The incidence and types of anemia in pregnant women in Diyala province Iraq

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Abstract :-

Five hundred ninety (590) pregnant women were taken and CBC and blood of film were done to diagnose anemia and its types .The study was done in AL-Batol teaching hospital in Diyala province .The study showed four hundred and four(404) pregnant women affected with anemia at percentage (68.5 %) as follow :First trimester (1-3 months) 83 cases (14.1 %) ,second trimester (4-6 months) 116 cases (19.7 %) and third trimester (7-9 months) 205 cases (34.7 %) .Also the result showed the percentage of anemia between pregnant women who take prophylactic drugs (iron ,folic acid ,vit.B12) was (21.8%) lower than pregnant women who did not take it (49.3%).The percentage of anemia between women who were primigravida (16.6%), lower than pregnant women who were multipara gravid (51.9%) . The forms of anemia in this study were classified as mild, moderate and severe anemia, the most common type was mild anemia (50.7%) followed by moderate anemia (12.7%), then sever anemia (5.1%).The most common type of anemia is microcytic and hypochromic anemia .

خلاصة البحث

تم فحص (٥٩٠) امراة حامل في مستشفى البتول التعليمي في ديالى لغرض تشخيص فقر الدم وانواعه . اظهرت هده الدراسة اصابة (٤٠٤) امراة جامل بفقر الدم (٦٨.٥%) وكما يلي : في الاشهر الثلاثة الاولى (١-٣ شهر) ٨٣ جالة (١٤.١%) و الاشهر الثلاثة الثانية (٤-٦ اشهر) ١١٦ جالة (١٩.٧%) والاشهر الثلاثة الاخيرة (٧-٩ اشهر) ٢٠٥ جالة (٣٤.٧%) . كما بينت هده الدراسة بان النساء الحوامل اللاتي يتعاطين الادوية الوقائية (الحديد وحامض الفوليك وفايتامين ب١٢) اقل اصابة (٢١.٨%) من اللواتي لا يتناولن الادوية الوقائية (٤٩.٣%) . كانت نسبة الاصابة بفقر الدم في النساء الحوامل لمرة واحدة (١٦.٦%) وهي اقل من النساء متكررات الولادة (٥١.٩%) .كان شكل فقر الدم هو من النوع الخفيف الى المتوسط الى الشديد وكان النوع الخفيف هو السائد (٥٠.٧%) ثم المتوسط (١٢.٧%) والشديد (٥.١%) . اظهرت هده الدراسة بان نوع فقر الدم الاكثر شيوعا هو فقر الدم من نوع صغيرة الخلية والقليلة الصبغة

Introduction

Anemia in pregnancy is an important public health problem worldwide.

Anemia refers to the reduction of the hemoglobin content of the blood lower than normal for a person's age , sex and environment ,resulting in the oxygen carrying capacity of the blood being reduced (1). WHO recommendation for the lower limit of the normal range concentration in pregnancy is 11g/dl. Therefore any hemoglobin level below 11gm in pregnancy should be considered as anemia(2). Anemia is classified as the fourth commonest cause of maternal mortality after abortion ,hemorrhage and hypertention (3). Nearly half of the pregnant women in the word are estimated to be anemic : 52% in developing countries as compared with 23% in developed countries (4).Inadequate intake or absorption of iron and vitamins in conjunction with blood loss during pregnancy may contribute to anemia(5).Besides poor nutrition ,frequent labour , multiparity, abortions, parasitic infestation ,consuming excess tea or coffee after meals determined as the predictors of anemia in reproductive age women(6). Anaemia ranges from mild, moderate to severe and the WHO sets the haemoglobin level for each of these types of anemia in pregnancy at 10.0– 10.9g/d1 (mild anemia) 7–9.9g/dl (moderate anemia) and < 7g/dl severe anemia(7). The management and control of anemia in pregnancy is enhanced by the availability of local prevalence statistics, which is however not adequately provided in Iraq. Although little studies conducted as in Basra in 1990(57%) (8),in Baghdad in 2012 (55.4%) (9) ,in Erbil in 2013 (55.5%)(10) and in Sulaimanya in 2002 (31%) (12).Therefore, this study aims to providing prevalence statistics and types of anemia among pregnancy women in Diayla province to assess the effectiveness of antenatal care in preventing anemia among pregnant women and to be the first step for management and preventing this disease among pregnant women.

Patients and Methods

The present study was conducted to find out the prevalence and types of anemia among pregnant women attending Al-Butol Teaching Hospital in Diayala province from October 2015 to April 2016 .Hemoglobin was estimated in 590 pregnant women by Cyanomethaemoglobin method using spectrophotometer . Drabkin solution used as diluents with standard solution concentration 57.5 mg\dl to determine the amount of hemoglobin at this for Hb(g/dl) =Optical Density (test) /Optical Density(standard) * 250/1000 * Conc of Standard. Anemia was classified as a hemoglobin concentration less than 12g /dl for non pregnant women and less than 11 g/dl for pregnant women. R.B.C count , P.C.V , M.C.V , M.C.H ,M.C.H.C. are determined for all cases. blood smears were done for all cases , stainined them by Leishmane stain and examined under light microscope to study the morphology of R.B.C. . The duration of pregnancies was determined as well as determin whether a pregnant woman was taken iron , vitamin B 12 and folic acid or not .The duration pregnancy as well as wether

Results

The result showed that number and percentage of anemic cases among pregnant women in Dialah province is 404 cases (68.5%) and according to period of gestation, the number of anemic pregnant women in first trimester (1 – 3) months is 83 cases at (14.06 %) .in (4-6) months is 116 cases (19.7%) and in third trimester (7-9) months 205 cases (34.7%),as in table (1)

The result also showed that the number and percentage of anemic women who take prophylactic drugs (iron ,folic acid , vit.B12) were (19.2%) lower than pregnant women who didn´t take it (49.3%) ,as table (2).

Table (3) shows the number of anemic pregnant women who were primigravida (16.6%), is lower than pregnant women who were multiparagravida(51.9%). Four types of anemia were seen between anemic cases in different months of gestation, the most common one was microcytic & hypochromic followed by macrocytic, then normocytic , normochromic and finaly mixed microcytic & macrocytic anemia in table (4).

Table (5) shows the number and percentage of anemic pregnant women suffering from different forms of anemia starting from mild, moderate to severe one, the most common type of anemia was mild anemia followed by in less degree moderate anemia then severe anemia

Table(1) The number of anemic cases among pregnant women and its percentage according to period of gestation

Period of gestation	Number	Percentage
First trimester (1-3 months)	83	14.06
Second trimester (4-6 months)	116	19.7
Third trimester (7-9 months)	205	34.7
Total	404	68.5

Table (2) :the number of anemic pregnant women who were taking prophylactic drugs (iron, folic acid, vit.B12) and others who did not take them with their percentages.

Groups of pregnant women	No total	Number of anemic women	Percent of anemic women
Pregnant women who take prophylactic drugs (iron, folic acid, vit.B12)	386	113	19.2%
Pregnant women who not take it	204	291	49.3%
Total	590	404	68.5%

Table (3): the number and percentage of anemic women who were primigravida and multigravida.

Groups of pregnant women	Number	Number of anemic women	Percentage of anemic women
Primigravida	163	98	16.6%
Multi gravida	427	306	51.9%
Total	590	404	68.5%

Table (4) : types of anemia in anemic pregnant women in different months of gestation.

Anemia	Preg. Wom.n 1-3 months	Preg. Wom .n4-6 months	Preg. Wom.n 7-9 months
Microcytic & hypochromic	60	90	160
Macrocytic	7	19	34
normocytic & normochromic	9	6	8
Mixed microcytic & macrocytic	7	1	3
Total no.	83	116	205

Table (5): the forms of anemia in pregnant women and their percentage.

Anemia	Number	Percentage of anemic women
Mild anemia (10 - 11.3g\dl)	299	50.7%
Moderate anemia (7.9 – 9g\dl)	75	12.7%
Severe anemia <7 g\dl	30	5.1%
Total	404	68.5

Discussion

This study was one of the important study which was related to the health of pregnant women. Anemia is the most common medical disorder in pregnancy and has a varied prevalence, etiology and degree of severity in different populations being more common in non industrial countries (12).

The present study has shown the incidence of anemia among pregnant women in Diayla province had 590 anemic cases (68.5%) which is consistent with the result of other studies conducted in Basrah province in 1990 was (57%) (8), in Baghdad province in 2012 (55.4%) (9),in Erbil in 2013(55.5%)(10), in Erbil in 2004 (59%) (11).

This high percent of anemia in this province may be due to poor condition and malnutrition among the majority of pregnant women in this province. Anemia in pregnancy is related to different socio-demographic factors (20).In different studies ,age ,educational status ,economic position have been found to be significantly associated with anemia during pregnancy (21,22) our results is more than that was reported in Sulaimaniya (Iraq) in 2003 (31%)(12) ,Iran (12.4%)(13),Malaysia(35%) (14),Indonesia (46%)(15), and in Nigeria which had shown a prevalence rate of 23.2% (16).

The results in this study is lower than reported in India (84%)(17), highlands of Tibet (China) (70%) (18),rural Zaire (76%) and Kenya (75.6)(19).

Anemia was also found to increase as the gestational age increases ,showing the highest prevalence in the third trimester 34.7% than second trimester19.7% and the first trimester 14.06%. Most studies pointed to the progressive decrease of hemoglobin level with progress of pregnancy ,so that prevalence of anemia is highest in third pregnancy (23,24).Increase iron demand for fetus and placenta is the main explanation of anemia in third trimester(25) also the role of physiological anaemia .A large studies in the united states confirmed the deficiency of total body iron in third trimester more than the first and second trimester (24)

Anemia was more prevalent in multigravidae. This is may be due the fact that multigravidity induce anemia by reducing maternal iron reserves at every pregnancy and by causing blood loss at each delivery. This result is consistent with the study conducted in Basrah, Baghdad, rural areas of Malaysia, in Thailand, in rural areas of Kenya, in the high lands of Tibet and in Jimma which had shown high prevalence of anemia in multiparous, multigravidae and during the third trimester(8,9,26,27,18,14)

This study also showed that the incidence of anemia in pregnant women who take iron and folic acid and vitamin B12 was lower than in pregnant women who do not take this prophylactic drugs. The incidance of anemia in pregnant women who take these drugs may be due to the incompliance of pregnant. One of the major contributory factors for anemia in developing countries is consumption of plant based food containing insufficient iron. Meat is a good source of high quality protein, iron , zinc and of all the B-vitamins except folic acid. Iron absorption is enhanced when consumed with foods high in vitamin C such as orange juice while coffee and tea inhibit iron absorption(29).

The highest percentage type of anemia revealed by this study is microcytic & hypochromic anemia. These types of anemia were identified depending on the morphology of RBCs which in most cases is seen in iron deficiency anemia. The poverty of iron deficiency is one of the most common reasons leading to anemia in the world [28]. The iron is not the only cause anemia,but there is food and other essential materials contribute to the process of red blood cell formation ,including vitamin B12 and folic acid [29].

The study also showed that the occurrence of another type of anemia among pregnant women , but to a lesser extent , macrocytic anemia or normochromic anemia this type of anemia is a group of disorders characterized by the existence of formal manifestations characteristic of red cell formed in bone marrow and reason is lack of vitamin B12 or folic acid. This type of anemia may result from disorder in the metabolism of these vitamin or because of mistakes in the process of formation of the DNA, which is not related to vitamin B12 or folic acid(30).

Conclusion

This study reflects the high percent of anemia among pregnant women above the normal in this province which form a problem in pregnancy ,resulting from some factors including ,socio-economic status , education and substandard antenatal care . Health system in this province must focus on this problem to find the appropriate solutions.

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