Determine the Causes Low Amniotic Fluid for Pregnant Women

Sarah Talib Kadhim[1], Nuha Adel Ibrahim[2], Oday Faris Washeel[3], Asraa Salih[4]

[1]Instructor, University Thi-Qar, [2]Instructor, Dr., Baghdad University, College of Nursing, Maternity and Neonatal Health Nursing Department, [3]Instructor, Dr., Pediatrics Nursing Department, Ernity and Neonatal Health Nursing Department College of Nursing, Al-Muthanna University, [4]RN., College of Nursing, Al-Muthanna University

Abstract

Objective of Study: To determine the causes of low amniotic fluid for pregnant women

Methodology: A descriptive study was carried out on (100) pregnant and post pregnant women had diagnosis with low amniotic fluid in Bint Al-Huda Hospital for the period from (3 March to 11April 2019). Validity and reliability of questionnaire are determined through pilot study. Descriptive and inferential statistical procedures were used to analyze the data, and the data were collected by using interview technique, constructed questionnaire designed and developed for the purpose of the study.

Results: Results of the study showed that the highest percentage of the study sample were within the age group (20-25 years). And (44%) of the study sample were graduated from secondary school and more than half of the study sample were housewife, and residents in urban areas. 41% of the study sample of the current pregnancy duration were (32-36), the interval between the last pregnancy and current one year to two years, (76%) of the study sample have multigravida and have no history of previous abortion. And that the cause of low amniotic fluid from a medical point is the (35%) due to pregnancy induced hypertension, (25%) of the study sample due to Premature rupture of membranes (PROM) and (20%) of the study sample due to placental problems.

Keywords: *Determine, Causes,Low Amniotic Fluid, Pregnant Women.*

Introduction

The fluid that collects within the amniotic cavity surrounding the embryo is called amniotic fluid. Hippocrates was the first person to attribute the development of amniotic fluid to fetal urine. Fetal urination is the major source of amniotic fluid, once the fetal kidney function begins at 10 -12 weeks[1]. Fetal lung fluid is a minor contributor of amniotic fluid[1] Amniotic fluid volume rises progressively until 32 weeks of gestation. From 32 weeks to term the mean amniotic fluid volume is relatively constant about 600-800 ml. After 40 weeks, there was a gradual decrease in the amount of amniotic fluid volume by about 400 mL in 42 weeks. Amniotic fluid is removed by fetal swallowing. Normal amniotic fluid volume is critical for normal fetal growth and development.[1] Amniotic fluid (AF) is marvelously dynamic milieu constantly in a transformation as pregnancy progresses. A number of nutrients and growth factors present in AF assist growth of fetus, acts as a cushion and antimicrobial properties allow fetal protection.[2] Low in amniotic fluid amount has been associated with increased risk of intrauterine growth retardation, meconium aspiration syndrome, severe birth asphyxia, low APGAR scores and congenital abnormalities. Low amniotic fluid is also associated with maternal morbidity in the form of increased rates of induction and/or operative interference.[3] Low Amniotic fluid is defined as AFI ≤5 cm or less than the 5th percentile. It can occur at any time during pregnancy but is more common during the last trimester. Whenever there is continuation of pregnancy beyond 2 weeks of expected date of delivery, she may be at risk for low amniotic fluid levels since fluid can decrease by half onceshe reaches 42 weeks gestation Low Amniotic fluid can complicate 12% of pregnancies that continue beyond 41 weeks[14]. It is defined as a single pocket of

amniotic fluid measuring < 2 cm in both vertical and horizontal planes in ultrasound and amniotic fluid index (AFI)[12] Sometimes it's difficult to rule out the cause of low Amniotic fluid giving it idiopathic nature[13] Amniotic fluid forms from the fetal urine so, obstruction in fetal urinary tract can lead to oligohydramnios. Low amniotic fluid levels during the first or second trimester may associates with some fetal abnormalities[20] Several factors like leaky or ruptured amniotic membranes, fetal abnormalities, genetic factors, maternal illness, nutrition status, carrying twins, NSAIDs like indomethacin and certain ACE (angiotensin converting enzyme) inhibitors may play a crucial role [7] Early detection of oligohydramnios and its management may help in reduction of perinatal morbidity and mortality one side and decreased caesarean deliveries on the other side.[3] Low Amniotic fluid may inhibit these processes and can lead to fetal deformation, umbilical cord compression and death.[10] In contrast, a study conducted at University of Milano-Bicocca, Monza, Italy among 3050 women who underwent sonographic assessments of AFI after 40.0 weeks showed low Amniotic fluid of 11.18%.

Methodology

Design of the Study: A descriptive study was carried out on (100) pregnant and post pregnant women had diagnosis with low amniotic fluid in Bint Al-Huda Hospital for the period from (3 March to 11 April 2019).

Settings of the Study: The present study is conducted in Thi-Qar Governorate; Bint Al-Huda Teaching Hospital.

Sample of the study: which include:

1. **Inclusion Criteria are:** A purposive" Non-probability" sample of (100) pregnant women and post pregnant women had diagnosis with low amniotic fluid, were distributed in different unit of Bint AL Huda hospital units certain criteria are included for choosing the, and they are:

Pregnant women hospitalized and hadlow amniotic fluid (27- 40) wk, for treatment and monitoring baby (prenatal care).

a. Delivered woman who receiving care both for mother and neonatal postnatal care).

2. **Exclusion Criteria are:** The pregnant women without diagnosis with low amniotic fluid.

Instrument that Used for Data Collection:

The study instrument from consisted three parts according to the study's objectives which were distributed through the following:

Part I: Sociodemographic data: Which include the following variables (age, Wife Education level, and Wife Employment, Residency and Socioeconomic status from family point of view?).

Part II: Reproductive characteristics: Which are related to(Current pregnancy duration (weeks), Interval between last pregnancy and current pregnancy(months), Gravidity, Number of live birth, Number of abortion).

Part III: Questions Related low amniotic fluid Causes:

1. Medical diagnosis of current low amniotic fluid

Results

Table (1): Distribution of Study Sample According to Reproductive Characteristics.

Variables	F	%
Current pregnancy duration (weeks)		
28---29	10	10 %
30---31	15	15 %
32---36	41	41 %
37-40	24	24 %
>40	10	10 %
Interval between last pregnancy and current pregnancy (months)		
<12	20	20 %
12---	40	40 %
24---	36	36 %
=>36	4	4 %
Gravidity		
Multigravida	76	76 %
Primigravida	24	24 %
Number of live birth		
More than one	88	88 %
One	12	12 %
Number of Abortion		
No	69	69 %
One	18	18 %
Two	9	9 %
Three & more	4	4 %

*F = Frequency, % percentage

Table (1) shows that highest percentage 41% of the study sample of the current pregnancy duration were (32-36) weekswhile the 10% lowest percentages of them were, (28-29) weeks. Regarding the interval between last pregnancy and current pregnancy the highest percentage (40%) of the study sample have interval period between last and current pregnancy for one year to two years, while the lowest percentage (4%) of them have (=>36) month. Regarding the gravidity the highest percentages (76%) of the study sample have multigravida, while the lowest percentages (24%) of them have primigravida. Concerning the number of live birth the highest percentage (88%) of the study sample were more than one, while the lowest percentages (12%) of them were one. Regarding the number of Abortion, the highest percentage (69%) of the study sample have no history of previous abortion, while the lowest percentage (4%) of them have three and more time abortion.

Table (2): Distribution of Study Sample According to Characteristics of the current pregnancy.

Variables	F	%
Medical diagnosis of current Low Amniotic Fluid		
Birth defects such as a kidney or urinary tract problem	2	2%
Placental problems	20	20%
Premature rupture of membranes (PROM)	25	25%
Postdate pregnancy	10	10%
Pregnancy Induced hypertension	35	35%
Diabetes	8	8%

*F = Frequency, % percentage

Table (2) shows that the highest percentage (35%) of the study sample had low amniotic fluid due to pregnancy induced hypertension, (25%) of the study sample due to Premature rupture of membranes (PROM) and (20%) of the study sample due to placental problems, while the lowest percentage (2%) of them were due to birth defects such as a kidney or urinary tract problem and (8%) of them were due todiabetes.

Discussion

Age of the study sample: Table (1) shows the highest percentage (56%) of the study sample is within age group (20- 25) years, while the lowest percentages (10%) of them is less than >30 years. This result agrees with Radha (2017). Who reports that 45.9% of the respondents were in the age group of 21-25 years and 6.8% were above 30 years the maternal age over 30 years. Comparable with the finding of Nazlima et al., (2015)[20] where 46.15% of pregnant women were between 21-25 years age group. Our findings are also in accordance with Vidhydhar et al., (2016) where 78% cases were in the age group of 20-29 years. This result agrees with Sayeda & Hajira (2015). Who reports that67% of patients were in 20-25 years age group and 23% patients were in 26-30 years age group. Thus, maximum patients were in 20-30 years age group.

Education Level: The wife education at level. The highest percentages (44%) of the study sample were graduated from secondary school, and the lower percentages (10%) of them were graduated from Intermediate school.

Employment: The study results reveal that the wife employment highest percentage (67%) of the study sample are housewives, while the lowest percentage (33%) of them are Government employee as show in table (1). These findings are is consistent with Grote, et al., (2017), who stated that women's work during pregnancy may have an impact on their health and on the validity of the fetus, especially the risk of low birth weight (LBW) and preterm labor

Residency: The highest percentages (75%) of the study sample are resident of was urban area, while (25%) of them live in rural area. as shown in table (1). These findings disagree with Kambala, et al., (2015), who reported that (60.4%) of pregnant women with low amniotic fluid live in rural areas, because the higher parity is more often encountered in the rural population.

Current pregnancy duration (weeks): The study result revealed that highest percentage 41% of the study sample of the current pregnancy duration were (32-36) weeks while the 10% lowest percentages of them were, (28-29) weeks.

Interval between last pregnancy and current pregnancy: The study result reveals that the pregnancythe interval between last pregnancy and current pregnancythe highest percentage (40%) of the study sample have interval period between last and current pregnancy for one year to two years, while the lowest percentage (4%) of them have (=>36) month, as shown in table (2). This finding is in accordance with the study of Madhavi & Rao, (2015) where incidence of low amniotic fluid was 40% high among post term pregnancies (40->42 weeks). Mohamad, (2015) revealed

that women in the low amniotic fluid group were significantly ($p<0.002$), less likely to have lower mean weeks of gestation compared to those in the control group (38.9±1.3 vs.39.4 ±0.9 respectively)

Gravidity: The study finds that the highest percentages (76%) of the study sample have multigravida, while the lowest percentages (24%) of them have primigravida, as shown in table (2). This result disagrees with Petrozella et al., (2016), the incidence of oligohydramnios was 60% in primigravida.

Number of live birth: The study finds that the highest percentages (88%) of the study sample were more than one, while the lowest percentages (12%) of them were one as shown in table (2). Bahar, et al. (2017) reported that women with parity greater than four and nearly nine times have more chance of low amniotic fluid than those with of less parity.

Number of abortion: The highest percentage (69%) of the study sample have no history of previous abortion, while the lowest percentage (4%) of them have three and more time abortion, as shown in table (2). It is estimated that each year, worldwide 40- 70 per 1000 women of reproductive age have an abortion and that between one- fifth and one – third of all pregnancies are terminated (Royston and Armstrong, 2015)

Medical causes of Low amniotic fluid: The highest percentage (35%) of the study samplehad low amniotic fluid due to pregnancy induced hypertension, (25%) of the study sample due to Premature rupture of membranes (PROM) and (20%) of the study sample due to placental problems, while the lowest percentage (2%) of them were due to birth defects such as a kidney or urinary tract problem and (8%) of them were due to diabetes. Jagatia, et al., (2015) reported that most common cause of low amniotic fluid is idiopathic (52%). Second commonest cause is PIH (25%). Operative morbidity is highest in PIH (60%). Sharma et al., (2016) reported 71% of oligohydramnios cases were associated with antenatal complications such as PIH 39%, IUGR 29%, PROM 15%, Abruptio placenta 15%, compared to 36% in control group. Bansa et al., (2017)[5] reported 21% PIH, 55% anemia. Reddy et al., (2018) reported Anemia in 42.67%, PIH in 25.33%. Vidyasagar, et al., (2017)[25] reported PIH in 17.07%, IUGR in 46.34% in study group. Bhat et al., (2015)[6] reported PIH in 33.3%, post-datism in 50%.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Maternity and Neonatal Health Nursing Department and all experiments were carried out in accordance with approved guidelines.

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