

Haemoglobin status During pregnancy in Ramadi Maternity & Child hospital

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شملت الدراسة 998 امرأة حامل ادخلن الى مستشفى النسائية والاطفال الى الرمادي للفترة من كانون الثاني الى تموز 1996. تبين بان نسبة النساء اللواتي يعانين من فقر الدم هي 32.1%، بمعدل 8.89 غم/100مل (نسبة الهيموغلوبين اقل من 11 غم/100مل) بينما النساء الحوامل اللواتي ليس لديهن فقر دم هو 12.18 غم/100مل. اظهرت الدراسة بان نسبة الهيموغلوبين لدى الفئة العمرية 31 - 40 سنة هي اقل من نسبة الهيموغلوبين لدى الفئة العمرية 21 - 30 سنة. تبين بان النساء اللواتي ولدن اربعة اطفال او اكثر لديهن انخفاض في متوسط الهيموغلوبين وقد وجد ان هناك فرق معنوي في متوسط الهيموغلوبين لدى النساء الحوامل المستخدمات لمركبات الحديد اثناء الحمل.

Summary:

A sample of 998 pregnant women admitted to the Maternity and Children hospital in Ramadi, for the period from Jan. to Jul. 1996. Routine history, physical examination, and routine hematological investigations were performed, 32.1% of cases were found to be anemic (hemoglobin, Hb, level below 11 g/dl with mean value of 8.9 g/dl (SD=0.84), while the non-anemic cases had mean Hb value of 12.2 g/dl (SD=6.7). Age group 16-20 (n=67), 21-30 (n=513), 31-40 (n=368), 40+ (n= 50) years exhibited mean Hb values of 10.93 g/dl (SD=1.8), 11.42 g/dl (SD=1.5), 10.75 g/dl (SD=1.7), and 11.16 g/dl (SD=1.7) respectively. The 31-40 age group exhibited a significantly (P=0.000) lower value than the 21-30 age group. Both gravidity and parity of 4 plus exhibited a significant (P=0.000) drop in mean Hb value women who received iron supplement showed a significantly (P=0.002) higher Hb value. It is concluded that pregnant women of fourth decade age group, with gravidity 4 plus and parity 4 plus are the most vulnerable to develop anemia. Thus, iron supplementation for this group of pregnant women can reduce morbidity and mortality of both mother and fetus. Some recommendations are presented.

Introduction :

A precise definition of anemia in women is complicated by the normal differences in the concentration of haemoglobin between women and men, between women who are pregnant and those who are not, and between pregnant women who receive iron supplements and those who are not⁽¹⁾. The World Health Organization has recommended that a Hb concentration of less than 11 g/dl and PCV less than 37% in pregnancy should be called anemia, and oral iron therapy instituted⁽²⁾. Maternal anemia is a serious complication of pregnancy. Anemia exacerbates the effect of infection and

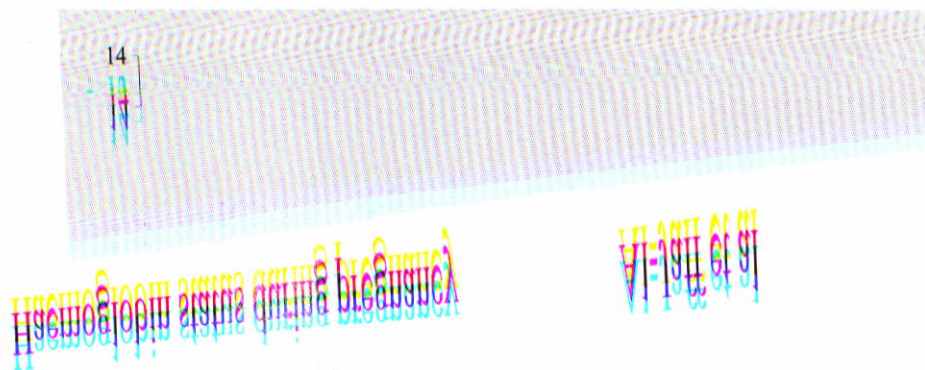
haemorrhage, plays a role in venous thrombosis and pulmonary embolism, predisposes to decompensation in mothers with cardiac and respiratory diseases and causes delayed general physical post-partum recovery, especially after caesarian section⁽³⁾. The aim of this study is to investigate the occurrence of anemia, as judged by Hb levels and PCV values, in pregnant women in Al-Ramadi Maternity and Child hospital, and factors influencing Hb levels.

Material and Methods:

A sample of 998 pregnant women were considered in this study all of them were admitted to the Maternity Department of the Maternity and Child hospital in Al-Ramadi, Iraq, for the period from Jan. to

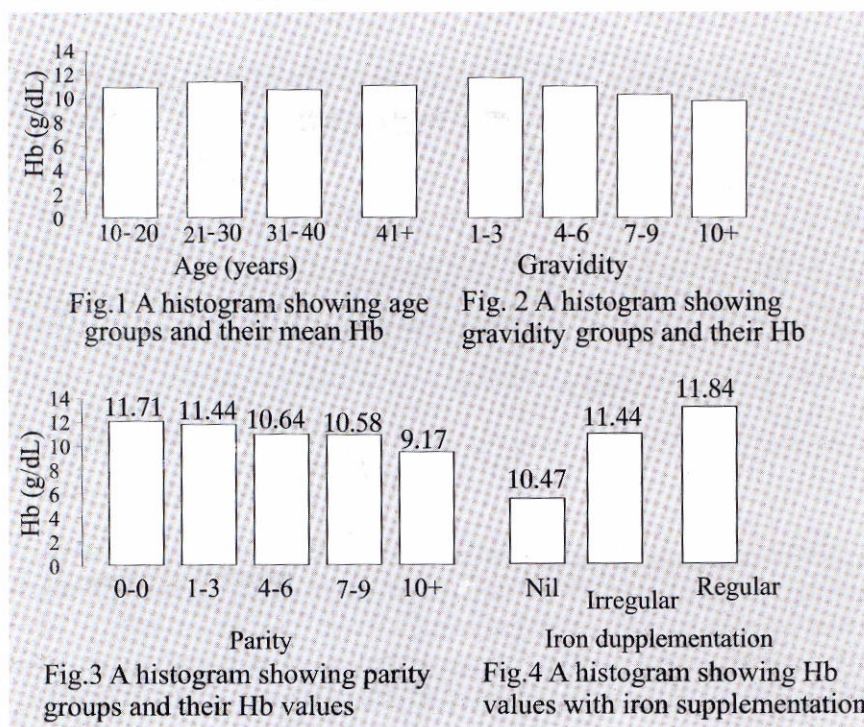
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July 1996. 450 of them admitted for normal vaginal delivery, while others admitted for surgery (C/S) and acute loss (antepartum haemorrhage and postpartum haemorrhage, or miscarriage). History was taken and blood examination was performed for each patient. Ordinary venous samples were obtained from all patients. Sterile disposable plastic syringes were used routine and specialized haematological laboratory tests. All blood samples were collected into chemically clean disposable plastic tubes containing a dry amount of dipotassium salt of Ethylene Diamine Tetra Acetic acid (EDTA) as anticoagulant agent in proportion of 1mg/ ml. All blood samples were either processed immediately or delayed for not more than two hours after collection. Routine haematological tests (complete blood picture) including Haemoglobin, Packed Cell Volume, and Red cell morphology were performed according to the standard methods and techniques of Dacie and Lewis¹. Cell Morphology was only performed on samples in which Hb concentration was below 11 g/ dl (those considered to be anemic).

Data were analysed by using the

statistical package Minitab. Student's t-test was used, and the 0.05 level of probability was regarded as significant.

Results:

Nine hundred ninety eight pregnant women were found to be of mean age of 29.86 years (SD=6.60, SEM=0.209), and with a minimum and maximum age of 16 and 51 years. The overall mean Hb was found to be 11.13 g/dl (SD=1.66, SEM=0.052). In pregnant women, anemia was considered to exist if Hb values were below 11 g/dl (and PCV values were below 35%); thus, 320 cases (32.06%) were anemic with a mean Hb value of 8.89 g/dl (SD=0.84, SEM=0.047), while 678 cases (67.94%) were apparently not anemic with a mean Hb value of 12.18 g/dl (SD=0.50, SEM=0.019). The mean age for anemic women was found to be 31.35 years (SD=6.70, SEM=0.37) significantly ($p=0.0000$) higher than that of the non-anemic women which was 29.16 years (SD=6.44, SE=0.25). Further, 319 cases (31.96%) were found to be anemic according to the criterion of a PCV value below 35%; the mean age for the anemic women was 31.29 years (SD=6.70, SEM=0.37) and (SD=6.45, SEM=0.25). Fig.1. shows that the age group

significantly ($P=0.0000$) higher than that of the non-anemic women which was 29.19 years ($SD=6.45$, $SEM=0.25$). Fig.1. shows that the age group 16-20 ($N=67$), 21-30 ($N=513$), 31-40 ($N=368$), 40+ ($N=50$) exhibited mean Hb value of 10.93 g/dl ($SD=1.8$), 11.42 g/dl ($SD=1.5$), 10.75 g/dl ($SD=1.7$), and 11.16 g/dl ($SD=1.7$) respectively. The age group 31-40 exhibited a significant ($P=0.000$) lower value of mean Hb than 21-30 age group. Fig.2. and Fig.3. show that each gravidity, and parity of 4 plus exhibits a significant ($P=0.000$) sharp drop in the mean Hb value. Fig.4. shows that women who were not receiving any iron supplement ($n=344$) showed a mean Hb value of 10.47 g/dl ($SD=1.75$) was significantly ($P=0.000$) lower than that 11.44 g/dl ($SD=1.50$) of women who were irregularly receiving ($n=593$) iron supplement. However, women who were regularly receiving ($n=61$) iron supplement showed a mean Hb value of 11.84 g/dl ($SD=1.43$) which was not significantly different from that observed when irregularly receiving iron supplement.

Discussion:

Iron-deficiency anemia is the most prevalent nutritional problem in the world; about 700-800 million people are affected, half of them women, especially those of child-bearing age. Anemia threatens the health and lives of pregnant women and their children. It also reduces physical activity, impairs learning ability and growth failure, behavioral problem and reduced resistance to infection⁽¹⁵⁾. Our results showed that of all pregnant women included in this study, (320 cases) 32.06% were anemic as defined by WHO⁽¹⁶⁾, exhibiting Hb level below 11 g/dl. This anemic group appeared to have a mean age of 31.35 years which was highly significantly ($P=0.0000$) higher than that 29.16 years of the non anemic control group. This indicates that age can influence Hb concentration. This is further

substantiated by the finding (fig.1.) which illustrated clearly that the age group 31-40 is significantly more liable to develop anemia than the age group 21-30. This age influence is probably due to exhausting of body iron stores as a result of most likely repeated pregnancies; this is further indicated as an increase in each gravidity and parity was also shown (fig.2. & fig.3.) to adversely influence Hb concentration. This is, however, in contrast with the findings of a similar study conducted in Mosul⁽¹⁷⁾, he noted that age, gravidity and parity had no influence on the development of anemia during pregnancy. However, iron-supplementation was found to be highly significantly ($P=0.000$) improving Hb concentration, even when taken irregularly (Fig.4.). This is emphasizing the almost importance of iron supplement in pregnancy. More recently, and confirming many previous observations, Taylor and associates identified haemoglobin level to average at term 12g/dl among women who received supplementary iron compared to 11.2g/dl for those who did not⁽¹⁸⁾. This suggests that dietary supplementation may not be adequate to meet the demand for iron during pregnancy; making iron supplementation, mandatory for the vulnerable group.

Conclusion and Recommendation:

It is stressed that pregnant women who are over 30 years of age, with gravidity of 4 plus, and parity of 4 plus, are the most vulnerable to develop anemia. Thus, iron supplementation for this group of pregnant women can reduce morbidity and mortality for both, the mother and the fetus, similar suggestions were made previously^(17,18). In an attempt to reduce morbidity and mortality, the following recommendations are made:

A-Education should be conducted at the antenatal clinics early at booking, stressing on the utmost importance of iron supplementation.

B- Continuing medical education of general practitioners in the preventive measures.

C-To pay a better attention to the family planning clinics regarding human and material resources to be more effective to prevent unplanned pregnancies which pose a threat on already existing anemia.

References:

1. Cunningham, MacDonald, Gant. (1989). Williams obstetrics 18th. Edition. 2. Text Book Of Obstetrics by Ten Teachers (1995) 16th. Edition
3. C.J. Whitfield. (1995). Dewhurst Text Book Of Obstetrics & Gynaecology for post- graduates, 5th. Edition.
4. Dacie J. V. and Lewis, S. M. (1984). Practical haematology 6th edition, Churchill Livingstone, U.K.
5. WHO (1995a). Iron deficiency anemia in: The rare of child health in the eastern Mediterranean region, PI 73, 2nd edition, EMRO TECHNICAL PUBLICATION SERIES 9, Alexandria, Egypt.
6. Abdulla, B. (1988) Anemia of pregnancy in Mosul city. M. Sc. thesis, College of Medicine, University of Mosul.
- 7- Pearson, F. J. (1984). The need for prophylactic iron and vitamins in pregnancy. Postgraduate Doctor - Middle East, September, 570-574.
8. WHO (1995b). Essential Drugs, WHO Drug Information Vol 9. No. 4.