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STUDY OF ROLE OF L-ARGININE IN OLIGOHYDRAMNIOS.

Obstetrics & Gynaecology

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ABSTRACT

Oligohydramnios is a common complication arising during pregnancy, resulting in increased rate of operative delivery and fetal complication. L-Arginine, which is a precursor of nitric oxide has been used in patients with low amniotic fluid index with a favorable result. The present study was done in the department of obst & gynae Jawaharlal Nehru medical college, hospital, Bhagalpur, Bihar. Eighty patients with amniotic fluid index between 4 cm to 8 cm were administered L-Arginine sachet 3 gm twice a day. Their pregnancies were between 30 weeks to 36 weeks. Patient's compliance was good. Response was monitored by regular ultrasound assessment of amniotic fluid index, fetal weight, biophysical profile and ultimate gestation weeks at the time of delivery. There was significant increase in amniotic fluid index and prolongation of pregnancy giving time for fetal lung maturity and optimum fetal weight. It suggests that L-arginine may be used in case of oligohyramnios with a promising result.

KEYWORDS

INTRODUCTION:

Oligohydramnios is an abnormally decreased amount of amniotic fluid. It complicates approximately 1 to 2% of pregnancies(1)(2). Unlike hydramnios which is often mild and confers a benign prognosis in the absence of an underlying etiology, oligohydramnios is a cause for concern(3). Amniotic fluid serves to protect the fetus and serves as a reservoir of water and nutrients. Most important it provides the necessary condition for normal development of the fetal lungs and musculoskeletal and gastrointestinal system(4). Amniotic fluid is commonly evaluated by ultrasound in term of amniotic fluid index(AFI), single deepest pocket(SDP). AFI of 8 cm or above is termed normal, between 5 cm to 8 cm in borderline and <5 cm is oligohydramnios. Different types of medical methods have been used to increase the amount of diminished liquor.

The present retrospective study was done to know the effect of L-arginine on the amount of liquor, gestational week at the time of delivery, mode of delivery and fetal outcome.

MATERIALS AND METHOD: L-arginine is a precursor of nitric oxide(NO), which increases the blood flow in vascular beds(5). It increases placental perfusion(6). It promotes the intrauterine growth of the fetus by increasing endothelial NO production.

This retrospective study was done in the department of obstetrics & gynecology Jawaharlal Nehru Medical college hospital, Bhagalpur, Bihar during six month period from October 2020 to march 2021. Eighty(80) patients of oligohydramnios whose AFI was less than 5th percentile for gestational age(<8cm) were included in the study.

The gestation week of the patients were between 30 weeks to 36 weeks.

All were singleton pregnancy. AFI of patients were between 4 cm to 8 cm with intact membrane. High risk cases like severe PIH, gestational diabetes mellitus, chronic kidney disease, severe degree of fetal growth restriction, premature preterm rupture of membrane were excluded from the study. The amniotic fluid index was calculated with ultrasound by calculating the sum of deepest vertical pocket in each four quadrants. All patients were given L-arginine 3 gm sachet orally twice daily. Serial ultrasound was done at regular interval to know the AFI, foetal weight, fetal well being until delivery. Patient's compliance was good. No side effects were seen. Patients were given Dexamethasone 6mg 12 hourly for four doses to accelerate fetal lung maturity.

RESULT:

Among 80 patients, 59 patients were primigravida and 21 were multigravida. All patients were in the age group between 23 to 34 years. They had pregnancies of 30 weeks to 36 weeks. Average gestational age at the time of delivery was 36+/- 1 weeks. We found that L-arginine increased the AFI in these patients. The average increase in AFI was by 2.4 cm ($p<0.05$), which was stastically significant. Among 80 patients 55(68.7%) had caesarean delivery. The birthweight of babies ranged from 2.25 kg to >2.8 kg. 36 patients (45%) had babies of >2.8 kg, 30(37.6%) had babies between 2.5 to 2.8 kg, 14 patients (17.5%) had babies of, 2.5 kg weight. There was no still birth. Ten babies were admitted to NICU, but all recovered completely.

Table I Mode of delivery

Mode of delivery	Number of patients	Frequency(%)
Normal delivery	25	31.2%
Caeserean delivery	55	68.7%

Table II Baby weight at birth

Weight of baby at birth	number	Frequency(%)
<2.5 kg	14	17.5%
2.5-2.8 kg	30	37.5%
>2.8 kg	36	45%

DISCUSSION:

Our study showed that L-arginine can be used in oligohydramnios with good result. Anita Soni et al(7) also found L-arginine supplementation as a promising one in improving volume of amniotic fluid in oligohydramnios and prolonging pregnancy by a mean of 2.4 weeks, allowing featal lung maturation thus benifitting neonatal outcome. L-arginine is a semi-essential amino acid acting as a substrate for synthesis of NO(8). Nitric oxide is an important regulator of placental perfusion and plays an important role in placental vascular endothelial function. NO is synthesized from L-arginine by enzyme NO synthase and L-arginine is the only substrate for the NO(9). Thurean et al(10) also found that L-arginine treatment accelerates fetal weight gain and improves biophysical profile. We selected our patients with AFI below 5th percentile (8 cm) and above 3rd percentile (4 cm). Nabham AF et al(11) found that there were high induction failure, more caesarean deliveries for foetal distress in women with AFI<5 cm. L-arginine administration may be of help in these cases if used before hand.

CONCLUSION

Different studies showed that L-arginine has a beneficial role in pregnancy by increasing NO level which causes vasodilation and improves placental bed circulation thereby improving AFI, fetal weight and fetal well being. Thus pregnancies remote from term, with lower amniotic fluid index may have a trial with L-arginine administration.

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