World Applied Sciences Journal 32 (12): 2442-2452, 2014
ISSN 1818-4952

DOI: 10.5829/idosi.wasj.2014.32.12.9571

Oral Hydration Versus Rest in the Left Lateral Position: Its Effects on Isolated Oligohydramnios and Pregnancy Outcomes

[1]Nahid Khedr, [2]Hanan Abd El-Fattah and [3]A. El-Gohary

[1]Department of Woman Health Nursing and Midwifery,
Faculty of Nursing Mansoura University, Egypt
[2]Maternity and Neonatal Health Nursing- Faculty of Nursing Ain Shams University Cairo, Egypt
[3]Obstetrics and Gynecology, Faculty of Medicine, Mansoura University, Egypt

Abstract: The amniotic fluid that bathes the fetus is necessary for its proper growth and development. Increasing amniotic fluid volume with a simple, inexpensive method such as maternal hydration may have been useful. Aim the present study was aimed to evaluate the effect of oral hydration versus rest in the left lateral position on isolated oligohydramnios and pregnancy outcomes. Setting: this study was performed in the Obstetrics and Gynecology department at Mansoura University Hospital. Type of study intervention study. Study Design quasi _ experimental design. Sample type: purposive sample. The sample size: this study included on 60 pregnant women with isolated oligohydramnios in third trimester, they were selected according to the following criteria. Maternal age 20-35years, idiopathic causes of oligohydramnios (AFV<5cm): singleton pregnancy, intact membranes and gestational age37 weeks to delivery time and free from any chronic diseases and uncomplicated of pregnancy. They were classified into two equal groups: GI(Oral hydration: Involved 30 pregnant women they were requested to drink two liters of water over two hours and GII(Rest in left lateral position): Involved 30 cases they were requested to rest in left lateral position over 2 hours. Assessment was checked directly before intervention and after 2hours to evaluate the amount of amniotic fluid. Result that there were statistically significant differences between pre and post intervention to maternal oral hydration and rest in left lateral position on the amniotic fluid volume (AFV) in women with Isolated oligohydramnios ($p < 0.05$). In addition result of the current study showed that the absence of any other maternal or fetal complicating factor is not found to adversely affect the fetal outcomes in the study groups. Conclusion maternal oral hydration and rest in left lateral position improved the amniotic fluid volume, pregnancy outcomes and useful in the management of isolated oligohydramnios.

Key words: Isolated Oligohydramnios · Amniotic Fluid Index · Perinatal Outcomes

Appreviation:

AFV Amniotic Fluid Volume
AFI Amniotic Fluid Index
ISO Isolated Oligohydramnios
NICU Neonatal intensive care unit
MOH Maternal Oral Hydration
RLLP Rest in Left Lateral Position
PO Perinatal Outcomes

Operational Definition:-

Oligohydramnios:- Amniotic fluid index (AFI) is =5 cm.

Isolated oligohydramnios :-Describes low amniotic fluid volume without any maternal or fetal disorder.

INTRODUCTION

Amniotic fluid is a clear, a little yellowish liquid that surrounds the fetus during pregnancy. It is contained in the amniotic sac. While in the uterus, the fetus floats in the amniotic fluid. The amount of amniotic fluid is maximum at 34 weeks of gestation into the pregnancy, when it averages 800 mL. About 600 mL of amniotic fluid

Corresponding Author: Hanan Abd El- Fattah, Maternity and Neonatal Health Nursing-
Faculty of Nursing Ain Shams University Cairo, Egypt.

surrounds the fetus at 40 weeks of gestation).The amniotic fluid constantly moves as the fetus swallows and "inhales" the fluid and then discharges it [1].Amniotic fluid protect the fetus from infection, cushion the umbilical cord, supply fluid, space, nutrients and hormones to help the fetus grow [2].

The amniotic fluid aids the developing fetus to move in the uterus, which allow for appropriate bone growth, the lungs to develop well, maintain a relatively stable temperature around the fetus, defensive from and outside injury and heat loss by cushioning sudden blows or movements [1]. Amniotic fluid is an essential factor in the prophecy of fetal survival. Amniotic fluid acts as a defensive cushion for the fetus against the force located on the abdomen and prevents connection to the fetal membranes. In addition, the floating characteristics of amniotic fluid help the movement and symmetrical growth of the fetus [3]. During second half of pregnancy, amniotic fluid is made up of the fetus's urine and lung secretions. This fluid initially came from the mother and then flowed through the placenta, to the fetus and out through the fetus's bladder and lungs [2]. The amount of amniotic fluid is relevant clinically as derangements that decrease volume result in a condition known as oligohydramnios, which can have reflective suggestion on perinatal outcomes [4].

Oligohydramnios is where there is too little fluid surrounding the fetus in the uterus. This may take place because the fetus is not thriving appropriately [5]. An AFV of 8 cm represents the fifth percentile of normal AFV values. It has been observed that delivery in the setting of isolated oligohydramnios, irrespective of an otherwise normal term gestation free of maternal disease, has become habitual in this manner increasing maternal morbidity particularly in situation of operative delivery or unsuccessful inductions [6]. Decline in the amniotic fluid influence 1-5% of term pregnancies [3].

The majority physicians revealed that isolated oligohydramnios, or little amniotic fluid in an otherwise healthy pregnancy at term, was a risk factor for bad outcomes [2]. Oligohydramnios happen in trimester of pregnancy usually predict an increasing risk of pregnancy [7]. Assess amniotic fluid pockets with ultrasound is a competent and reasonably reliable method of evaluating amniotic fluid volume and categorizing relative risk of perinatal morbidity. In pregnancies beyond 34 weeks, make use of of amniotic fluid index to diagnose oligohydramnios can be expected to reliably identify fetuses at risk for compromised perinatal result [5].

Oligohydramnios, may place the fetus at major risk. In such cases, delivery is the optional intervention [8]. Oligohydramnios influences the pregnancy result and the wellbeing of the fetus. Oligohydramnios, in the absence of pre-mature rupture of membranes and fetal anomalies, is considered as a symptom of chronic reduction in placental function, which results in reduction of fetal urinary output [3]. It may be related to uteroplacental insufficiency, viral diseases, cause the fetus to be not capable to turn into the head down position for the birth, or compression of the fetus's umbilical cord unidentified fetal growth restriction (FGR), premature rupture of the fetal membranes and/ or postmaturity syndrome and malpresentations [9].

Diminish in amniotic fluid volume has been associated with increased risk of severe birth asphyxia, intrauterine growth retardation, meconium aspiration syndrome, low APGAR scores and congenital abnormities [10]. Some cases of amniotic fluid decline are accompanied by urinary tract obstruction or renal agenesis, fetus growth disorders, chronic leaks from gaps in the fetal membranes and in 15-25% of cases fetal abnormalities.

Previous research has founded that the consequences of reduce fluid index increased hazard of cesarean delivery because of fetal distress, diminish Apgar score to lower than seven in the fifth minute, hazard of stillbirth and non-reassuring heart rate, preterm labor, stillbirth and non-reassuring heart rate, admission to the neonatal intensive care unit and meconium aspiration syndrome. Fetal hypoxia may also happen as a consequence of umbilical cord prolapse caused by rupture of the water sac, or because of cord compression caused by lessening of fluid resulting in dropped fetal heart rate [3]. Oligohydramnios at term in the lack of maternal and fetal complications produce a problem in management. It is one of the major caution for antenatal surveillance and induction of labour [9].

Early detection of oligohydramnios and its management may aid in decrease perinatal morbidity and mortality one side and reduce caesarean deliveries on the other side [10]. Best management of isolated oligohydramnios (IO) remains questionable. With a favorable cervix, 34% and 82% would consider suggesting labor without recognized lung maturity prior to 37 and 39 weeks, respectively. When asked whether initiation of labor in cases of IO reduces perinatal morbidity, 45% were hesitant and 21.4% thought it would not. Only 33% believe bringing on could decrease bad outcomes. Practices were more likely to believe that induction is competent in declining morbidity [11].

Hofmeyr *et al*. [7] reported that pregnant women who drank more water or had intravenous fluid dripped directly into their bloodstream (Both forms of maternal hydration) increased the volume of the fluid surrounding the fetus. In addition maternal hydration with isotonic solution or water improved the AF index in women with normohydramnios. In addition, hydration can enhance blood flow through the placenta and improve urination by the fetus. As a result, amniotic fluid levels may improvement for a short time [12]. Maternal bed rest and hydration promote the production of amniotic fluid by increasing the production of amniotic fluid by increasing the maternal intravascular space [13].

All mothers were at rest and allowed to use the restroom. Since resting promote the placental blood circulation of the uterus [3].

The maternal position influences uterine and umbilical blood flow. The enlarging uterus compresses the inferior vena cava and the lower aorta and decreases cardiac output, resulting in a decrease in uterine and placental perfusion, particularly when the mother is in the maternal supine position.36–38 the maternal left lateral position, when compared with any other position, has the least disturbing effect on fetal hemodynamics. An increase in uterine and placental blood flow is likely the explanation for the increase in the amniotic fluid index and fetal urine production rate observed in our study [14].

Aim of the Study: This study was aim to evaluate the effect of oral hydration versus rest in the Left Lateral Position on Isolated Oligohydramnios and pregnancy outcomes.

Justification of this Study: Sufficient amniotic fluid (AF) volume is considered to be significant for fetal well-being. The purpose of an association between oligohydramnios and poor fetal outcome requires the investigation of the factors concerned in the maintenance of AF volume and maternal hydration. The occurrence of oligohydramnios was 0.67%. Oligohydramnios is a commonly observed obstetric problem during third trimester of pregnancy. Decreased amniotic fluid volume was associated with bad perinatal outcome. Early discovery of oligohydramnios and its management may assist in decline perinatal morbidity and mortality one side and lessened caesarean deliveries on the other side.

Pregnant women with too little fluid surrounding their babies can improve this by consuming liquid. In view of the many obstetric situations in which reduced amniotic fluid volume may create problems, particularly for the fetus, the possibility of increasing amniotic fluid volume with an easy, cheap method such as maternal hydration may have helpful. Previous studies reported that women who drank extra water (Usually two liters over two hours) or had intravenous fluid dripped directly into their bloodstream (Both forms of maternal hydration) increased the volume of the fluid surrounding the fetus.

In Mansoura University, there are no previous studies conducted about any intervention done to management isolated oligohydramnios, so this study performed to evaluate the effect of maternal oral hydration and rest in left lateral position on promote the production of amniotic fluid and pregnancy outcomes in isolated oligohydramnios in third trimester.

Hypothesis: Oral hydration and rest in the left lateral position will promote the production of amniotic fluid and pregnancy outcomes in isolated oligohydramnios.

MATERIALS AND METHODS

The methodology followed for achieving the study aim elaborate four designs; technical design, operational design, administrative design and statistical design.

Technical Design: The technical design used for this study elaborate four main items: the study design, the study setting, subjects of the study and the tools used for data collection.

Study Design: Quasi- experimental research was used to conduct this study.

Study Setting: This study was conducted in the obstetrics and gynecology department of EL - Mansoura university hospital.

Type of Study: Intervention study

Type of Sample: - purposive sample

Subjects: The study comprised of 60 pregnant women complained isolated oligohydramnios in third trimester, according inclusion criteria they were recruited into the study and categorized into two equal groups: G1. Oral hydration (n= 30) and G2. Rest in left lateral position (n= 30).Group 1: They were requested to drink 2 liters of water over 2 hours. Group 2: they were rest in left lateral position over 2 hours. They were chosen according to the following criteria:

Inclusion Criteria:

- Maternal Age 20-35 years.
- Oligohydramnios: diagnosed by sonography (Defined AFV<5cm).
- Singleton Pregnancy.
- Intact membranes.
- Gestational age37 weeks to delivery time.
- Free from any diseases.
- Women did not intake of food or liquid within the preceding four hours of amniotic fluid index measurements.

Administrative Design: After clarifying the aim of the study, approval to conduct this study was obtained from the concerned authorities including the head of Obstetrics and Gynecology Department and the hospital director.

Operational Design: This design included the preparatory phase description, the pilot study and the fieldwork. The study was implemented through three phases:

Phase I: Preparatory Phase: Based on reviewing the literature the tools of data collection were prepared.

Tools of Data Collection: To achieve the aim of this study, two tools were used to collect the necessary data:-

Tool 1: A structured interviewing questionnaire

This tool was designed by researchers to include four parts as the following:

- Socio – demographic data as; age, education. ..etc.
- Question related to obstetrical history such as gravida, parity, gestational age, EDD, etc...
- Ultrasonography report such as amount of amniotic fluid before and after intervention, fetal assessment.
- Count of fetal movement (Kick count).

Tool 2: Observation checklist: It was used to detect any maternal or neonatal abnormalities such as reduce fetal movement, cesarean section, preterm labour, etc... : It was prepared by the researchers to assess pregnancy outcomes.

Period of gestation at time of delivery (Preterm - term-post term).

Induction used or not.

Characteristics of liquor.

Mode of delivery

Evaluate the pregnancy outcome by assessment and examination of neonate by:

Record Apgar score at 1 and 5 minutes.

Measure weight and height.

Newborn required incubator admission or not.....etc.

Phase II: Pilot Study: It was carried out on 10 pregnant women to evaluate the applicability and clarity of the tools and assessment of feasibility of implementing the study. The sample of women included in the pilot study were excluded from the study sample.

Phase III: Field Work: This study was applied between January to June (2014).

During the study period, the researcher attended the obstetrical and gynecological department of Mansoura University Hospital from 4 am to 8 pm for three days per week.

The researcher introduced herself to each one, the purpose of the study was explained to each woman and informed consent were taken before study.

All women in the study had the right to withdraw at any time during the study period.

Every woman in the two groups was assessed individually by using the previous mentioned tools.

Every woman was asked to follow intervention 2hours in the first interview in the presence of researcher, the researcher taught them to continuous drinking excessive fluids till time of delivery started. Every woman was followed weekly by researcher till time of delivery to evaluate the results of intervention.

Assessment The AFI of both groups was measured before interventions, at the end of two hours. The women were encouraged to keep the position for 2 hours. Any intake of foods or fluids was avoided until the sonography examination was repeated.

The pregnancy outcomes were assessed by recording the fetal movement, gestational age at delivery time, characteristics of liquor, Apgar scoring, birth weight and neonatal intensive care unit admission. In addition Induction of labor and mode of delivery.

Ethical Considerations: Ethical approval was obtained from the Research Ethics Committee of the Faculty of Nursing, Mansoura University.

Official permissions were obtained from the head of the Obstetrics and Gynecology department and the Director of Mansoura University Hospital.

The purpose of the study was clarified to the studied groups and informed consents were obtained.

Women had the right to withdraw from the study at any time and their data were secret.

Limitations of the Study: Three women were withdrawn from the study after collecting their data, so the researcher interviewed another three women to complete the sample size.

Women unsatisfied to drink 2liters through 2hours, the researcher faced difficult to encourage the cases to drink the required amount through the determined time.

Repeated ultrasound examination more than one (Pre & post oral hydration) was difficult to follow up the cases.

Statistical Design: After data were collected, it coded, organized, categorized and then transferred into especially designed formats. The statistical analysis of data was done by using SPSS program (statistical package for social science) version 20.0. The data was tabulated and presented.

RESULTS

This study was carried out to explore the effect of oral hydration and rest in left lateral position on promote the production of amniotic fluid and pregnancy outcomes in isolated oligohydramnios in third trimester. The collected data were analyzed statistically and the results were categorized into the following headings

Part I: Socio-demographic characteristics and obstetrical history of the study groups (Tables 1, 2).

Part II: The association between oral hydration, rest in left lateral position and amniotic fluid volume (Table 3).

Part III: The association between oral hydration, rest in left lateral position and pregnancy outcomes (Table 4, 5 &6).

Part IV: Follow up period of interventions related to gestational age at time of delivery among the study groups (Table 7).

Part I: Socio-demographic Characteristics and Obstetrical History of the study Groups

Table 1. Reveals that socio - demographic characteristics of the study groups. It is clear from this table that the mean age was (27.6) in oral hydration group, while in the rest in left lateral position group was (28.6). A 60.0% of the group1 were housewife compared to (66.7%) of the group2 with the same occupation state and 53.3% of the group I, 50% in group 2 were rural residence. Differences observed were not statistically significant. (Where is the test).

Table 2 shows the frequency distribution of obstetrics history items among the study groups. It is obvious that, the mean gravidity of participant's in both groups were 1.73 and 2.03 respectively. While the mean parity of participant's in both groups were 1.3 and

Table 1: Frequency Distribution of Socio - Demographic Characteristics among The Study Groups

	(GI) Oral hydration (n=30)		(GII) Left lateral position (n=30)	
Items	No.	%	No.	%
Age:				
20y	4	13.3	5	16.7
21 - 27 Y	9	30	8	26.7
28 - 34Y	10	33.3	9	30
35Y	7	23.3	8	26.7
	Mean = 27.6years		Mean = 28.6years	
Educational Level:			5	16.7
Illiterate	4	13.3	5	16.7
primary school	6	20	10	33.3
Secondary school	8	26.7	10	33.3
Graduate	12	40	30	100
Occupation:				
House wife	18	60	20	66.7
Working	12	40	10	33.3
Residence:				
Rural	16	53.3	15	50
Urban	14	46.7	15	50

Table 2: Obstetrical History among the Study Groups

	(GI) Oral hydration (n=30)		(GII) Left lateral position (n=30)	
Obstetrical History	No.	%	No.	%
Gravidity:				
Gravida 1	16	53.3	12	40
Gravida 2	8	26.7	8	26.7
Gravida 3	4	13.3	7	23.3
Gravida 4	2	6.7	3	10
	Mean=1.73		Mean=2.03	
Parity:-				
Nullipara	16	53.3	12	40
Para 1	8	26.7	8	26.7
Para 2	4	13.3	7	23.3
Para 3	2	6.7	3	10
	Mean=1.3		Mean=1.4	
Gestational weeks				
37 wks	7	23.3	9	30
38wks	12	40	10	33.3
39wks	5	16.7	4	13.3
40wks	4	13.3	4	13.3
41wks	2	6.7	3	10
Mean = 38.4 wk	Mean = 38.4wk			

Table 3: Amniotic fluid volume pre and post interventions of oral hydration and rest in left lateral position among the study groups

	(GI) Rest in Left Lateral Position (n=30)		(GI) Oral Hydration (n=30)	
Amniotic fluid volume	No.	%	No.	%
Pre- interventions:				
<3cm	2	6.7	3	10
AFI (3cm).	2	6.7	3	10
AFI(4cm).	13	43.3	10	33.3
AFI(5cm).	13	43.3	14	46.7
Post- interventions:				
AFI <5cm	2	6.7	1	3.3
AFI 5cm.	1	3.3	2	6.7
AFI 6cm.	2	6.7	4	13.3
AFI 7cm.	3	10	3	10
AFI 8cm.	6	20	7	23.3
AFI 9cm.	6	20	6	20
AFI 10cm.	6	20	4	13.3
AFI >10cm.	4	13.3	3	10
Amniotic fluid volume	Oral hydration		Rest in Left lateral Position	
Pre -intervention (mean ± SD)	4.2±0.614		4.4±0.662	
Post -intervention (mean± SD)	8.6±0.725		8.3±0.738	
t	-25.367		-21.546	
Sig.	.000*		.000*	

Table 4: Fetal movement pre and post interventions of oral hydration and rest in left lateral position among the study groups

	(GI) Oral hydration (n=30)		(GI) Rest in Left lateral Position (n=30)	
Fetal Movement	No.	%	No.	%
Pre- Intervention				
<5kick	17	56.7	14	46.7
5 - 10 kick	13	43.3	16	53.3
Post - Intervention				
<5kick	9	30	6	20
5 - 10 kick	21	70	24	80
Chi-Square (c2)	4.344		4.8	
Sig.	0.037*		.028*	

Table 5: Induction of labor, liquor and mode of delivery pre- and post - interventions of oral hydration and rest in left lateral position among the study groups

	(GI) Oral hydration (n=30)		(GII) Left lateral position (n=30)			
Items	No.	%	No.	%	(χ^2)	Chi-Square Sig.
Induction:						
Required	5	16.7	3	10	0.577	0.353
Not- Required	25	83.3	27	90		
Liquor:						
Clear liquor	19	63.3	20	66.7	0.078	0.962
Abnormal liquor	11	36.6	10	33.3		
Mode of Delivery:-						
Normal Vaginal Delivery	18	60	17	56.6	3.444	0.179
Assisted vaginal delivery	3	10	8	26.7		
Cesarean Section	9	30	5	16.7		

Table 6: Gestational age at time of delivery, Apgar scoring and birth weight among the study groups

	(GI) Oral hydration (n=30)		(GII) Left lateral position (n=30)			
Items	NO.	%	NO.	%	Chi-Square (χ^2)	Sig.
Gestational age at time of delivery:						
37wk	3	10	4	13.3	1.217	0.875
38 wk	2	6.6	3	10		
39wk	15	50	11	36.7		
40wk	8	26.7	9	30,0		
41wk	2	6.7	3	10		
APGAR Scoring:-						
APGAR. Score at 5min = <7	11	36.7	6	20	2.052	0.126
APGAR . Score at 5min = >7	19	63.3	24	80		
Birth Weight:-						
LBW <2500gm	6	20	5	16.7	0.114	0.945
2500 gm - 3000gm	21	70	22	73.3		
>3000gm	3	10	3	10		
Incubator admission	9	30	6	20	0.8	0.276
Required	21	70	24	80		

Not- Required

Table 7: Follow up period of interventions related to gestational age at time of delivery among the study groups

		(GI) Oral hydration (n=30)		(GII) Left lateral position (n=30)	
Period of follow up interventions	Gestational Week at Delivery	No.	%	No.	%
One week:	37wks	3	10.0	4	13.3
	41wks	2	6.7	3	10.0
Two week	38 wks	2	6.7	3	10.0
Three week	39 wks	15	50.0	11	36.7
Four week	40 wks	8	26.6	9	30.0

1.4 respectively. Regarding gestational weeks in both groups were 38.4. Differences observed were not statistically significant.

Part II: The association between oral hydration, rest in left lateral position and amniotic fluid volume (Table 3).

Table 3: As regards oral hydration and rest in left lateral position which used to increase amniotic fluid volume, this table show that the majority of cases of isolated oligohydramnios of the studied groups were (90%) amniotic fluid improvement (<5cm) after interventions, while a small percentage of cases(10%) amniotic fluid were not improvement after interventions(>5cm). There is statistically significant difference between the pre-interventions amniotic fluid volume and post- interventions amniotic fluid volume for both groups.

Part III: The association between oral hydration, rest in left lateral position and Pregnancy Outcomes (Table 4, 5 &6).

Table 4: demonstrates fetal movement of the studied groups. Thetable reveals that the fetal movement (<5 kick) pre- intervention in both groups was (56.7% & 46.7%); while post intervention become (30.0% & 20.0%). The fetal movement (5-10 kick) pre- intervention in both groups was (43.3% & 53.3%); while post intervention become (70.0% &80.0%). However the relation between them wasn't significant (X 2 =4.344 &4.800 p = 0.037 &. 028).

Table 5 shows that induction of labor, liquor and mode of delivery among oral hydration and left lateral position groups. Regarding induction of labor the majority of participants in both groups were (83.3% and 90.0%) respectively not required induction. In relation to liquor characteristics the clear liquor was (63.3% and 66.7%). It is obvious from this table that mode of delivery that normal vaginal delivery, was 60.0% in oral hydration and 56.6% left lateral position group. While cesarean section in oral hydration group was (30.0%) it was 16.7% in left lateral position group. The differences observed were statistically significant (p=0.0andX2= 3. 444).

Table 6. From the table it is clear that there is no significant difference between the two groups of the study on the all the variables at significant level 5%, since the P- Value was more than the significance level.

Table 7. Reveals that (16.7%) followed for one week,(6.7%) two weeks,(50.0%) three week and (26.6)fourth week in oral hydration group. while follow up period in group Left lateral position were (23.3%) followed for one week,(10.0%) two weeks,(36.7%) three week and (30.0%)fourth week in oral hydration group. In addition the above table reveals that 50% of oral hydration group were deliver at 39 weeks compared to 36.7% of left lateral position group, while 26.6% of hydration group were delivered at 40 weeks compared to 30% of left lateral position group respectively

DISCUSSION

The present study was aiming to explore the effect of oral hydration and rest in left lateral position on amniotic fluid volume and pregnancy outcomes in isolated oligohydramnios. This aim was significantly supported with the current study hypothesis.

The present study was conducted on two equal groups and both were almost similar regarding the general characteristics with no statistically significant differences. In addition, the present study findings showed that there were no significant differences among two groups regarding AFI baseline pre intervention; while after interventions there were significant differences for both groups about pre interventions. Accordingly, the study hypothesis is accepted.

The present study findings indicated that asking the pregnant women to drink two liters fluids and rest in left lateral position were associated with increasing amount of amniotic fluids among the study groups and promote pregnancy outcomes. Such finding is consistent with the finding of Hofmeyr *et al*. [7] & Bangal *et al*. [15] their study about Maternal hydration for increasing amniotic fluid volume in oligohydramnios and normal amniotic fluid volume, they had reported that the mothers' blood volume plays an important role in maintaining the amniotic fluid volume. Hydration status and maternal plasma osmolarity can also alter amniotic fluid volume. These findings indicated that the problem of oligohydramnios was more common in the later part of pregnancy. It is mainly due to physiological or pathological causes of reduced placental perfusion near term. Also the current study found that most common cause of Oligohydramnios is idiopathic was most common in maternal age28-35 & 20-27 years. This result confirmed by Krishna *et al*. [10] in their study about maternal and fetal outcome in oligohydramnios, they found that most common cause of Oligohydramnios is idiopathic and mean maternal age 23.66 years. As regard Incidence of oligohydramnios in the present study was more than half in primipara and primigravida while less incidence in gravida four.

Concerning amount of amniotic fluid, the results of the present study indicated that, significant relationship was found between oral hydration interventions and rest in left lateral position for improvement of amniotic fluid volume and establishment the pregnancy outcomes in pregnancies complicated by isolated oligohydramnios. In agreement with the current study finding, Magann *et al*. [16] conducted a study about effect of maternal hydration on amniotic fluid volume their results were, reported elevated levels of amniotic fluid index after IV hydration using isotonic solution. This result was supported by Brian & Ted [13] carried out a study about Polyhydramnios and Oligohydramnios, they mentioned thatoral hydration, by asking the women to drink 2 liters of water, increased the AFI. In singleton pregnancies where oligohydramnios is present without maternal and fetal complications, evidence exists that either oral or intravenous maternal hydration (1500 – 2500 ml/day)is associated with improvement in AFI. This is in

accordance with, Aneela [17] who performed study about intravenous versus oral maternal hydration therapy for increasing amniotic fluid volume, stated that maternal hydration increased amniotic fluid volume in intravenous hydration ; as well as in oral hydration group. Maternal hydration was associated with decrease in urine specific gravity in both groups.

In the same line, Patrelli [18] in their study about maternal hydration therapy improves the quantity of amniotic fluid and the pregnancy outcome in third trimester isolated oligohydramnios: a controlled randomized institutional trial, concluded that an amniotic fluid index of <5 cm detected after 37 completed weeks of gestation is an indicator of poor perinatal outcome. This goes in line with the finding of Hofmeyr *et al*. [7] suggested that maternal hydration in women with and without oligohydramnios was associated with an increase in amniotic volume mean difference for women with oligohydramnios and mean difference for women with normal amniotic fluid volume. Intravenous hypotonic hydration in women with oligohydramnios was associated with an increase in amniotic fluid volume. Isotonic intravenous hydration had no measurable effect. Moreover, Nahed Lorzadeh *et al*. [19] carried out a study about comparison of the effect of oral and intravenous fluid therapy on women with oligohydramnios,they revealed that maternal hydration with oral water was more effective than other groups. In addition, Umber and Chohan [20] found that maternal hydration increased amniotic fluid volume in women with oligohydramnios. Ghafarnejad *et al*. [21] and Ulker & Ciçek [22] conducted study to explore the effect of oral hydration therapy on isolated oligohydramnios cases & perinatal outcome, they concluded that oral hydration therapy improves the amniotic fluid volume in isolated oligohydramnios cases but requires continuous therapy for long time to improve the neonatal outcome.

This study showed a significant amniotic fluid index increased during maternal rest in the left lateral decubitus position. The result of the current study was in agreement with Ülker *et al*. [14] the purpose of their study was to determine the effect of the maternal left lateral decubitus position and rest on the fetal urine production rate they found that results indicated a significant increase in the amniotic fluid index. The mean fetal urine production rates before and after the rest periodwere in fetal urine production. In addition, Maria [23], with objectives for their study was to assess the relationship between amniotic fluid volume changes and the duration of maternal rest in the left lateral decubitus position. The principle finding of their study was that the estimated amniotic fluid volume increase with maternal rest in the left lateral decubitus position follows the pattern of a saturation curve. The increase was maximal at the beginning; however, it is saturated as the position is maintained. In agreement with Sowmya *et al*. [24] in their study about effect of maternal hydration on the amniotic fluid volume during maternal rest in the left lateral decubitus position, they concluded that, maternal rest in the left lateral decubitus position with hydration and maternal rest in the left lateral decubitus position alone cause similar increases in the estimated amniotic fluid volume.

As regard pregnancy outcomes, the finding of the present study indicated that there was increased rate of not required induction of labor by intervention conducted by the researcher in this study. Furthermore Linli [25] revealed in his study about what is the evidence for induction for low amniotic fluid in a healthy pregnancy? that there is no evidence that inducing labor for isolated oligohydramnios at term has any beneficial impact on mother or infant outcomes. Based on the lack of evidence, any recommendation for induction to isolated oligohydramnios at term would be a weak recommendation based on clinical opinion alone. This study founded that, the Apgar score was noted at 1 and 5 minutes after birth. Sixteen babies (16%) had low Apgar score (Less than 7 at 5 min). Three babies with low Apgar score were delivered by caesarian section. In a similar study by Bangal *et al*. [15] reported of better Apgar score (63%) and lesser NICU (70%) admission. At birth (36.6%, 20%) of babies had APGAR < 7 in severe oligohydramnios group (AFI < 5) while only 32% in cases with decreased liquor group (AFI 6-8). In the present study, four babies were admitted in NICU for further management. Three babies were delivered by caesarean section and one by vaginal route. It was obvious from result of this study that most common reason to perform caesarean was decrease fetal movement (<5kicks) which was either due to cord compression or IUGR and fetoplacental insufficiency by Doppler study. Oligohydramnios was related to higher neonatal intensive care unit and operative cesarean section was also more in primipara. Most common reason to perform caesarean was decrease fetal movement. Oligohydramnios was related to higher rate of growth retardation and NICU (Neonatal intensive care unit) admission. krishna *et al*. [10] and Bangal *et al*. [15] reported of 44% of Cesarean rate. Similar kind of results was there in our study with 30% cesarean rate. It is clear from the present study

that the cases in which AFI improved to 7cm (83%) and above after oral hydration had higher vaginal delivery rate(60%),

Concerning the mode of deliverytwo thirds of women's in group 1 (60%) had normal vaginal delivery compared to (56.6%) of women's in group 2. This is explained by the fact that mode of delivery in IO associated with interventions which performed such as maternal hydration and rest in left lateral position. Yan-Rosenberg *et al*. [26] their study about the effect of isolated oligohydramnios in otherwise normal term pregnancy, found that the rate of caesarean section was 68% in the group with oligohydramnios and 28% in the group with normal liquor volume. The difference was significant. This result similar to Bangal *et al*. [15] who reported of 44% of cesarean rate. In addition, Maria [23] his study about polyhydramnios and oligohydramnios treatment &management, he found that either oral or intravenous maternal hydration (1500 – 2500 ml/day) is associated with a 20–30% improvement in reduction in cesarean delivery. Krishna *et al*. [10] reported that most common reason to perform caesarean was fetal distress which was either due to cord compression or IUGR. 7% patients were found with fetoplacental insufficiency on Doppler study. Oligohydramnios is recurrent incidence and demands intensive fetal examination and appropriate antenatal and intranatal care. Due to intrapartum complication and high rate of perinatal morbidity and mortality, rates of caesarean section are rising, but decision between vaginal delivery and caesarean section should be well balanced so that unnecessary maternal morbidity prevented and other side timely intervention can reduce perinatal morbidity and mortality. Similar kind of results was there in our study with 30% cesarean rate.

As regard prenatal outcomes the current study showed that fetal movement"<5 kick" Before intervention was more than half versus one third after intervention while in group rest in left lateral position was fetal movement"<5 kick" less than half before intervention versus (20.0%) after intervention, this results indicated that intervention of this study improved fetal movement. It is clear from the present study that the cases in which AFI improved to 7cm (83%) and above after oral hydration had higher vaginal delivery rate(60%), abnormal liquor (33.3%), better Apgar score(63%) and lesser NICU(70%) admission. At birth (36.6%, 20%) of babies had APGAR <7 in severe oligohydramnios group (AFI < 5) while only 32% in cases with decreased liquor group (AFI 6-8).Similar results are shown by Patrelli [18] study about maternal hydration therapy improves the quantity of amniotic fluid and the pregnancy outcome in third trimester isolated oligohydramnios: a controlled randomized institutional trial, results of the study showed that the selected outcomes showed significant variations in both groups. There were increased chances of thick meconium, low Apgar score at 5 min.,birth weight <2.5 kg, admission to NICU, congenital anomalies & neonatal mortality(Statistically not significant). Krishna *et al*. [10], Oligohydramnios was related to higher rate of growth retardation and NICU (Neonatal intensive care unit) admission [26]. The fetal outcome as assessed by the Apgar score and the neonatal intensive care unit admission rate were not different in between the two groups. There were no perinatal deaths in either of the two groups. Maternal age, parity, gestational age and birth weight were not significantly different between the two groups. The AFI increased significantly in both treatment and placebo groups. Moreover, the changes in AFI did not significantly differ between the treatment and the placebo groups.

CONCLUSIONS

Maternal hydration and left lateral position increase amniotic fluid volume and are useful in the management of oligohydramnios.

Recommendation

Pregnant women complaining insufficient amniotic fluid in third trimester should be instructed about the important of oral hydration and rest in left lateral position to increase amniotic fluid index.

REFERENCES

1. Linda, J. and Z. David, 2011. Amniotic fluid. Available at: http:// .nlm.nih.gov/ medlineplus/ ency/ article/02220.htm.
2. Rebecca, D., 2012. What is the Evidence for Induction for Low Amniotic Fluid in a Healthy Pregnancy? Available at: http:// www.scienceandsensibility.org/?
3. Mahnaz Shahnazi1, Manizheh Sayyah Meli, Fariba Hamoony, Farnaz Sadrimehr, Fatemeh Ghatre Samani and Hossein Koshavar, 2012. The Effects of Intravenous Hydration on Amniotic Fluid Volume and Pregnancy Outcomes in Women with Term Pregnancy and Oligohydramnios: A Randomized Clinical Trial Journal of Caring Sciences, 1(3): 123-128.
4. Thomas, S. and B. Ana, 2014. Hydrotherapy for the Reversal of Oligohydramnios (STRONG). Available at: ClinicalTrials.gov Identifier: NCT01682928. verified January.

5. Maria, L. and L. Elizabeth, 2007. Oligohydramnios at Term: A Case Report. J Midwifery Women's Health, 52(1): 73-76.
6. Thomas, S., 2013. Hydrotherapy for the Reversal of Oligohydramnios (STRONG). Clinical Trials.gov processed.
7. Hofmeyr, G.J., A.M. Gülmezoglu and N. Novikova, 2012. Maternal hydration for increasing amniotic fluid volume in oligohydramnios and normal amniotic fluid volume. Cochrane Database of Systematic Reviews, Issue 1. Art. No.: CD000134. DOI: 10.1002/ 14651858.CD000134
8. Moore, R., 2011. The role of amniotic fluid assessment in indicated preterm delivery. Available at: trmoore@ucsd.edu Copyright © Elsevier Inc. All rights reserved).
9. Elsandabesee, D., S. Majumdar and S. Sinha, 2007. Obstetricians' attitudes towards 'isolated' oligohydramnios at term. J Obstet Gynaecol. Aug, 27(6): 574-6.
10. Krishna, J., S. Nisha and P. Sachin, 2013. Maternal and fetal outcome in oligohydramnios- Study of 100 cases.Int J Med Sci Public Health, 2(3)pp.724-727
11. Schwartz, N., R. Sweeting and K. Young, 2009. Practice patterns in the management of isolatedoligohydramnios: a survey of perinatologists. J. Matern Fetal Neonatal Med., 22(4): 357-61.
12. Borges, V., 2011. Effect of maternal hydration on the increase of amniotic fluid index. Braz J. Med. Biol. Res., 44(3): 263-6.
13. Brian, S. and R. Ted, 2012. Polyhydramnios and Oligohydramnios Treatment & Management. Available at: WebMD LLC.http:// reference.medscape.com/ article/975821-treatment.
14. Ulker, K., A. Gül and M. Ciçek, 2012. Correlation between the duration of maternal rest in the left lateral decubitus position and the amniotic fluid volume increase. J. Ultrasound Med., 31(5): 705-9.
15. Bangal, V.B., P.A. Giri and B.M. Sali, 2011. Incidence of oligohydramnios during pregnancy and its effects on maternal and perinatal outcome. Journal of Pharmaceutical and Biomedical Sciences (JPBMS), 12(12): 1-4.
16. Magann, E.F., D.A. Doherty, S.P. Chauhan, S.P. Barrilleaux, L.A. Verity and J.N. Jr. Martin, 2003. Effect of maternal hydration on amniotic fluid volume. Obstet Gynecol, 101(6): 1261-5.
17. Aneela, U., 2010. Intravenous versus Oral Maternal Hydration Therapy for Increasing Amniotic Fluid Volume. Annals of King Edward Medical University, 16(1): 336-339.
18. Patrelli, S., 2012. Maternal hydration therapy improves the quantity of amniotic fluid and the pregnancy outcome in third-trimester isolated oligohydramnios: a controlled randomized institutional trial. J. Ultrasound Med., 31(2): 239-44.
19. Nahed Lorzadeh, Sirous Kazemirad, Mina Lorzadeh and Sahid Najafi, 2008. Comparison of the Effect of Oral and Intravenous Fluid Therapy on Women with Oligohydramnios.Research Journal of Obstetrics and Gynecology, 1: 25-29.
20. Umber, A. and A. Chohan, 2007. Intravenous maternal hydration in third trimester oligohydramnios: effect on amniotic fluid volume. J Coll Physicians Surg Pak. 17(6): 336-9. Ghafarnejad, M, MB Tehrani, FB Anaraki, NI Mood and L. Nasehi, 2009.Oral hydration therapy in oligohydramnios. J Obstet Gynaecol Res., 35(5): 895-900.
21. Ghafarnejad, M., M.B. Tehrani, F.B. Anaraki, N.I. Mood and L. Nasehi, 2009. Oral hydration therapy in oligohydramnios. J Obstet Gynaecol Res., 35(5): 895-900.
22. Ulker, K. and M. Ciçek, 2013. Effect of maternal hydration on the amniotic fluid volume during maternal rest in the left lateral decubitus position: a randomized prospective study. J Ultrasound Med, 32(6): 955-61.
23. Maria, B., 2010. Changes in amniotic fluid index after maternal oral hydration in pregnancies with fetal gastroschisis: initial observations. Fetal Diagnosis And Therapy, 28(2): 87-91.
24. Sowmya, S., V. Betty and B. Umashankar, 2014. Effect of isolated oligohydramnios in otherwise normal term pregnancy.International Journal of Biomedical Research, 5(2).
25. Linli, R., 2007. Randomized clinical trial comparing the effect of maternal intravenous hydration and placebo on the amniotic fluid index in oligohydramnios. The Journal of Maternal Fetal Neonatal Medicine, 20(10): 715-718.
26. Yan-Rosenberg, L., B. Burt, A.T. Bombard, F. Callado-Khoury, L. Sharett, K. Julliard and Z. Weiner, 2007. A randomized clinical trial comparing the effect of maternal intravenous hydration and placebo on the amniotic fluid index in oligohydramnios. J. Matern Fetal Neonatal Med. Oct, 20(10): 715-8.