

International Journal of Clinical Obstetrics and Gynaecology

ISSN (P): 2522-6614
ISSN (E): 2522-6622
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www.gynaecologyjournal.com
2019; 3(2): 36-38
Received: 22-01-2019
Accepted: 24-02-2019

Dr. Rekha Agrawal
Asst. Prof., Index Medical College
Hospital & Research Centre,
Indore, Madhya Pradesh, India

To compare the incidence of fetal growth restriction or IUGR in cases of low AFI and Normal AFI

Dr. Rekha Agrawal

DOI: <https://doi.org/10.33545/gynae.2019.v3.i2a.10>

Abstract

Background: The present study entitled “To compare the incidence of Fetal Growth restriction or IUGR in cases of low AFI and Normal AFI” is conducted in the Department of Obstetrics and Gynaecology, Index Medical College Hospital & Research Centre, Indore (M.P.)

Result: Unpaired t-test is applied. The P value is 0.268 (insignificant). The mean value of weight of baby born to case group is 2.657 ± 0.043 . The mean value of weight of baby born to control group is 2.813 ± 0.822 . In our study almost double the no. of babies in cases was IUGR or FGR. Though statistically it came out to be insignificant.

Pearson Chi-square value is 2.947. P value is 0.371 (insignificant). Table no.03 showing overall perinatal outcome in both the groups is almost similar in our study.

Conclusion: In our study the rate of induction, LSCS, congenital anomalies in babies and NICU admissions are more in cases than control group. Statistical significance seen but it can be refuted clinically. However except, increased rates of LSCS and congenital anomalies in babies, in rest all parameters no significant statistical difference found in cases and control groups. It is not that IUGR is necessarily associated with low AFI and normal AFI ensures normal birth weight.

Keywords: Fetal, Restriction, IUGR & AFI

Introduction

Amniotic fluid acts as a protective layer which exerts a cushion-like effect for the growing fetus against mechanical and biological injury. Amniotic fluid may be regarded as the largest part of the fetal extracellular space, and it provides a more accessible means than fetal blood for investigation of the fetus and its environment. Amniotic fluid assessment is an integral part of the antenatal evaluation of pregnancies at risk for an adverse pregnancy outcome especially in the third trimester [1, 2].

Every fetus is surrounded by a protective covering of amniotic fluid no matter the fetus develops inside the mother. Knowledge of the fetus and its environment has increased remarkably in past years [3]. Reduced amniotic fluid volume (AFV) is associated with adverse effects such as meconium staining, congenital anomalies, growth retardation, dysmaturity, and fetal asphyxia. Polyhydramnios is sometimes associated with major fetal anomalies, aneuploidy, macrosomia, and stillbirth.

When the volume of amniotic fluid is decreased it is termed as oligohydramnios [4]. Oligohydramnios is a common complication of pregnancy and its incidence is 3.9% of total pregnancy at term (Phillipson E. *et al* 1983) [5]. Low amniotic fluid has been associated with increased risk of maternal morbidity in terms of increased rate of induction of labour and operative interventions, and intrauterine growth retardation, meconium aspiration syndrome, birth asphyxia, low APGAR scores, and congenital anomalies [6].

Material & Method

The present study entitled “To Compare the Incidence of Fetal Growth restriction or IUGR in cases of low AFI and Normal AFI” is conducted in the Department of Obstetrics and Gynaecology, Index Medical College Hospital & Research Centre, Indore (M.P.) during the period from June 2018 to Dec 2018. The study is approved by the Ethics Committee. Each patient was told about her inclusion and participation in this study and her informed consent was taken. This is a case control prospective comparative study performed on 200 randomly selected low risk pregnant patients at term (37-40 weeks of gestation) admitted in Obstetrics and

Correspondence

Dr. Rekha Agrawal
Asst. Prof., Index Medical College
Hospital & Research Centre,
Indore, Madhya Pradesh, India

Gynaecology Department. 100 patients with AFI ≤ 5 cm (cases) and 100 patients with AFI 8-20 cm (control) were taken for study after satisfying inclusion and exclusion criteria.

Inclusion criteria

- All singleton pregnancies
- Cephalic presentation
- At term 37-40 weeks (gestational age will be calculated by LMP or by first trimester USG)
- Intact membranes.

Exclusion Criteria

- Gestational Age <37 Weeks and >40 weeks
- PROM.
- Uterine Anomaly.
- Malpresentation
- Multiple gestation
- High Risk pregnancy
- Hypertensive disorders of pregnancy
- Diabetes

- Chronic Renal Disease / Cardiac Disease and other medical ailment
- Connective Tissue disorder
- Vaginal Bleeding (Abruptio)
- BOH
- Previous lower segment cesarean section/myomectomy/hysterotomy

Statistical methods

- Statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean \pm SD and results on categorical measurements are presented in Number (%).
- The Statistical software namely SPSS 20.0 and was used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc.

Results

Table 1: Distribution of Fetal Congenital Anomalies and Perinatal outcome in cases

Name of Congenital Anomaly	No. of Cases	%age	Perinatal Outcome
Urinary tract system	4	4	
- Hydronephrosis /hydroureter	2	2	NICU
- Polycystic kidney disease	1	1	NICU
- Renal agenesis	1	1	NICU
CTEV	1	1	NICU
Hydrocephalus	1	1	Certified

Table 2: The relationship of AFI to IUGR

AFI	No.	IUGR No. Of Cases			%age
		Alive	IUD	Total	
<5 cm	100	17	1	18	18
8-20 cm	100	9	0	9	9

Unpaired t-test is applied. The P value is 0.268 (insignificant).

The mean value of weight of baby born to case group is 2.657 ± 0.043 . The mean value of weight of baby born to control group is 2.813 ± 0.822 .

In our study almost double the no. of babies in cases was IUGR or FGR. Though statistically it came out to be insignificant.

Table 3: Distribution of cases according to Perinatal outcome

Perinatal Outcome	Cases		Control	
	No.	%	No.	%
Nursery admission	28	28	17	17
Alive and healthy	71	71	82	82
Still birth	1	1	1	1
FSB	1	1	0	0
MSB	0	0	1	1
Total	100	100%	100	100%

Pearson Chi-square value is 2.947. P value is 0.371 (insignificant).

Table no.03 showing overall perinatal outcome in both the groups is almost similar in our study.

Discussion

In a similar study by Syria *et al.* [7] APGAR score <7 was found to be in 38.8%, less than 3 in 6% in study by Casey *et al.* [8] and. There was no significant difference for APGAR score in study and control group in the study by Locatelli A *et al.* [9]

In our study about 18 % of the babies were found to be IUGR with AFI ≤ 5 cm and 9% of the babies were found to be IUGR

with AFI 8-20 cm. Unpaired t-test is applied. The P value is 0.109. The mean value of weight of baby born to case group is 2.449 ± 0.4190 . The mean value of weight of baby born to control group is 2.554 ± 0.5036 .

So statistically it shows no significant association between low AFI and IUGR/FGR babies, which is comparable to study of Raju Sriya *et al.* [10] which has 16.6% IUGR in oligohydramnios. In a study, out of 29 patients with low AFI (≤ 8 cm), 17 (58.62 %) had low birth weight babies (≤ 2500 g). In 10 patients with AFI > 18 cm, five (50 %) had low birth weight babies. Martinez-Frias *et al.* [11] also observed similar results in their study. According to Chauhan *et al.* [12] AFI of <5 cm is associated with an increased risk of low (<7) Apgar score. Four patients had babies with congenital anomalies, out of which, two (50 %) had low AFI < 8 cm and one had AFI > 18 cm. In the study conducted by Martinez-Frias *et al.* [11] on malformed newborns, 3.01 % had oligohydramnios. Renal anomalies and lung defects were associated with oligohydramnios. They reported polyhydramnios in 3.69 % cases in their study. Esophageal and gastrointestinal anomalies, neural tube defects, and other central nervous system malformations were associated with polyhydramnios. In our study, osteogenesis imperfecta and bilateral CTEV were associated with low AFI of <8 cm and tracheoesophageal fistula was associated with AFI > 18 cm.

Conclusion

In our study the rate of induction, LSCS, congenital anomalies in babies and NICU admissions are more in cases than control group. However except, increased rates of LSCS and congenital anomalies in babies, in rest all parameters no significant statistical difference found in cases and control groups. It is not that IUGR is necessarily associated with low AFI and normal AFI ensures normal birth weight.

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