.50 metres, PROM, oligo-/polyhydramnios, threatening abortion, twin gestation, and preterm delivery were discovered. Patients with polyhydramnios should be informed of the increased risk of preterm delivery. It is recommended to measure the cervical length to determine whether or not to administer steroids to encourage foetal lung maturity.[3] Patients should also be made aware of the dangers associated with unstable labour necessitating caesarean delivery, umbilical cord prolapse, abruptio placentae, and postpartum haemorrhage[4].

A study was conducted the result showed mean maternal age was 24.58±2.16 yrs for the study group and 25.14±2.89 yrs for controls Most of the cases were multi Gravida. At delivery, the gestational age ranged from 30-41 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%)[5]. Several significant risk factors associated with pre-term birth were multiple pregnancies and untreated vaginal discharge. The frequency of polyhydramnios was 4.1% in women with preterm delivery[6]. In another study, preterm delivery occurred in 18.5% of cases with mild polyhydramnios, 21.8% with moderate polyhydramnios, and 14.3% with severe polyhydramnios[7].

The current study was designed to examine the linked between polyhydramnios and preterm delivery. Preterm labour, atonic uterus, anaemia, caesarean delivery, premature foetus, umbilical cord prolapse brought on by membrane rupture, and foetal distress are only a few foetal and maternal issues that may be linked to polyhydramnios. This study will be helpful for the early detection of disease and identification of those at risk of polyhydramnios. The findings of the study will help know the magnitude of the problem and ultimately help in planning future management.

MATERIALS AND METHODS

This cross-sectional study was conducted at Department of Obstetrics & Gynaecology, Lady Reading Hospital Peshawar from 1st November 2019 to 25th April 2020. The sample size of 181 was considered (WHO calculator) keeping the proportion of mild polyhydramnios as 86.4% among patients with preterm delivery based on the previous study[5], confidence interval of 95%, and margin of error 5%. Consecutive non-probability sampling was used for the study. All patients aging 18 to 45 years with preterm delivery (gestation age of 24 to 36 weeks) singleton pregnancy were included in the study while patients with a history of per vaginal bleeding in the second trimester, those with a history of infection, UTI, vaginitis, those with uterine and cervical abnormality. Patients with hypertension, ischemic heart disease, and kidney diseases assessed by ECG and ultrasound were excluded. After approval from the Institutional Ethical Committee, the study was conducted. All patients with preterm delivery meeting the inclusion criteria were included in the study. The obstetrical record of these patients was evaluated for the presence of polyhydramnios using AFI they were classified as mild, moderate, and severe polyhydramnios based on AFI. All patients were informed about the nature of the study and consent was obtained from them. All this information was recorded. Data entered and analysed through SPSS-23. Effect modifiers like age, BMI, gravida, parity and gestational age were addressed through stratification. Post-stratification Chi-square test was applied. P-value ≤0.05 was taken as significant.

RESULTS

The mean age of 30.39±3.53 years, mean weight of 68.33±7.52 Kg and mean height of 1.592±.0.07 meters, mean BMI 27.077±3.71 Kg/m², mean gestational age 32.30±1.89 weeks and mean AFI was 18.38±6.85 cm (Table 1). Frequency and percentage of patients according to gravida, parity, polyhydramnios, and severity of polyhydraminos are shown in Table 2. Polyhydramnios was seen in 17.7% of patients, whereas, Mild polyhydramnios was 28.1%, moderate 40.6%, and severe respectively. Stratification of polyhydramnios and their severity concerning age, BMI, gravida, parity, and gestational age are shown in Tables 3-4 respectively.

Table 1: Descriptive statistics of the patients (n=181)

Demographics	Mean±SD
Age (years)	30.39±3.53
Weight (Kg)	68.33±7.52
Height (m)	1.59±.0.07
BMI (kg/m²)	27.07±3.71
Gestational age (weeks)	32.30±1.89
AFI (cm)	18.38±6.85

Table 2: Frequency of gravida, parity, polyhydramnios and severity of polyhydramnios (n=181)

Variable	No.	%
Gravida		
1 – 4	154	85.1
> 4	27	14.9
Parity		
0 – 3	154	85.1
> 3	27	14.9
Polyhydraminos		
Yes	32	17.7
No	149	82.3
Severity of polyhydraminos (n=32)		
Mild	9	28.1
Moderate	13	40.6
Severe	10	31.3

Table 3: Stratification of polyhydramnios with respect to age, BMI, parity, gravida and gestational age

Variable	Polyhydramnios		P value
	Yes	No	
Age (years)			
18 – 35	30 (18.3%)	134 (81.7%)	0.502
36 - 45	2 (11.8%)	15 (88.2%)	
BMI (kg/m²)			
≤ 25	11 (20%)	44 (80%)	0.589
> 25	21 (16.7%)	105 (83.3%)	
Gravida			
1 – 4	28 (18.2%)	126 (81.8%)	0.672
> 4	4 (14.8%)	23 (85.2%)	
Gestational age (weeks)			
24 - 30	3 (12%)	22 (88%)	0.423
31 - 36	29 (18.6%)	127 (81.4%)	

Table 4: Stratification of severity of polyhydramnios with respect to age, BMI, parity, gravid and gestational age

Variable	Severity of polyhydramnios			P value
	Mild	Moderate	Severe	
Age (years)				
18 - 35	9 (30%)	11 (36.7%)	10 (33.3%)	0.210
36 - 45	-	2 (100%)	-	
BMI (kg/m²)				
≤ 25	3 (27.3%)	6 (54.5%)	2 (18.2%)	0.423
> 25	6 (28.6%)	7 (33.3%)	8 (38.1%)	
Parity				
0 – 3	7 (25%)	11 (39.3%)	10 (35.7%)	0.316
> 3	2 (50%)	2 (50%)	-	
Gravida				
1 – 4	7 (25%)	11 (39.3%)	10 (35.7%)	0.316
> 4	2 (50%)	2 (50%)	-	
Gestational age (weeks)				
24 – 30	3 (100%)	-	-	0.015
31 – 36	6 (20.7%)	13 (44.8%)	10 (34.5%)	

DISCUSSION

Polyhydramnios is linked with a higher risk of both mother and fetal complications[8]. Idiopathic polyhydramnios (34%) was the most common diagnosis among the 358 instances of polyhydramnios identified by Queenan and Gadow[9], followed by diabetes mellitus (24.6%), congenital abnormalities (20%), rh-isoimmunization (11.5%), multiple births (8.4%), and acute polyhydramnios (1.5%). The patient mix at a given institution greatly influences the relative relevance of different diagnoses. Though, it's also crucial to consider the standards used to define polyhydramnios.[10] For instance, when an AFI of at least 25 cm denotes an abnormal rise in AF volume, there are fewer incidences of polyhydramnios, in contrast with a single pocket measuring 8.0 cm in-depth[11]. For instance, Carlson et al[12] discovered that only 49% of 112 patients who reported having mild, moderate, or severe polyhydramnios satisfied their AFI criteria (24 cm or greater) of polyhydramnios. Finding an explanation for the abnormalities in AF volume becomes more likely as polyhydramnios severity grows. Preterm births are observed to occur 11.1-29.4% more frequently in polyhydramnios patients[13].

The variations in reported prevalence rates are mostly explained by population demographics, different definitions of polyhydramnios and preterm, and the inclusion or exclusion of multiple births and pregnancies with congenital abnormalities. The unifying mechanism for premature delivery in patients with different etiologies for polyhydramnios has been hypothesised to be uterine over distension. The unifying mechanism for premature delivery in patients with different etiologies for polyhydramnios has been hypothesised to be uterine over distension. If such scenarios were true, one could anticipate that individuals with severe polyhydramnios would have a higher risk of premature birth than those with mild or moderate polyhydramnios. However, a correlation between two variables does not necessarily imply a causal connection. For instance, among insulin-dependent diabetics, preterm is predominantly brought on by pregnancy-induced hypertension, spontaneous membrane rupture, foetal distress, and the beginning of labour without warning, rather than the recognised increased prevalence of polyhydramnios.[14] There hasn't been a extended analysis of how much polyhydramnios leads to spontaneous membrane rupture or labour. One instance of uterine over dissention linked to preterm birth is multiple pregnancies.

However, Hashimoto et al[15] showed that the greater rate of preterm labour and delivery in their research group of twin pregnancies could not be explained by a rise in AF volume alone. Finally, regardless of the level of AF, early birth is more common in pregnancies complicated by foetal abnormalities. These patients do not have any of the aforementioned confounding factors that are linked to preterm labour, despite the fact that the etiologic mechanism or mechanisms causing idiopathic polyhydramnios are merely hypothetical.. Therefore, one might anticipate a relationship between the increasing severity of polyhydramnios and preterm birth. In the present study, in this specific subgroup of polyhydramnios, we did not find such an association. Smith et al[16] failed to find a relationship between polyhydramnios, defined as an AFI of 24.0-39.9 cm, and preterm labor. However, the lack of an association in the study of Smith et al[16] also may relate to the severity of polyhydramnios encountered in the two studies. Our subgroups of mild, moderate, and severe) polyhydramnios were all encompassed within the definition of mild polyhydramnios by Smith et al.[16] Despite idiopathic polyhydramnios of a bigger extent may be related with premature labour, our data suggests that the number of cases will be rather low. The underlying causes for polyhydramnios, rather than the relative amount of AF, appear to determine when the spontaneous onset of labor will occur.

CONCLUSION

Preterm labour appeared to be influenced more by the underlying aetiology of polyhydramnios than relative excess of amniotic fluid as identified by this investigation.

Conflict of interest: Nil

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