

Type of Anemia in Pregnant and non Pregnant Women in El-Khurma Province in Western Saudi Arabia

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Abstract

Six hundred (600) women were investigated for the type and frequencies of anemia. Three hundred (300) of pregnant women and (300) of non pregnant women. A venous blood of 5 ml was collected, 2.5ml in EDTA containers and investigated for a complete blood count (CBC), retics count and hemoglobin electrophoresis. The other volume of 2.5 ml of blood collected to obtain serum for biochemical tests, including; serum iron, serum ferritin and total iron binding capacity. The mean age of patients was (25 year) for non pregnant women and (30 year for pregnant women. The results showed that the only type of anemia was hypochromic microcytic anemia, mainly is iron deficiency anemia. Percentage of iron deficiency anemia in pregnant and non pregnant women were (68.8%) and (63.3) respectively. The percentage of anemia decreased in pregnant women whom take iron therapy during pregnancy, while was high in pregnant women that did not take the iron. There is no significant deference between the mean of Hemoglobin in pregnant women with therapeutic dose and non pregnant women.

Keywords: Anemia, Pregnant women etc.

Introduction

Anemia is a condition that occurs when the red blood cells do not carry enough oxygen to the tissues of the body. Anemia affects all population groups. However, the most susceptible groups are pregnant women and young children. Anemia also is defined as a reduction in the hemoglobin concentration of the blood. Although normal values can vary between laboratories, typical values would be less than 13.5 g/dL in adult males and less than 11.5 g/dL in adult females. From the age of 2 years to puberty, less than 11.0 g/dL indicates anemia. As newborn infants have a high hemoglobin level, 14.0 g/dL is taken as the lower limit at birth. There are two way to classify anemia, either morphological classification or a etiological classification . The first one can be The most useful classification is that based on red cell indices,(Table-1) and divides the anemia into microcytic, normocytic and macrocytic as well as suggesting the nature of the primary defect, this approach may also indicate an underlying abnormality before overt anemia has developed. Iron deficiency anemia is the most common cause of anemia worldwide and results from inadequate iron supply for erythropoiesis. Iron deficiency is most prevalent during periods of rapid body

growth: in infancy and again at puberty. Insufficient intake accounts for most cases.ID may be the result of either excessive loss or, less frequently, decreased absorption. In general ,the iron absorbed daily equals the amount needed to compensate its loss, so that the overall iron pool remains stable

This fine balance is easily broken, because the capability to absorb iron orally is limited. When the inputs are less than necessary or, more frequently, when the outputs increase and cannot be compensated for, ID and finally IDA, develops.

In this study our objectives are determination the frequency, types and severity of anemia in pregnant and non pregnant women in AL Khurmah province in Western Saudi Arabia.

Materials and methods

Five ml of venous blood was collected under aseptic condition. 2.5 ml of venous blood in ethylene-diamine-tetra-acetic acid (EDTA) container to perform a complete blood count (CBC), thin blood film , Retics count and Hb electrophoresis. 2.5 ml of venous blood was collected in to palin tubes to perform iron profile.

Result and discussion

This study was done to investigate and detect the most frequent type and severity of anemia among pregnant and non pregnant women in El-Khurma province in western area of Saudi Arabia. Three hundred (300) of pregnant women and three hundred (300) of non pregnant women were investigated for full blood count, serum iron, serum ferritin, TIBC, reticulocytes count and hemoglobin electrophoresis. The results showed that the most type of anemia was iron deficiency anemia. The frequency of iron deficiency anemia in pregnant women and non pregnant women were (94.7%) and (63.3%) respectively. The severity of anemia in the two groups were shown in Table (1).

Table (1) Severity of Anemia in Pregnant and non Pregnant Women

Severity of anemia	Pregnant women with iron therapy	Pregnant women Without iron therapy	Non pregnant women
Severe anemia	0	0	2.4%
Moderate anemia	3.5%	73.7%	14.6%
Mild anemia	39.3	21%	46.3%
Normal	57.2%	5.3%	36.7
Total	100%	100%	100%

The mean of hemoglobin in pregnant and non pregnant women was 107g/l, 113g/l respectively. In pregnant women whom treated with iron, the mean of hemoglobin, RBCs, HCT and retics count was moderately increased and become greater than in non pregnant women. The biochemical test including serum iron, serum ferritin and TIBC were shown variable results, and we observed that 36.6% of total non pregnant women has low serum iron, 29.3% has low serum ferritin, and 19.5% has high TIBC. only 57.7% of anemic non pregnant women has low serum iron.

Table (2) The Frequencies of Biochemical Tests in Pregnant and non Pregnant Women

Finding	Non pregnant women	Pregnant women with iron therapy	Pregnant women without iron therapy
Low serum iron	36.6%	8.9%	89.5%
Low serum ferritin	29.3%	10.7%	84%
High TIBC	19.5%	10.7%	84.2%

In the pregnant women who did not received prophylactic iron therapy 89.5% has low serum iron, 84% has low serum ferritin, and 84.2% has high TIBC. This figures were differ in pregnant women whom received iron therapy during the period of pregnancy as shown in table (3-2). Only 8.9% has low serum iron, 10.7% has low serum ferritin, and 10.7% has high TIBC.

Serum iron level has more efficient guide in the diagnosis of iron deficiency anemia, so, if there was a feature of hypochromic anemia, serum iron is the most easy and available test require to differentiate iron deficiency from other hypochromic anemias.

Conclusion and recommendations

This study investigated the type of anaemia among pregnant and non pregnant women and compared the haematological characteristic of both group. The study concluded that: (1) The most type of anaemia was iron deficiency anaemia. (2) severity of anaemia in pregnant women was high in compare with the other groups. (3) The severity was less in pregnant women who take iron therapy during second and third tri master in comparison with other two groups. (4) The mean of erythrocyte count in bath non pregnant women and pregnant women with iron treatment was in the normal range, and slightly decreased in pregnant women without treatment. That means iron prophylactic therapy not only necessary for the formation of hemoglobin, but also in the production of RBCs in the bone marrow. (5) Haemoglobin concentration and packed cell volume were slightly low in both non pregnant women and pregnant women with iron therapy. In all study population there was no abnormal hemoglobin according to the results shows in hemoglobin electrophoresis. (6) The most cause of iron depletion in all type of group study was insufficient iron intake. Since, iron deficiency anemia were had high frequencies in women, especially in pregnant women it is very necessary to give them iron supplement before pregnancy and in the second tri master to delivery if there is a feature of hypochromic anemias.

There were highly association between the frequencies of pregnancy and severity of anemia, so, there must be a distance of time between pregnancies for a women.

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