

Prevalence of Congenital Anomalies in Polyhydramnios: A Hospital based study from Western Nepal

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ABSTRACT

Introduction: Polyhydramnios is excessive amount of amniotic fluid in relation to gestational age. It is frequently associated with congenital anomalies of the fetus. The aim of this study was to see the prevalence of congenital anomalies in polyhydramnios.

Methods: Singleton pregnant irrespective of gestational age with amniotic fluid index more than 25 were included in the study. Degree of polyhydramnios was graded as mild, moderate and severe. Detail study of fetus was done for possible congenital anomalies. Congenital anomalies were confirmed with post-natal findings.

Results: There were 39 pregnant women with amniotic fluid index (AFI) > 25 cm. Prevalence of polyhydramnios was 0.3%. Congenital anomalies were present in 31.6 % of pregnant women with polyhydramnios. In pregnant women with severe polyhydramnios; 66.6 % had congenital anomalies. Central nervous system, gastrointestinal and skeletal anomalies were the frequent anomalies associated with polyhydramnios.

Conclusion: Polyhydramnios is associated with increased risk of congenital anomalies hence a detail survey of fetus should be done for possible congenital anomalies.

Key Words: *Congenital Malformation; Prevalance; Polyhydramnios*

INTRODUCTION

The amniotic fluid is required for the proper growth and development of the fetus. The fetus is prevented from trauma by its cushion effect. It also acts as a barrier against infection and helps in fetal lung maturity. It varies with gestational age. Fetal urine; secretion from fetal lung, oral and nasal cavities; movement of water and metabolites

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between the placenta and the fetal blood and transudation of water and electrolytes across the amnion and chorion; movement of water across fetal skin and fetal swallowing are the sources influencing amniotic fluid volume.¹ Polyhydramnios is the excess of the amniotic fluid relative to the gestational age. It occurs in 1% of pregnancies.² It may be associated with adverse fetal and maternal outcome. The aim of this study was to find the association between polyhydramnios and congenital malformations in pregnant women of western Nepal. To the best of our knowledge, no such study has been done in our part.

METHODS

This prospective study was conducted in the department of Radiology between January 2014 and June 2016. All the singleton pregnant ladies irrespective of gestational age with amniotic fluid index more than 25 were included in the study. Ultrasonography was done in supine position in GE Logiq P3 machine. Ultrasound transducer was held along the maternal longitudinal axis and was held perpendicular to the floor during measurement of amniotic fluid index. External pressure over maternal abdomen with transducer was avoided. Uterus was divided into four imaginary quadrants. Measurement was done in the pocket free of fetal limbs and umbilical cord. Amniotic fluid index was calculated by summation of deepest pocket in each quadrant. The degree of polyhydramnios was categorized as mild (AFI: 25.1-30cm), moderate (AFI: 30.1-35 cm) and severe (AFI>35 cm).^{3,4,5} Ladies with chronic illness, cardiac disease and multifetal pregnancy were excluded.

Detailed anomaly scan was done to look for congenital malformations. All the pregnant ladies were followed till delivery. Detailed physical examinations of new born babies were done and evaluated for congenital malformation.

Prior approval from the institutional review was done before the study.

Statistical analysis was done using SPSS (version16).

RESULTS

There were 39 pregnant ladies with amniotic fluid index (AFI) of >25 cm 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. Total deliveries during that period were 10,342. So the prevalence of polyhydramnios was 0.3%.

Mean age of the pregnant ladies was 28.8±6.3 years. Most of the ladies were in the age group of 26-30 years (Table 1).

Table 1: Age distribution of pregnant ladies

Age Group	Frequency	Percentage
20-25	12	31.6
26-30	13	34.2
31-35	6	15.8
36-40	7	18.4
Total	38	100

Half of the ladies were more than 37 weeks of gestation at the time of examination (Table 2).

Table 2: Distribution of pregnant ladies according to gestational age

Gestational Age	Frequency	Percentage
<20 weeks	1	2.6
20 Weeks to 34 Weeks	13	34.2
34 weeks 1 day to 37 weeks	5	13.2
>37 weeks	19	50
Total	38	100

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 3).

Table 3: Severity of Polyhydramnios

Polyhydramnios	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

Congenital anomalies were present in 31.6 % of pregnant ladies with polyhydramnios (Figure 1).

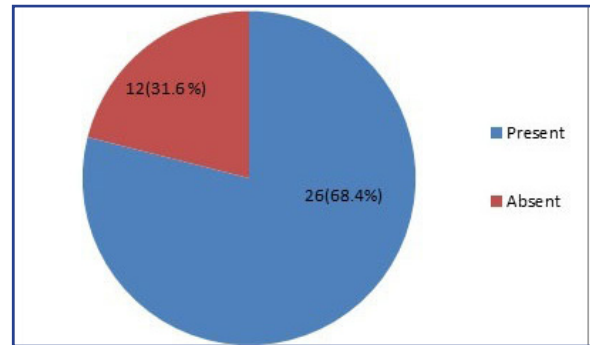


Figure 1: Diagram showing distribution of congenital anomalies

Among the various congenital malformations diagnosed by ultrasonography; central nervous system (CNS), Gastrointestinal (GI) and Skeletal malformations were the commonest (Table 4).

Congenital anomalies increased with severity of polyhydramnios (Table 5).

Table 4: Type of Congenital Anomalies

Type of Anomalies	Frequency	
Central Nervous System	3	Meningomyelocele-1, Hydrocephalus -1, Holoprosencephaly -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 5: 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

This prospective study was done during the period of two and half years. A total of 38 pregnant ladies with diagnosis of polyhydramnios were included in the study. Prevalence of polyhydramnios was 0.3% which is similar to the studies by Thompson O et al⁶ and Kirkinen et al.⁷ Bundgaard A et al have reported a higher prevalence of the disease.⁸

Most of our pregnant ladies were in the age group 26-30 years. Half of our patients with polyhydramnios presented after 37 weeks of gestation. Most of our patients had mild polyhydramnios. A lower frequency of occurrence of congenital malformations was seen in this group, which is consistent with the data published by other authors.^{9,10,11}

The most common form of polyhydramnios in our study was an idiopathic one, found in approximately 68% of patients. It is consistent with the observation of other authors.^{9,12,13}

There is an association of polyhydramnios with congenital malformation.⁹ Six out of 27 patients with mild polyhydramnios (22%) had congenital malformations. Similarly, out of five patients with moderate polyhydramnios, congenital malformation was seen in 2 (40%) patients. Severe polyhydramnios was seen in 6 patients, out of which 4 (66.6%) had congenital malformations. There is also increased association between severity of polyhydramnios and congenital malformations in studies by other authors.⁹ In a study by Pri-Paz et al; high incidence of anomalies (79.1 %) was seen in fetuses of mother with severe polyhydramnios (≥ 35 cm).¹⁴

There were no cardiac anomalies in the present study. In contrast to this, cardiac anomalies were most frequently associated with polyhydramnios as described by Pri-Paz et al

¹⁴ and Boito et al ¹⁵. Central nervous system, Gastrointestinal and skeletal anomalies are among the highest in the present study. In a study by Kornacki et al⁹ gastrointestinal tract anomalies were the most frequent congenital anomalies in polyhydramnios, especially in severe polyhydramnios.

CONCLUSION

Congenital anomalies are associated with polyhydramnios. The prevalence of congenital anomalies is more with severe polyhydramnios. Hence detail anomaly scan is necessary in cases of polyhydramnios.

CONFLICT OF INTEREST

None

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None

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