

Role of Intravenous Aminoacid Infusion in Cases of Oligohydramnios in Improving Pregnancy Outcome

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Summary

Oligohydramnios is a late sign of foetal malnutrition. Fetal well being depends to a great extent upon, appropriate volume of amniotic fluid. Diminished liquor or oligohydramnios is quite often associated with impaired foetal growth, foetal anomaly & malpresentation. Maternal nutrition also seems to play an important role in maintaining foetal environment. Even a moderate reduction in amniotic fluid volume is associated with abnormal FHR, meconium stained liquor during labour which often requires caesarean section and results in perinatal morbidity and mortality.

Improving maternal nutrition by parenteral aminoacid infusion has been tried earlier. In the present study 25 cases of oligohydramnios in third trimester were given intravenous aminoacid infusion and significant improvement was observed subsequently as increased AFI, and less operative delivery with lesser perinatal mortality.

Introduction

Oligohydramnios is a late sign of fetal malnutrition (Fernando Arias 1998). Fetal wellbeing depends to a great extent upon appropriate volume of amniotic fluid. Diminished liquor or oligohydramnios is quite often associated with impaired fetal growth, fetal anomaly and malpresentations. Even a moderate reduction in amniotic fluid volume is associated with abnormal FHR, meconium stained liquor, which often requires caesarean section and result in perinatal morbidity and mortality.

Over the years many different medical and interventional methods have been tried. In the present study 25 cases of oligohydramnios in third trimester, were given intravenous aminoacid infusion and subsequent improvement in amniotic fluid index, mode of delivery and condition of the neonate along with associated complications were recorded. The study is ongoing.

Material and Methods

The study group comprised of 25 clinically and sonographically proven cases of oligohydramnios in third trimester, admitted in the Department of Obstetrics and Gynaecology, Kamla Raja Hospital, Gwalior, from 1st Jan. 98 to 31st Dec. 98.

Criteria for selection of patients:

1. Amniotic fluid volume is measured with four quadrant technique which consists of measuring the largest pool of fluid found in each of the four quadrants of the uterus. The added measurements give amniotic fluid index (AFI). The fluid decreased if AFI is less than 10cm and markedly decreased if less than 5cm (Rajan, 1989).
2. Gestational age more than 28 weeks and less than 40 weeks of pregnancy.
3. Patients having congenital anomalies in the foetus were not included in the study.

4. Patients having premature rupture of membranes as a cause for reduced amniotic fluid volume were not included in the study.
5. Patients having major respiratory, cardiovascular or abdominal pathology were not included.

After taking detailed obstetric, menstrual, past and personal history, thorough general, systemic and obstetric examination were conducted. Abdominal girth and fundal height were measured in centimeters and recorded daily. Foetal movements & FHR record was maintained.

Investigations of blood i.e. Hb%, Total & Differential WBC count, VDRL, FSR, Urea, Sugar, Uric acid, Creatinine, grouping and typing along with urine routine & culture examination were done. After initial ultrasonography, patients included in the study group were subjected to repeat ultrasonography biweekly.

Intrauterine growth retardation was present in 17 patients. The study group patients were given intravenous aminoacid infusion 200cc on alternate days for one week. Repeat infusions were given if required after 3-4 weeks. Oral iron, calcium and multi vitamins were also given. Patients were followed up till their delivery.

Observations

Patients were distributed according to the amniotic fluid index on entry as those with moderate Oligohydramnios (AFI 5.1-10cm) and those with severe Oligohydramnios (AFI < 5m). (Table I).

Table-I : Distribution of patients by Amniotic Fluid Index

AFI	No. of patients	Percentage
5.1-10cm	19	76
Moderate Oligohydramnios ≤ 5cm	6	24
Severe Oligohydramnios		
Total	25	100

Severe Oligohydramnios was associated with foetal growth retardation in all patients, while 57.0% of moderate Oligohydramnios was also associated with intrauterine growth retardation. (Table II).

**Table-II
Relationship of amniotic fluid index to intrauterine growth retardation**

AFI	No. of Cases	No. of IUGR	Percentage%
≤ 5cm	6	6	100
5.1-10cm	19	11	57.8

On repeated ultrasonography, 2 weeks after aminoacid infusion, 10 patients with moderate Oligohydramnios had improved AFI to normal whereas 2 patients with severe Oligohydramnios had improved AFI to moderate extent. (Table III).

At the end of four weeks, 2 patients of moderate Oligohydramnios had improved to normal but 1 patient again developed low amniotic fluid index. 1 had severely reduced amniotic fluid volume. (Table III)

Reviewing the outcome of pregnancy in relation to amniotic fluid volume, those patients who had AFI

**Table-III
Amniotic Fluid indices after Aminoacid IV infusion**

Amniotic Fluid Index	Entry		No. of Patients 2 weeks		4 weeks	
	No.	%	No.	%	No.	%
5.1-10cm	19	76	11	44	12	48
≤ 5cm	6	24	4	16	4	16
> 10cm	-	-	10	40	9	36
Total	25	100	25	100	25	100

**Table-IV
Amniotic Fluid index and pregnancy outcome**

	AFI < 5cm	5.1-10cm	> 10cm
• Preterm delivery	4 (100%)	2 (16.67%)	
• Malpresentation	2 (50%)	1 (8.34%)	
• Caesarean section	2 (50%)	2 (25%)	1 (11.11%)
• Foetal distress	1	1	
• MP	1	1	1
• Non Progress	-	-	1
• Vaginal delivery	2 (50%)	9 (75%)	8 (88.89%)

Table-V
Amniotic fluid index & foetal outcome

AFI	Neonate			Apgar Score < 5
	VLBW	LBW	N	
< 5cm	3 (75%)	1 (25%)	-	4 (100%)
5-10cm	-	5 (41.67%)	7 (58.33%)	4 (33.3%)
> 10cm	-	1 (11.11%)	8 (88.8%)	1 (11.11%)

improved to normal, delivered at term and one had caesarean section for IUGR. (Table IV)

Patients with moderate Oligohydramnios had two preterm deliveries, two caesarean sections for foetal distress, meconium stained liquor and malpresentation respectively.

Those left with severe Oligohydramnios had four preterm deliveries and two caesarean sections, one for malpresentation and one for foetal distress.

Babies of severe Oligohydramnios had low Apgar scores and 3 were VL BW. (Table V) Babies with improved Oligohydramnios to normal AFI though being LBW had good Apgar scores (Table V).

Discussion

Inadequate nutrition is the second important cause of IUGR and associated complications (Rao 1981). Improvement in maternal nutritional status & weight gain in pregnancy is associated with better pregnancy outcomes. Intravenous infusion of large amount of glucose and many aminoacids to the mother have been tried. (Mehta, 1981). Hyperalimentation in mothers carrying growth retarded foetus by intravenous route, 10% Fractotex, aminoacid solution, vitamins are usually given. (Banerjee 1981).

Improvement in AFI by intravenous aminoacid infusion appears to act through improved maternal nutritional status, which could not have been achieved by diet because of non compliance and socio-economic factors.

Conclusion

From the above study, it is suggested that for idiopathic Oligohydramnios, intravenous aminoacid may prove useful in reducing maternal and perinatal mortality and morbidity and improving pregnancy outcome in developing countries.

As the study group is small, controlled trials with larger group of patients are required.

References

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