

CORRELATION OF INCREASING MATERNAL GRAVIDITY WITH SEVERITY OF POLYHYDRAMNIOS

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ABSTRACT

Objective: To find correlation of increasing maternal gravidity with severity of polyhydramnios.

Methodology: This descriptive study was done in Gynecology & Obstetrics department, Khyber Teaching Hospital, Peshawar, from July 2010 to December 2011. Patients were included in the study by consecutive non-probability sampling after fulfilling the inclusion criterion and given informed written consent. Detailed history about the status of maternal gravidity was taken and thorough per abdominal and vaginal examinations were performed. Polyhydramnios was confirmed ultrasonographically and categorized as mild, moderate or severe on the basis of amniotic fluid index. SPSS 16 was used for analyzing the descriptive data. Spearman rank correlation analysis (γ) was used to measure the strength of association between pairs of variables.

Results: The total number of patients were 532. Mean age was 30.30 ± 6.28 years and mean age of gestational amenorrhea was 35.6 ± 3.35 weeks (28-41). The maximum number of patients (57.4%) were in the age range group of 23-30 years. The number of patients with primary gravida were 33.6% (n=180), 38.8% (n=206) were with multigravida and 27.6% (n=146) with grand multigravida. Severe polyhydramnios was in 10.4% (n=55) cases while moderate and mild in 25.5% (n=135) and 64.1% (n=341) respectively. Majority of the patients having mild polyhydramnios were primary gravida or multigravida while the grandmultigravida patients were mostly either having moderate or severe polyhydramnios. The spearman rank correlation coefficient between the pairs of variables was (γ) + 0.02, ($p=0.04$).

Conclusion: Increasing maternal gravidity has weak positive correlation with severity of polyhydramnios.

Key Words: Polyhydramnios, Maternal gravidity, Correlation.

This article may be cited as: Parveen S, Haleemi S, Khattak ST. Correlation of increasing maternal gravidity with severity of polyhydramnios. J Postgrad Med Inst 2013; 27(2):184-7.

INTRODUCTION

Amniotic fluid surrounds the fetus in intrauterine life, providing protective low resistance space suitable for growth and development. Excessive amniotic fluid (Polyhydramnios) is defined as, deepest verticle pool of amniotic fluid >8cm or amniotic fluid index (AFI) >95% for the gestational age¹⁻³. Polyhydramnios is an independent risk factor for perinatal mortality and intrapartum complications.

Several studies have suggested that polyhydramnios complicates 1-3% of pregnancies in general population but mostly cases are not associated with any significant sequel, so are under reported⁴⁻⁷. In Pakistan polyhydramnios has incidence of 2.4% and acute polyhydramnios complicates 2% of pregnancies⁸.

Causes of polyhydramnios in pregnancies are either fetal anomalies or genetic disorders, infections, anemia and maternal diabetes mellitus⁹⁻¹³. The progressive severity of polyhydramnios has been associated with increasing maternal parity. Different reasons have been suggested for this association, like; with increasing age and parity of the mother there are more chances of maternal diabetes and so of polyhydramnios¹⁴⁻¹⁸. With increasing maternal parity, there are chances of fetal congenital anomalies and aneuploidies which also increase the chances of polyhydramnios¹⁹⁻²¹.

The aim of our study was to find the correlation between maternal gravidity with increasing severity of polyhydramnios. The rationale of the study was to show the impact of

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Date Received: April 9, 2012

Date Revised: December 7, 2012

Date Accepted: December 9, 2012

increasing maternal gravidity on progressive severity of polyhydramnios, which ultimately badly affect the fetal and maternal outcome.

METHODOLOGY

This descriptive, cross sectional study was done in Gynecology & Obstetrics department, Khyber Teaching Hospital, Peshawar, from July 2010 to December 2011. Patients were included in the study by consecutive non-probability sampling technique after fulfilling the inclusion criterion of; pregnancies of more than 24 weeks of gestation with ultrasonographically confirmed polyhydramnios and given informed written consent. Patients with twin pregnancies, fibroid uterus, any abdominal or gynecological malignancies and maternal diabetes mellitus with HbA1c >6.5% were excluded from the study.

Detail history was taken regarding gestational age, number of times she got pregnant (Gravidity) and progression about the present pregnancy. Per abdominal examination was done for fundal height, lie and presenting part of the fetus, auscultation of fetal heart sounds and per vaginal examination were performed for dilatation of cervical os, effacement of cervix, station of the presenting part and whether the membranes were intact or not.

Mild polyhydramnios was defined as,

amniotic fluid index (AFI) 25-30, moderate and severe polyhydramnios; AFI were 31-35 and >35, respectively. Primary gravida was defined as; when the woman has become pregnant for the first time, multigravida was defined as; when the woman has been pregnant for more than once and upto five times and when the woman has been pregnant for more than five times she has been defined as grand multigravida. SPSS 16 was used for analyzing the descriptive data. Spearman rank correlation analysis (γ) was used to measure the strength of association between pairs of variables.

RESULTS

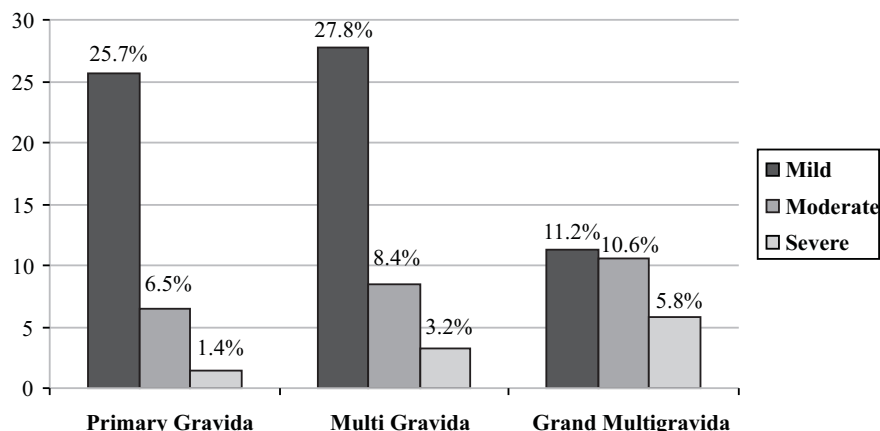
The total number of patients were 532. Mean age was 30.30 ± 6.28 years (15-38) and mean age of gestational amenorrhea was 35.6 ± 3.35 weeks (28-41). The maximum number of patients were in age range group of 23-30 years, i-e; 57.4% (n-306), followed by 25.3% (n-135) and 17.3% (n-91) were in the age range group of 31-38 years and 15-22 years, respectively. Almost two third of patients were having mild polyhydramnios, i-e; 64.1% (n-341). Patients having mild polyhydramnios, majority of them were either primary gravida or multigravida, i-e; 25.7% (n-137) and 27.02% (n-144), respectively. The grand multigravida patients were mostly having moderate or severe polyhydramnios, i-e; 10.6% (n-55) and 5.8% (n-31), respectively (Table 1). The spearman

Table 1: Severity of Polyhydramnios and Maternal Gravidity

Polyhydramnios	Maternal Gravidity, % (n)			Total, % (n)
	Primigravida	Multigravida	Grand Multigravida	
Mild	25.7 (137)	27.2 (144)	11.2 (60)	64.1 (341)
Moderate	6.5 (35)	8.4 (45)	10.6 (55)	25.5 (135)
Severe	1.4 (8)	3.2 (17)	5.8 (31)	10.4 (55)
Total	33.6 (180)	38.8 (206)	27.6 (146)	100 (532)

Spearman Rank Correlation (γ) = 0.02 (p = 0.04)

Figure 1: Polyhydramnios and Maternal Gravidity



rank correlation coefficient between the pairs of variables was (γ) + 0.02 ($p= 0.04$).

DISCUSSION

Mild polyhydramnios is the most common form of polyhydramnios among the pregnant women, especially in primary gravida and multigravida. The grand multigravida females mostly suffers from moderate to severe form of polyhydramnios, majority of these patients were in age group of 23-30years.

The overall incidence of polyhydramnios is 1-3%. We documented that the mild category of polyhydramnios is the most common, i-e; 64.1% (n-341) and the patients were either primary gravida [25.7% (n-137)] or multigravida [27.2% (n-144)]. Nearly same frequency of mild polyhydramnios has been observed by Fawad A et al¹, i-e; 58% and 51% by Tariq S et al⁸. The study done by Fawad A et al¹ also showed that the frequency of primary gravida was 21.4% and that of multi gravida was 35.1%.

Our study documented that, those patients with grand multigravida, majority were having moderate to severe polyhydramnios. In patients with moderate polyhydramnios, the maximum number of patients were grand multigravida, i-e; 10.6% (n-55), followed by 8.4% (n-45) multigravida and 6.5% (n-35) primary gravida. Same trend was observed in patients with severe polyhydramnios, 5.8% (n-31) grand multigravida, 3.2% (n-17) multigravida and 1.4% (n-8) primary gravida. The correlation of this pattern of increasing maternal parity with increasing severity of polyhydramnios was weakly positive, i-e; $\gamma = + 0.02$. This weak positive correlation was also reported by Waheed N et al¹⁸, i-e; $\gamma = + 0.1$, but a stronger positive correlation of $\gamma = + 0.8$, has been reported by Kale A et al⁹. The study done by Kale A et al⁹ was having a bigger sample size of 988 and spread over a longer period of 5.5 years.

Nearly two third of the study population were in their third decade of life, i-e; 57.4% (n-306), nearly same findings were reported by Fawad A et al¹, i-e; 52% and 49.5% by Akram H et al²⁰, but Murraym SR et al¹⁰ and Chen KC et al¹⁹ documented 22.6% and 34.2%, respectively. This is evident that in developing world, especially in South Asia, females get married at early age and their family started in their twenties and thirties. On the other hand, women in developed countries starts their marital life a bit later and so their family.

With increasing maternal age and gravidity, there are more chances of diabetes, aneuploidy, multiple gestations and fetal

anomalies. Both diabetes and fetal anomalies are independent predictors for the development of polyhydramnios. Our study was a univariate analysis and we recommend further studies for multivariate analysis, to study other independent predictors of increasing polyhydramnios like; diabetes mellitus, aneuploidy, multiple gestations and fetal anomalies, besides increasing maternal gravidity.

CONCLUSION

Nearly two third of the study population were having mild polyhydramnios. All those patients with severe polyhydramnios, majority were grand multigravida. There was a weak positive correlation of increasing maternal gravidity with severity of polyhydramnios.

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CONTRIBUTORS

SP conceived the idea, planned and wrote the manuscript of the study. SH & STK did the data collection and reviewed the write up of the study. All the authors contributed significantly to the research that resulted in the submitted manuscript.