

Original Research Article

AN OBSERVATIONAL AND PROSPECTIVE STUDY ON EFFECT OF AMINO INFUSION IN PREGNANT WOMEN WITH OLIGOHYDRAMNIOS & ITS FETOMATERNAL OUTCOME

¹Dr. Pushpanjali Paraste, ²Dr. Neha Shakya, ³Dr. Kuldeep Singh Bhadouriya

¹Obstetrician & Gynaecologist, Department of Obstetrics & Gynaecology, Ashirwad Hospital, Anuppur, Madhya Pradesh, India

²Obstetrician & Gynaecologist, Department of Obstetrics & Gynaecology, Ashirwad Hospital, Anuppur, Madhya Pradesh, India

³Radiologist, Department of Radiodiagnosis, Ashirwad Hospital, Anuppur, Madhya Pradesh, India

Corresponding Author: Dr. Pushpanjali Paraste
pushpanjaliparaste8@gmail.com

ABSTRACT

Background: Amniotic fluid is important throughout the pregnancy for normal growth and development of fetus. Oligohydramnios is always a cause for concern in pregnant women. **Aim:** The aim of our study is to assess the efficacy of intravenous amino infusion in pregnant women with oligohydramnios & its effect on fetomaternal outcome.

Materials and Methods: This prospective and observational study was conducted on 80 pregnant women with amniotic fluid index less than 5 cm and gestational age of 28 - 37 weeks at government hospital Gwalior from February 2021 to July 2022 as per inclusion criteria. They were administered intravenous amino-infusions. The AFI value was measured before and after the infusions in each patient. The change in AFI status and fetomaternal outcome was studied and analysed.

Result: The results were tabulated with respect to age of patients, gestational age, gravida status, AFI status, maternal and perinatal outcome. Out of 80 study subjects, majority were primigravida (35%). Most common age group in our study was between 21 to 25 years with around 37.5%. Around 45% cases were in between 34 to 37 weeks of gestations. In 85% cases AFI value was increased post-infusion. Majority (65.5%) of the cases had undergone vaginal delivery post infusion. Only 25% babies were admitted in SNCU, rest babies were at mother side. No mortality was reported.

Conclusion: According to the findings of study, the present study shows improvement in AFI and perinatal outcomes after intravenous amino infusion.

Keywords: oligohydramnios, amino-infusion, amniotic fluid index, ultrasonography

INTRODUCTION-

Amniotic fluid is present within the amniotic sac and provides supportive environment for the foetus throughout the pregnancy for normal growth and development. Amniotic fluid prevents compression of the umbilical cord and placenta and protects the foetus from vascular and nutritional compromise. Amniotic fluid volume increases from approximately 30 mL at 10 weeks to 200 mL by 16 weeks and reaches 800 mL by the mid-third trimester.[1] oligohydramnios is a condition which is characterized by abnormally decreased amount of amniotic fluid in pregnant woman relative to gestational age. oligohydramnios affects around 1-2 percent of pregnancies. Oligohydramnios is always a cause for concern in pregnant women. Oligohydramnios can be diagnosed by ultrasound as well as clinically,

however diagnosis by USG is much more accurate. The sonographic diagnosis is mainly based on AFI less than 5 cm or a single deepest pocket of amniotic fluid below 2 cm. However, use of AFI rather than single deepest pocket will identify more pregnancies as having oligohydramnios. AFI is calculated by adding the depth in centimetres of the largest vertical pocket in each of four equal uterine quadrants [1,2]. Thus detection of amniotic fluid volume by USG helps in prediction of fetal well being. oligohydramnios can cause serious and significant impact on maternal and foetal outcome. It can result foetal complications like cord compression, foetal pulmonary hypoplasia, foetal growth restriction, low APGAR score, SNCU admission and foetal mortality. Maternal complications like prolonged labour due to inertia and increased incidence of operative intervention can also occur [1,3,4]. The amniotic fluid index is affected by various factors such as mother's blood volume [5], hydration status and maternal plasma osmolality. These factors play an important role in maintaining the amniotic fluid volume. Hydration status and maternal plasma osmolality can also alter amniotic fluid volume [6].

Aims & objective:

1. To assess efficacy of iv aminoinfusion in pregnant women with oligohydramnios
2. To assess fetomaternal outcome.

MATERIALS AND METHODS

This study was an observational & prospective study, which was conducted among pregnant women with oligohydramnios in government hospital Gwalior from February 2021 to July 2022. A total of 80 cases were taken. Cases were collected from pregnant women attending government hospital after consent.

1. Inclusion Criteria:

- singleton pregnancy
- Period of gestation between 28 to 37 weeks
- AFI less than 5 cm on USG

2. Exclusion Criteria:

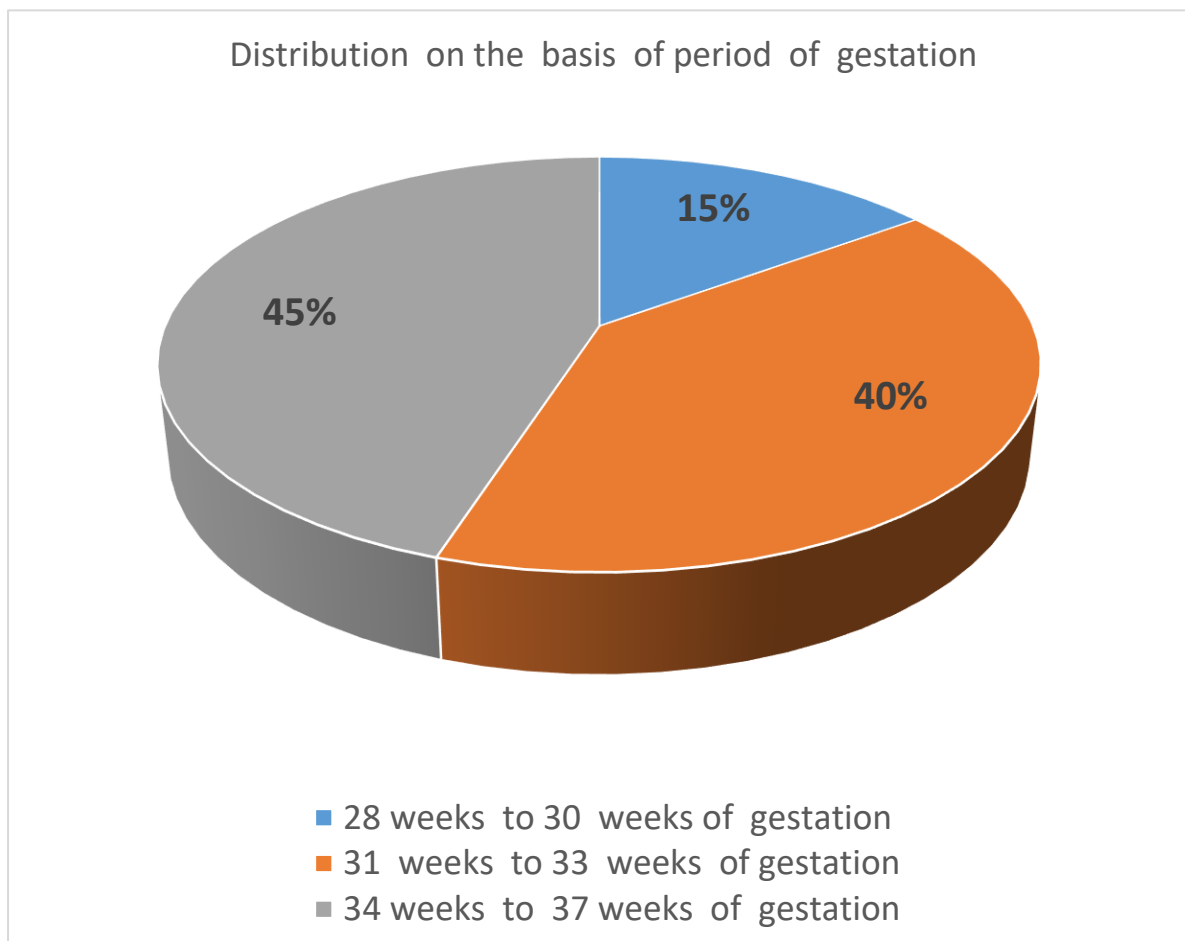
- Pregnant woman with multiple pregnancy or IUGR or any congenital anomaly.
- Pregnant woman who is not giving consent.
- Pregnant woman with PROM
- Pregnancy with previous c section

All pregnant women who had been diagnosed with oligohydramnios (AFI less than 5 cm) by ultrasound were taken & screening was done according to inclusion criteria. colour Doppler was also done to rule out any IUGR, congenital anomaly by radiologist. Amino drip of 200 ml was given thrice daily on alternate days for three days in a week. & after that ultrasound was done to estimate level of amniotic fluid in a pregnant woman at the end of 6 days and then 7 days after the last drip by a radiologist. Additional drips were given if needed as per AFI. As per the findings patient were discharged after the last drip and advised regarding proper diet, adequate oral hydration and weekly follow up. Every 14 days USG was done to know the status of AFI. Levels of amniotic fluid were then compared to know the efficacy of iv aminoinfusion. Patients were followed till delivery and pregnancy outcome. The collected data were then analyzed with proper statistical methods.

RESULTS:-**1. Age wise distribution of patients (n=80)**

Age in years	Number of patients
≤ 20 years	20 (25%)
21 years - 25 years	30 (37.5%)
26 years – 30 years	18 (22.5%)
More than 30 years	12 (15%)

In our study , maximum patients are in age group of 21 years to 25 years while 20 patients are in age group of ≤20 years . 12 patients are in age group of more than 30 years. 18 patients are in age group of 26 years to 30 years.

2. Distribution on the basis of period of gestation (n=80)

Period of gestation	Number of patients
28 weeks to 30 weeks	12 (15%)
31 weeks to 33 weeks	32 (40%)

34 weeks to 37 weeks	36 (45%)
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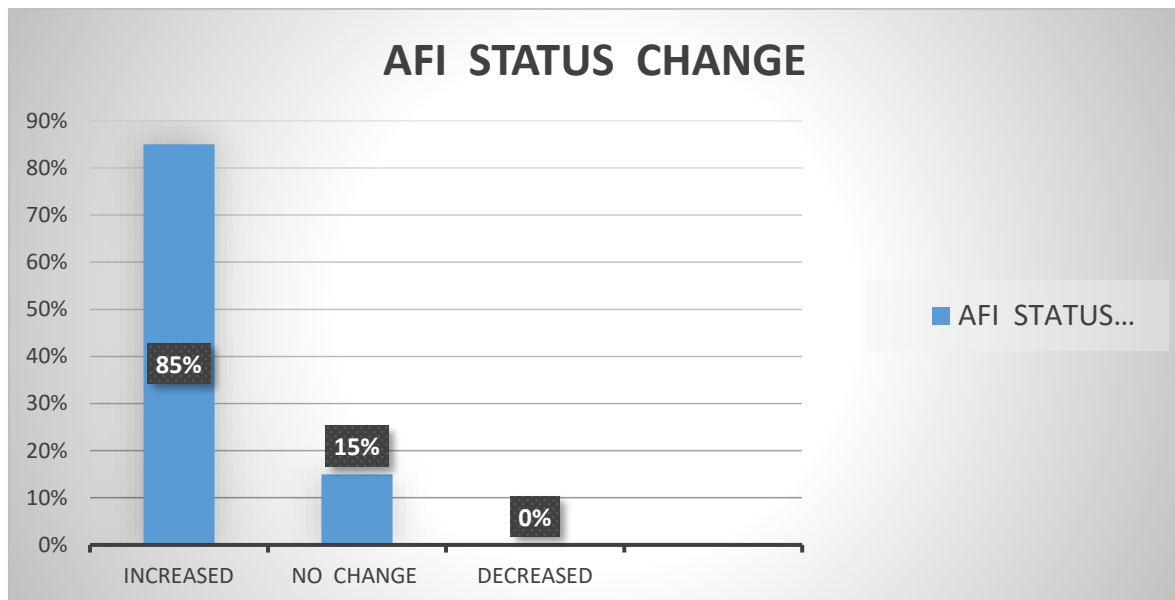
In our study , 15% patients are in 28 to 30 weeks of gestation group while 40% patients are in 31 to 33 weeks of gestation group . 45% patients are in 34 to 37 weeks of gestation group

3 .Distribution on the basis of gravidity (n=80)

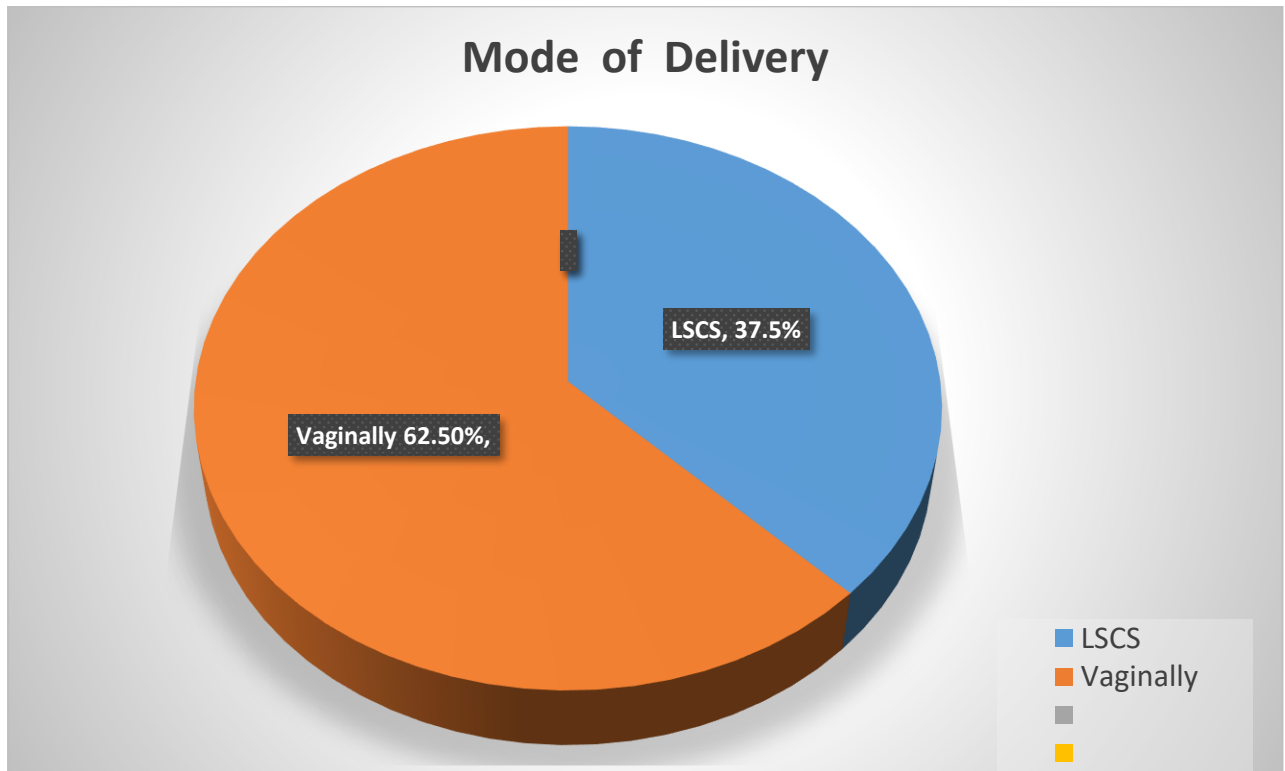
Gravida	Number of patients
G1	28
G2	22
G3	15
G4	15

In our study, maximum patients are primigravida. . 22 patients are second gravida,15 patients are third gravida while 15 patients are fourth gravida.

4 The distribution of AFI status after complete intravenous amino-infusion as compared to AFI status on admission (n=80)



In our study , AFI status was increased in 85% patients after amino infusion while no change was observed in 15% patients .

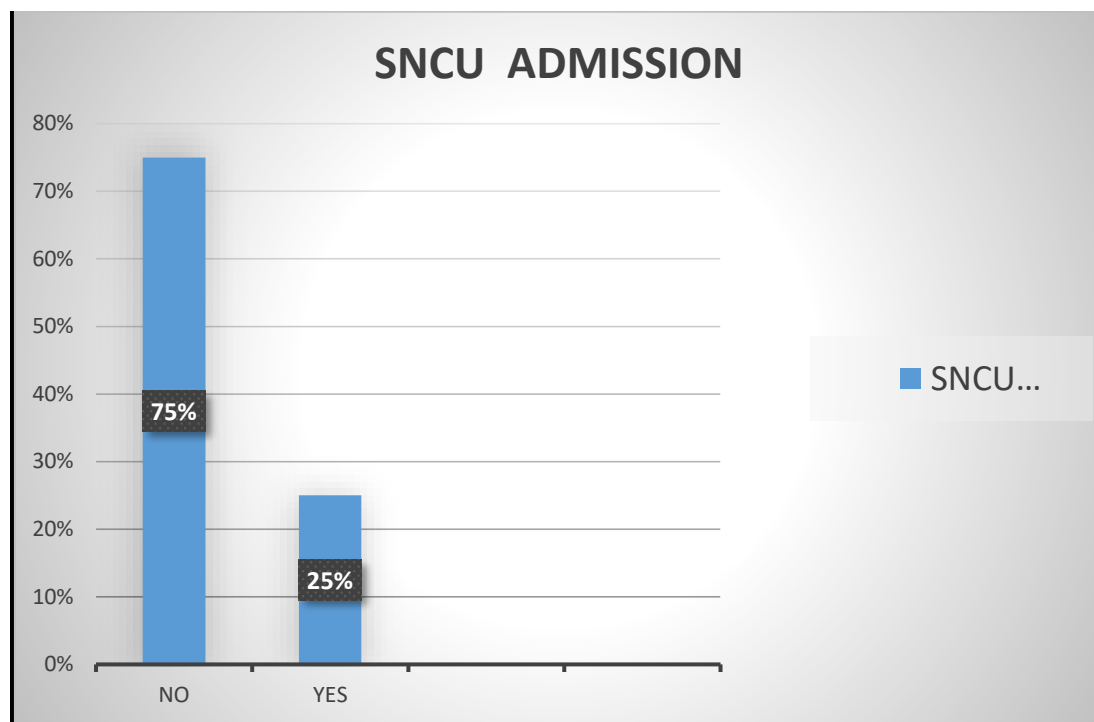
5 .Distribution on the basis of maternal outcome (n=80)

Mode of delivery	number
LSCS	30 (37.5%)
Vaginally	50 (62.5%)

30 patients had LSCS delivery while 50 patients had vaginal delivery after Aminoinfusion.

6.Distribution of fetal outcome (n=80)

SNCU admission	Number
yes	20 (25%)
No	60 (75%)



25% babies were admitted to SNCU. While 75% babies were not admitted & remained at mother side.

DISCUSSION

Oligohydramnios indicates fetal malnutrition. Intravenous amino-infusion helps in improving AFI status by improving maternal nutrition. Our study analysed the outcome as well as efficacy of intravenous amino-infusion in oligohydramnios patients. In Prabha S et al study mean age of participants was 23 ± 2.54 [7]. In kumar p et al study the mean age of participants at time of admission was 25.87 ± 0.62 [8]. This was comparable to the our present study where the mean maternal age at time of admission was $23. \pm 0.20$. In ,Hebbar et al study ,the mean gestational age at time of recruitment was 33.4 ± 1.9 weeks [9]. In the present study 15% cases were in the gestational age group of 28-30weeks, 40% cases in the group of 31-33 weeks, 45% cases were in the gestational age group of 34-37 weeks. As per kumar p et al study ,36.6% cases were in the gestational age group of 28-30 weeks and 36.6% cases in the group of 33-34 weeks [8]. In Mohamed et al. study, they observed a decline in the amniotic fluid level with increasing gestational age [10]. In PrabhaS et al study , majority of patients were primigravida (51.2%).

In kumar p et al study, majority of women were second gravida. Sharma et al. reported that 37 out of 50 (74%) cases were primigravida [11]. Soni et al. also reported primigravida at 74 out of 100 (74%) and multigravida at 26 % [12].

Where as in the present study, majority of the patients were primigravida. Kumar P et al in their study found that AFI status is increased in 80% cases after aminoinfusion while no change is observed in 20% cases. In present study , AFI status is increased in 85% cases & no change is observed in 15% cases .One of the studies by shindeA et al. reported a 57.6% vaginal deliveries& 21.25% caesarean section (LSCS) after iv aminoinfusion. In present 50% cases had undergone delivery by vaginal route while 30% cases had undergone delivery by LSCS . In Shivkumar et al. study, they reported more

normal deliveries after iv amino acid infusion [13]. The study by shinde A et al observed around 21.32% NICU admissions in IV amino acid age group [14]. The study by Bhargava et al. also reported that adverse neonatal events were significantly lower in the IV amino acid group [15]. In present study , 25% babies were admitted to SNCU & 75% babies were remained at mother side .

Shivkumar PV et al. reported one neonatal death due to severe birth asphyxia with extremely low birth weight in the IV amino acid group compared to three neonataldeaths in the control group. In present study, no neonatal death was observed.

CONCLUSION

According to the findings of study, the present study shows improvement in AFI and perinatal outcomes after intravenous amino infusion. The intravenous amino acid infusion is one of the effective modality for treating oligohydramnios .The increased rate of vaginal delivery, decreased neonatal complications & decreased SNCU admission were seen after intravenous aminoinfusion. Thus iv aminoinfusion improves feto-maternal outcome in patients with oligohydramnios .

REFERENCES

1. Cunningham FG, Leveno KJ, Bloom SL, Spong CY, Dashe JS, Hoffman BL, et al. Amniotic fluid. Williams Obstetrics. New York: McGraw Hill Education; 2014. pp. 460–76. [Google Scholar] [Ref list]
2. Phelan JP, Smith CV, Broussard P, Small M. Amniotic fluid volume assessment with the four-quadrant technique at 36-42 weeks'gestation. *J Reprod Med*. 1987; 32(7):540–42. [PubMed] [Google Scholar] [Ref list]
3. Hashimoto K, Kasdaglis T, Jain S, Atkins K, Harman CR, Baschat AA, et al. Isolated low-normal amniotic fluid volume in the early third trimester:association with adverse perinatal outcomes. *J Perinat Med*. 2013; 41(4):349–53. [PubMed] [Google Scholar] [Ref list]
4. Magann EF, Chauhan SP, Hitt WC, Dubil EA, Morrison JC. Borderline or marginal amniotic fluid index and peripartum outcomes: a review of the literature. *J Ultrasound Med*. 2011; 30(4):523–28. [PubMed] [Google Scholar] [Ref list]
5. Calhoun S. Focus on fluids Examining maternal hydration and amniotic fluid volume. *AWHONN Lifelines*. 1999 Dec-Jan; 3(6):20–4. [PubMed] [Google Scholar] [Ref list]
6. Magann EF, Doherty DA, Chauhan SP, Barrilleaux SP, Verity LA, Martin JN Jr. Effect of maternal hydration on amniotic fluid volume. *Obstet Gynecol*. 2003; 101(6):1261–5. [PubMed] [Google Scholar] [Ref list]
7. Prabha S, Vivekanand A, Sarojini A, Sethi P. The role of amino acid infusion in isolated Oligohydramnios. *Perspectives in medical research*. 2015; 3:1-5.
8. : Kumar P, Kakade AS, Mehendale S. Efficacy of intravenous hydration drip versus amino acid drip in idiopathic oligohydramnios. *Int J ReprodContraceptObstetGynecol*2016; 5:1488-93.
9. Hebbar S, Rai L, Adiga P. Maternal hydration and Larginine supplementation improves liquor volume in patients with decreased liquor and prolongs pregnancy. *Med J DY Patil*.
10. .Pregnancy outcome among patients with oligohydramnios and suggested plan of action. Hamed A, Mohamed G. <https://www.iosrjournals.org/iosr-jnhs/papers/vol14->

- issue5/Version-3/L04536575.pdf IOSR J Nurs Heal Sci Ver. 2015; 3:4. [Google ScholarUniv. 2014; 7:429-34.
11. To study the effect of L-arginine in oligohydramnios to improve perinatal outcome. Sharma DrA. <https://www.iosrjournals.org/iosr-jdms/papers/Vol16-issue4/Version-4/D1604041619.pdf> IOSR JDMS. 2017; 16:16–19. [Google Scholar]
 12. .Role of L-arginine in oligohydramnios. Soni A, Garg S, Patel K, Patel Z. <https://link.springer.com/article/10.1007/s13224-016-0853-7>. J ObstetGynecol India. 2016; 66:279–283. [PMC free article] [PubMed] [Google Scholar]
 13. The role of intravenous hydration and amino infusion in intrauterine growth restriction and oligohydramnios. Shivkumar P, Tayade S, PramodkumarPramodkumar, Tayade A, Bagde N, Bagde M. <https://www.semanticscholar.org/paper/The-role-of-intravenous-hydration-and-amino-in-and-Shivkumar-Tayade/083229ac33aa636e94379d4abe7d3011a7f7fd8b> Int. J. Med. Res. 2011;2:1078–1083. [Google Scholar]
 14. Shinde A, Chaudhari K, Dewani D, Shrivastava D. Effect of Amino Acid Infusion on Amniotic Fluid Index in Pregnancies Associated With Oligohydramnios and Fetal Growth Restriction. *Cureus*. 2023 May 15; 15(5):e39027. doi: 10.7759/cureus.39027. PMID: 37378206; PMCID: PMC10291974.
 15. Role of parenteral amino acids supplementation in oligohydramnios & IUGR complicated pregnancies. Bhargava A, Bharadwaj M, Bhargava S. <https://go.gale.com/ps/i.do?id=GALE%7CA471274962&sid=googleScholar&v=1&it=r&linkaccess=abs&issn=22784748&p=AONE&sw=w&userGroupName=anon%7Ec4fcccfe> J Evol Med Dent Sci. 2015; 4:13114–13122. [Google Scholar]