



## EFFECT OF MATERNAL ORAL REHYDRATION IN CASE OF ISOLATED OLIGOHYDRAMNIOS

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**ABSTRACT** **Background:** Isolated oligohydramnios during the third trimester is related with poor perinatal outcomes. Oral hydration of the mother has been studied as a non-invasive procedure to enhance the quality of the amniotic fluid. **Objective:** To determine the impact of the oral rehydration of the mother on the amniotic fluid index (AFI) and perinatal outcome in isolated oligohydramnios. **Methods:** A prospective interventional study was done on 60 women with isolated oligohydramnios (AFI  $\leq$  5 cm). The participants were advised to take 2.5-3 liters of fluids per day over a period of 7 days. AFI was assessed before and after the intervention. Perinatal outcomes were documented. **Results:** The average AFI level rose significantly after the intervention, i.e. it rose to  $7.2 \pm 0.9$  cm ( $4.3 \pm 0.6$  cm) ( $p < 0.001$ ). Spontaneous births were witnessed in 63.3% of the participants and the number of cesarean section was lower than historical controls. The NICU admissions and fetal distress were minimized. **Conclusion:** Maternal oral hydration is a simple and reliable way to improve amniotic fluid levels in pregnancies complicated by isolated oligohydramnios. This approach not only raises the AFI significantly but also contributes to better outcomes for both mother and baby, such as more normal deliveries and fewer complications like fetal distress and NICU admissions. Given its safety, ease, and low cost, it can be effectively used as a non-invasive option in routine clinical management.

## KEYWORDS :

## INTRODUCTION

The Amniotic fluid plays a vital role in the healthy growth and development of the fetus. It gives a cushion effect, fetal movements, musculoskeletal development, and helps in the development of the lungs and the gastrointestinal tract. The amount of water in the amniotic fluid is maintained by the balance between the fetal urine and the intramembranous absorption, and the maternal hydration condition impacts the balance between the two factors [1].

Oligohydramnios can be characterized as an amniotic fluid index (AFI) of 5 cm or lower and can be linked to high risks of intrauterine growth restriction (IUGR), fetal distress, the presence of meconium in the liquor, umbilical cord compression, and cesarean delivery.[2].

Isolated oligohydramnios is the one that takes place without any maternal or fetal complications, and it presents a dilemma of management as it is not clear whether early birth is of benefit and putting the mother and baby under closer supervision is a safe choice or not [3].

Factors such as the possibility of maternal hydration to affect AFI have been examined by various other studies. It is believed that improved maternal hydration directly increases uteroplacental perfusion, which in turn indirectly increases fetal urine output and amniotic fluid volume. Oral hydration is more convenient, less expensive and less invasive than intravenous hydration[5].

The first study to indicate that maternal hydration enhanced AFI in borderline fluid women was done by Kilpatrick and Safford [6].

The researchers of this study aimed to examine the effects of high rates of maternal oral fluid intake on AFI and birth outcomes in pregnant women with isolated oligohydramnios [7].

### Materials and Methods

#### Study Design and Setting

This prospective interventional study was conducted at the Department of Obstetrics and Gynecology, RMRI-bareilly over a period of 5 months from march(2025) to july (2025) .

The ethics committee of the institution gave the ethical clearance, and informed consent in writing was taken of all the participants.

#### Participants

A total of 60 pregnant women diagnosed with isolated oligohydramnios (AFI  $\leq$  5 cm) in the third trimester ( $\geq$ 28 weeks gestation) were included in the study.

#### Inclusion Criteria

- Singleton pregnancy.

- Absence of maternal hypertension, diabetes, or other systemic illness, and no fetal anomalies.

#### Exclusion Criteria

- Women with preterm premature rupture of membranes (PPROM).
- Women with intrauterine growth restriction, congenital anomalies, and multiple pregnancies.

#### Intervention

The participants were recommended to take an extra 2.5-3 liters of oral fluids (plain water and oral rehydration solution) every day throughout a sustained duration of 7 days. There were no other interventions provided. The adherence was determined through a chart of daily fluid intake which the participants kept.

#### Outcome Measures

The first was the change in AFI between baseline and Day 7. The four-quadrant method of measuring AFI was through ultrasound and done by the same sonologist to reduce interobserver differences.

Some of the secondary outcomes were mode of delivery, fetal distress, meconium-stained liquor, NICU admissions, and birth weight.

#### Statistical Analysis

The SPSS version 25 was used to analyze the data. Continuous variables were represented as the mean  $\pm$  standard deviation, and the categorical variables were presented as a percentage. The comparison of the pre and post-intervention AFI was done by paired t-test and categorical variables by chi-square test. A value of less than 0.05 was regarded as significant.

## RESULTS

### Participant Characteristics

The average maternal age was  $25.6 \pm 3.8$  years and the average gestational age at the time of enrollment was  $33.4 \pm 1.9$  weeks. The majority of the subjects were primigravida (63.3%). The mean baseline AFI was  $4.3 \pm 0.6$  cm.

**Table 1**

Variables	Value
Number of participants	60
Mean Maternal age(years)	24.9+/-3.4 years
Mean gestational age(weeks)	33.2+/-1.7 weeks
Mean AFI (before hydration) cm	4.3+/-0.3 cm
Mean AFI (after hydration) cm	7.2+/-0.4 cm
Mean AFI (increase) cm	2.9+/-0.4 cm
P value	<0.001

**Effect on Amniotic Fluid Index:**

The average AFI also rose dramatically by  $7.2 \pm 0.9$  cm ( $p < 0.001$ ) after 7 days of oral hydration increase. Increase of  $\geq 2$  cm was noted in 86.7% of the participants . table 1.

**Perinatal Outcomes:**

In 63.3 percent of the cases, spontaneous labor was seen to commence whereas in 36.7 percent of the cases, induction was needed. In 30 percent of the participants, the cesarean section was done as a result of fetal distress or unsuccessful induction. Table2 .

It had 10% meconium stained liquor and 15 percent of fetal distress during labor. The mean birth weight was  $2.75 \pm 0.4$  kg. In 13.3% of babies, they had to get admitted to the NICU, and the main cause was respiratory distress. Table 3.

This data indicates that oral hydration by mothers can work to augment AFI and that is linked to positive perinatal outcomes, such as fewer of them undergo cesarean delivery or are admitted to the NICU after birth.

**Table 2: Association Between AFI and Mode of Delivery**

Parameters	AFI<5 (prehydration)	AFI >5 cm (Post-hydration)	p value
Vaginal delivery	15	23	<0.05
Induced delivery	10	12	
Cesarean section	13	7	

**Table 3: Perinatal Outcome Based on Post-Treatment AFI**

parameters (n=60)	AFI<5 cm	AFI>5 cm	test of significance
Fetal distress	9	3	<0.05
Meconium stained liquor	5	1	
NICU admission	6	2	
Mean birth weight	2.5 to +/-0.3	2.9+/-0.4	<0.01

**CONCLUSION**

Maternal oral hydration significantly improves amniotic fluid index in isolated oligohydramnios and is associated with better perinatal outcomes. Being simple, safe, and cost-effective, it can be considered a useful non-invasive management strategy in such cases.

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