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Incidence of anemia among pregnant women attending at primary health care center in Jazan in 2011- 2012

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Abstract:
Anemia during pregnancy is one of the major public health problem in developing and developed country .It is a serious problem that affect negatively on mother health by increase the risk of maternal mortality, risk of infection, postpartum hemorrhage. It also affect fetus health by being born with low weight and sometime losing the fetus. So we consider the pregnant lady one of the most important member in community .We discusses one of the most risk factor that affect pregnant health.The main objective of the study is to determine the incidence of anemia among pregnant women attending primary health care center in past two years in Jazan city and Al Madaya to compare between rural and urban areas. We take 400 pregnant women from secondary data in primary health care center and cross sectional study was used by filling data to determine the incidence of anemia among pregnant women in Jazan region. These pregnant women was chosen from age 15 to 50 years old (reproductive age). We filled up the sheet containing three parts .The first part about personal data like mother's age, mother's occupation, mother's weight, body mass index (BMI). The second part was about pregnancy data as follow up, number of pregnancy, number of parity, number of living children, number of abortion and using of contraceptive methods and spacing between previous and present pregnancy and baby weight. The final part about presence of anemia with the level of hemoglobin , type of anemia ,intake of iron and folic acid supplement and history of any blood transfusion.
Keyword *:Anemia , family planning ,pregnancy , women health .*

1. INTRODUCTION

Anemia during pregnancy is a very common and preventable problem. It remains a major contributing factor to maternal morbidity and mortality. It is also associated with high peri-natal mortality rates [1].

Anemia is defined as a decrease of the hemoglobin concentration with a consequent decrease in the hematocrit level, is a common disorder complicating pregnancies and is mostly due to iron deficiency. The increase of iron requirements, plasma volume, and the poor intake of iron constitute the principal causes of this deficiency. [2] During pregnancy there is an increase in both red cell mass and plasma volume to accommodate the needs of the growing uterus and fetus. The plasma volume increases more than the red cell mass leading to a fall in the concentration of hemoglobin in the blood, despite the increase in the total number of red cells, this drop in hemoglobin concentration decreases the blood viscosity and it is thought this enhances the placental perfusion providing a better maternal-fetal gas and nutrient exchange.

There is controversy about the significance of this physiological haemodilution of pregnancy for women and their babies and at what level of hemoglobin they would benefit from iron treatment. Dietary supplementation which contains iron is effective in shifting of Hb level to non-anemic status. [3]

Anemia in pregnancy constitutes a major public health problem in developing countries and a high morbidity and mortality among antenatal mothers. The average mortality attributed by anemia in Asia is estimated as 7.26%. Most of anemia in pregnancy are due to iron deficiency. It has been known contributes a risk to the fetus for preterm delivery, subsequent low birth weight, and inferior neonatal health. [4]Anemia amongst antenatal mothers is a worldwide health problem. Its prevalence in Africa was 57.1 % (95 % CI 52.8–61.3), South-East Asia was 48.2 % (95 % CI 43.9–52), Europe was 25.1 % (95 % CI 8.6–31.6), Western Pacific was 30.7 (95% CI 18.6–3) and 41.8% (95 % CI 39.9– 43.8) worldwide for the year 1993 to 2005 affecting 56 million pregnant women. In Malaysia, the prevalence was 35% and mostly of the mild type and more prevalent in the Indian and Malays communities. [4].

World Health Organization (WHO) has categorized and emphasized on the significant health consequences based on the prevalence of the anemia. If the prevalence of anemia is 4.9% or less, it is considered as no public health problem for that country. The prevalence of anemia between 5.0% and 19.9% indicates a mild public health problem. Moderate public health problem is been considered when the prevalence is between 20.0% and 39.9%. If the prevalence is 40.0% or more, it is considered as severe public health problem. [4] In urban Blantyre 57% of women were anemic by WHO standards (hemoglobin < 11.0 g/dL) and 3.6% were severely anemic (hemoglobin < 7.0 g/dL). The prevalence was higher in the rural area; 72% and 4.0%, respectively. Primiparae were at slightly increased risk for overall anemia and severe anemia but the effect of targeting this group alone for interventions would mean at least 65% of anemic women and over half of the women with severe anemia would be excluded. [5]

The commonest cause of anemia is nutritional deficiency of iron . Folate deficiency, vitamin B12 deficiency, bone marrow suppression, hemolytic diseases (Sickle cell diseases . Other causes include; hemolysis from infections like malaria, Urinary tract infection, haemoglobinopathies, chronic blood loss from Hookworm infestation, bleeding, duodenal/gastric ulcers Hemorrhoids, grand-multiparty, lack of antenatal care ad low socioeconomic status.[6]The study will come out Although the best method of treating anemia has not been clarified in this review, in theory oral treatment is the most feasible option, and therefore it is likely to remain the most widely used approach. Intravenous iron administration was associated with a higher risk of venous thrombosis than intramuscular administration. [7]With scientific and practical recommendations that will help to increase the awareness of the effect of anaemia in pregnancy in Jazan area specifically and KSA generally, which concise with the Saudi Government goals, to have healthy citizen in all areas of the Kingdom .

2. Objective:

General objective:

2.1. To determine the incidence of anemia among pregnant women in primary health care center in Jazan in (2011- 2012) .

2.2. To compare the incidence of anemia among pregnant women in urban and rural HCC.

2.3. To identify the more incidence type of anemia associated with pregnancy.

2.4. To determine the risk factors of anemia associated with pregnancy.

3. Literature Review:

Anemia is a global health problem in both developing and developed countries with major consequences on human health as well as social and economic development. [8] .The prevalence of Anemia in pregnancy is high and about 51% of pregnant women are said to be anemic worldwide, however, it is much higher and common in developing countries due to poverty, ignorance and disease. Anemia in pregnancy is the most common hematological problem in most developing countries. [6]

Anemia in pregnancy, particularly severe anemia, is associated with an increased risk of maternal mortality, which, in most developing countries, continues to be unacceptably high. In 1993, the World Bank ranked anemia as the eighth leading cause of disease in girls and women in developing countries. [9] Antenatal mothers in this area have a substantial proportion of anemia despite of freely and routinely prescription of hematinic at primary health care centers. Poor hematinic compliance was a significant risk factor. Health education programs regarding hematinic compliance and adequate intake of iron rich diet during pregnancy need to be strengthened to curb this problem. [4]

Anemia in pregnancy affects both the mother and fetus, and the complications are quite numerous; late abortion, preterm labor, intra-uterine growth restriction, intra-partum fetal distress, Intra-partum fetal death, early neonatal death and low birth weight are some of the consequences to the fetus/neonate. Maternal complications include; risk of infection, anemic heart failure, intra-partum maternal distress, precipitate labor, post-partum hemorrhage. [6]

Treating anemia has not been clarified in this review, in theory oral treatment is the most feasible option, and therefore it is likely to remain the most widely used approach. Intravenous iron administration was associated with a higher risk of venous thrombosis than intramuscular administration. [10] .So anemia is one the commonest problem is the universe: our study will be in one of the developing countries (kingdom of Saudi Arabia): these are some study that is done in KSA: A cross sectional study was conducted during August 1992, on a representative sample of 6,539 pregnant women attending 69 primary health care centers in the Asir region, southwestern Saudi Arabia for the assessment of their hemoglobin level.

The overall prevalence of anemia (Hb< 11 g/dl) was found to be 31.9%. It was found that the prevalence was affected by age (37.3% among those who were less than 20 years old), parity (34.9% among those who had 7 and more deliveries), inter-pregnancy spacing (35.2% among those whose birth spacing was less than 1 year), gestational age, and education (35.1% among illiterates). Health education programs at primary health care level in the region should be revised to stress the importance of balanced diet, compliance with iron medication and sufficient spacing between subsequent pregnancies .[12]

Cross-sectional study a total of 190 pregnant women attended the antenatal clinic at Al-Hada Armed Forces Hospital, Taif, Saudi Arabia were included This study showed that most of study group were house wives (86.8%), and the rest either teachers or students. 96.8% of pregnant women were living in a city and only the rest were living in the village (3.2%). Inter- pregnancy spacing for more than 2 years was the most common (45.8%) followed by those whose birth spacing was from 1to 2 years (30%). 58% of women reported that they used one method of contraception. In this study the prevalence of IDA was 22.6% which represents 84% of all anemic patients. [11]

Cross-sectional study was designed to determine factors associated with anemia amongst forty seven antenatal mothers attending Antenatal Clinic at KlinikKesihatan Kuala Besut, Terengganu in

November 2009. Systematic random sampling was applied and information gathered based on patients' medical records and through face-to-face interviewed by using a structured questionnaire. The mean age of respondents was 28.3 year-old. More than half of mothers were multi gravid as. Of 47 respondents, 57.4% (95% CI: 43.0, 72.0) was anemic. The proportion of anemia was high for grand multi gravid as mother (66.7%), those at third trimester of pregnancy (70.4%), did antenatal booking at first trimester (65.4%), poor hematinic compliance (76.5%), not taking any medication (60.5%), those with no co-morbid illnesses (60.0%), mothers with high education level (71.4%) and those with satisfactory monthly income (61.5%).The proportion of anemia was 58.3% and 57.1% for mothers with last child birth spacing of two years or less and more than two years accordingly. There was a significant association of hematinic compliance with the anemia (OR: 4.571; 95% CI: 1.068, 19.573). [6]

4. Discussion

An overall incidence rate of anemia in pregnant women in this study was 62% which is substantially high when compared to the previous study done in Asir which is 31.9% .[12] .The prevalence of anemia in kliniKesihatankaula was 57.4% which is slightly close to our result. [4]The prevalence of anemia in developing country such as Nigeria was higher 66.7 %. [6]. The prevalence of anemia was 51% worldwide. [6] . These result reflect high incidence of anemia among pregnant women in Jazan city.

4.1. Type of anemia:

In this study we found the incidence of nutritional anemia was higher among pregnant women having anemia. In AlHada study, the prevalence of IDA higher in all anemic patient [1].We found in our study incidence of nutritional anemia was higher than hereditary because the conception of iron and folic acid during pregnancy is increase, and difficult pregnancy of women have hereditary anemia like thalassemia.

4.2. Age:

This study showed that pregnant women below 20 years old have the highest incidence rate of anemia. In study done in Asir anemia was found to be associated with age less than 20year old. [12]In the study done Al Hada anemia was found to be associated with age older than 20 year. [1]In our study the age less than 20 year have higher incidence of anemia because this is the age of growth where the body needs more iron.

4.3. Comparing between rural and urban areas :

In this study, we found that the incidence of anemia in rural area is higher than urban area because early marriage of women in rural more higher than in urban area and increase gravidity more in rural women.May be the socioeconomic status play important role of nutrition status of rural women.

4.4. Gravid :

Grand multigravida's mothers have the highest rate of anemia during pregnancy compare to primigravida and multigravida mother. This result is similar to other studies such as studies done in Al Hada and Asir. [1, 12] In our study, incidence of anemia was increase with grand multigravida women because the hemoglobin level is affected by number of pregnancy.Inter pregnancy spacing This study showed that women with short inter pregnancy period were more at risk of developing anemia during pregnancy especially for period less than 2 year.In Asir study prevalence of anemia is high among those

whose birth spacing was less than 1year and in Al Hada study have same result in Asir [1, 12]. In our study, women who have inter pregnancy period less than two years are at risk of developing anemia because this women utilize more iron.

4.5. Iron &folic acid supplement :

We found that there is no significant difference between women who take iron and folic acid supplementation during pregnancy and those who don't take iron supplement. Other study such as AlHada study found out that there are more women taking iron and folic acid supplement during pregnancy than those who don't take. [1]

Our study found that no significant difference between women take iron and folic acid supplementation during pregnancy and those not use because the program in KSA antenatal care in primary heath care center give routinely iron and folic acid supplement for all pregnant women. Our study depend on secondary data and we don't know if the pregnant women take these supplement or not.

5. Material and Methods

5.1. Study design:

The suitable study design for such study is a retrospective study design from 1/1/2011 to 31/12/2012.

5.2. Study area:

This study was conducted in two PHCC in Jazan region one in Jazan PHCC as urban society and other rural society as Al Madaya PHCC. Table 1.

5.3. Study population:

The focus of this study is among pregnant women who have anemia with pregnancy.

5.4. Sample size & sample design:

The sample size of this study was calculated using the following formula for simple random sampling:

$$n=z^2p\ (1-p)/d^2\ (1)$$

Where

Anticipated population proportion (p)

Confidence level 95 (1-α)%

absolute precision required on either side of the anticipated population proportion (in percentage points) (d).The anticipated population proportion (p) of the sample is estimated to be 50% because this is the safest choice for (p) since the sample size required is largest when P=50%.

- For 95% confidence level z = 1.96, then the formula becomes:

$$n=1.96^2 20.5(1-0.5)/(0.1)^2=9.6\ (2)$$

Where

z=1.96%, ***d***=10%, ***p***=50% and ***q***=50%

Table1.number of samples collected from different areas

Area	NO. of sample	Students
Al Madaya	200	Nadia Somaili, Rafaa Hassan fathi ,Mashael Abdullah Al Refaie,Marwah Ibrahim Abbas, Mathab Ali jarad ,Somaia Somaili
Jizan	200	Rafaa Hassan fathi ,Marwah Ibrahim Abb nadia Somaili, Mashael abdullah Al Refaie Somaia Somili, Mathab Ali Jarad

6. Method of data collection

The collection of data was distributed according to the population of each region. The type of data collection is a data sheet, and is composed of questions that was collected from secondary data from the record of the patient.

6.1. Data sheet Questionnaire:

The questions are group of information that can help us to find some relationship like mother age, mother level of education and socioeconomic status and type of nutrition and number of children and mother life style.

6.2. Data Processing:

- Data was verified, cleaned and entered at Jazan Faculty of Medicine. The student team members collected data from health care center in Jazan and Al Madaya. All students finished their survey work on scheduled time, verify the information to make sure that there are no mistakes, and then bring all completed questionnaires to Jazan College of Medicine for data entry and processing.
- The field training team will organize guided computer and data entry sessions to enter the data using standardized program (***SPSS***). All data entry should be completed by the scheduled time.

6.3. Ethical Aspects of conducting a field survey:

Ethical approval will be obtained from faculty of medicine – Jazan University. Confidentiality of the data will be considered and maintained in the whole process.

6.4. Management:

The team consists of 6 students, each student collects and enter and analyze data from each province in three weeks

7. Results

Background characteristic of pregnant women : 11.7% of pregnant women are of age group 15-20 y while 32.8 % are of age group 21-25y , 25.8% are of age group 26-30y, 19.2% are of age group 31-35 , only 8.3% are of age group 36-40y and 2.2 % are of age group 41-45y . (53.5%) of these women are from rural area Al Madaya and (64.5%)are form urban area Jazan makatat 5 .The majority of pregnant women in this study are house wife(74.7%) and only(12.4%) are student which is close to government employee

(12.9%). The number of living children of the women showed that (51.1%) of them have (1-3) children, (13.9%) have (4-6) children and only (2.5%) of them have more than 7 .Number of prime was 99.

Risk factor: distribution of anemia according to age groups 75% of those who were less than 20 years old have anemia, this group of age have highest percentage of anemia. 22.2% among those who were more than 40 years old have anemia, this group of age have lowest percentage of anemia. The incidence of anemia decrease with increase of age .The incidence of anemia. According to mode of living shows that 71.4% of urban are anemic and compare with 51.3 % in rural area .Regarding to occupation status , , the highest incidence of anemia is student 76.5% while the house wife 61.6% .Finally ,the government employee which is lowest percentage 50.9%.

Using of pregnant women to contraceptive methods 62.2% of pregnant women who have anemia using contraceptive methods while pregnant women who have anemia not using contraceptive methods 61.7% of Approximately , results close to each other's. 65.9% of pregnant women who have anemia have regular flow up, while 52.5% of pregnant women who have anemia have irregular flow up.

Within spacing between present and previous pregnancy less than 1 year of women who have anemia is 65.5%,this is highest percentage while the lowest percentage within spacing more than 2 years of women who have anemia is 55.9%and percentage within spacing 1-2 years of women who have anemia is 65% Approximately , all results is close to each other's.

From 1-3 abortion , the percentage of pregnant women who have anemia is 66.5%, this is highest percentage while the lowest percentage of pregnant women who have anemia have more than three abortion is 50% .

A 62% of pregnant women who have anemia using iron and folic acid supplement while pregnant women who have anemia not using iron and folic acid supplement 61.7% of approximately, results close to each other's Women who have more than five pregnancy is 80% this is highest Anemic pregnant percentage while Anemic pregnant who have 1-5 pregnancy is 59%, this is lowest percentage the percentage of prime who have anemia is 62.3% . Type of anemia in comparing between urban and rural area the percentage of nutritional anemia in the rural area is 62.7% higher than in urban area 37.3% while the hereditary anemia in urban area is higher than rural area.

Conclusions

The our study reflect that there is high incidence rate of anemia among pregnant women attending PHCC in Jazan city .The study shows high incidence of anemia among women in the rural than those who live in urban .We found that nutritional anemia was higher than hereditary anemia among pregnant women in PHCC .There is an association between anemia and (age, occupation, intra pregnancy spacing) .There is weak association between anemia and (contraception method and iron and folic supplement) .

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