Prevalence of Anemia during Pregnancy in Kirkuk Province

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Abstract:

Background: Anemia is defined as a state of decreased blood concentration of hemoglobin which can by too few red blood cells, too little hemoglobin in red blood cells or both. Worldwide, anemia is considered as one of the major nutritional deficiency disorders. In developing countries, almost two thirds of pregnant ladies are anemic. Most of the studies suggest that there is a significant rise in perinatal mortality rate when hemoglobin of pregnant woman becomes pregnant below 11.0 g/dl.

The **aim** of study is to estimate prevalence of anemia during pregnancy in Kirkuk province.

Subjects and methods: This study was conducted at the beginning of May to the end of September 2017. 100 females, whose ages were between 18-35 years, were collected randomly in Kirkuk province (50 pregnant females and 50 nonpregnant females at childbearing age as control). The mean and standard deviation of our sample ages were 27.72±5.38 years (23.39±4.1 years for nonpregnant females and 31.9+2.3 years for pregnant females). Among pregnant females, the mean and standard deviation of ages were 28.17±1.2 for 1st trimester, 32.2±2 for 2nd trimester and 32.9±1.4 for 3rd trimester. 68 of our sample were from urban areas and 32 from rural areas. 3 ml of blood drawn from the cubital vein by using disposable needles and syringes. CBC (complete blood count) was estimated by using same automated analyser in same laboratory. 5 parameters (Hemoglobin (Hb), hematocrit (Hct), Mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH) and mean corpuscular hemoglobin concentration (MCHC)) have collected for each woman in this study.

Results: In this study, it has been seen that the changes in all parameters during pregnancy becomes more obvious in last two trimesters of pregnancy.

Conclusions: Regarding results of present study, prevalence of anemia during pregnancy in Kirkuk province is high and type of anemia is mild anemia.

Keywords: Anemia, Pregnancy, Kirkuk.

Introduction:

Anemia is defined as a state of decreased blood concentration of hemoglobin [(1)]. Worldwide, anemia is considered as one of the major nutritional deficiency disorders [(2)]. Although anemia affects members of both sexes and all agegroups, anemia is more common among women and associated with maternal morbidity, maternal mortality and low birth weight [(2, 3)]. In developing countries, almost two thirds of pregnant ladies are anemic [(2, 3)]. However, studies mentioned that about half of nonpregnant women in developing countries were anemic at the time of conception [(2, 3, 4)].

According to WHO, hemoglobin values at sea level should be categorized as follows: (1) mild anemia (Hb 10 to 10.9 g/dl); (2) moderate anemia (Hb 7 to 9.9 g/dl); (3) severe anemia (Hb less than 7 g/dl) [(5, 6)].

Studies showed that anemia is associated with decompensation which

will be different according to severity of anemia. Most of the studies suggest that perinatal mortality rate increases significantly as hemoglobin level of mother decreases. Low birth weight, increased prematurity rate and intrauterine growth retardation are other complications of anemia during pregnancy, especially when hemoglobin level falls below 8.0g/dl [5, 6, 7, 8].

The aim of study is to estimate prevalence of anemia during pregnancy in Kirkuk province.

Subjects and Methods:

This study was conducted at the beginning of May to the end of September 2017. 100 females, whose ages were between 18-35 years, were collected randomly in Kirkuk province (50 pregnant females and 50 nonpregnant females at childbearing age as control). The mean and standard deviation of our sample ages were 27.72±5.38 years (23.39±4.1 years for nonpregnant females and 31.9±2.3 years for pregnant females). Among pregnant females, the mean and standard deviation of ages were 28.17±1.2 for 1st trimester, 32.2±2 for 2nd trimester and 32.9±1.4 for 3rd trimester. 68 of our sample were from urban areas and 32 from rural areas. 3 ml of blood drawn from the cubital vein by using disposable needles and syringes. CBC (complete blood count) was estimated by using same automated analyser in same laboratory. 5 parameters (Hemoglobin (Hb), hematocrit (Hct), Mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH) and mean corpuscular hemoglobin concentration (MCHC)) have collected for each woman in this study.

a\Inclusion criteria

a.1. Nonpregnant women at childbearing age.

a.2. Pregnant women.

b\Exclusion criteria

B.1. Chronic diseases (diabetes mellitus, chronic renal failure, hepatic failure, tuberculosis, heart failure, cancer, hemoglobinopathies …etc).

b.2. Chronic drugs users (antiepileptics, steroids and antifungals).

b.3.Smokers.

Data was represented as means and standard deviations (SD) and paired *t*-test was used to compare between means.

Results:

In this study, 100 females at childbearing age were studied. 50 of them were pregnant, while other 50 females were nonpregnant as control. The mean and standard deviation of ages of pregnant females were 31.9±2.3 years, while those of control group were 23.39±4.1 years. Among pregnant females, the mean and standard deviation of ages were 28.17±1.2 for 1st trimester, 32.2±2 for 2nd trimester and 32.9±1.4 for 3rd trimester. 68 of our sample was from urban areas and 32 from rural areas.

In this study, it has been seen that Hb, MCH, MCHC and MCV are reduced in pregnant females and this reduction was highly significant statistically. Hct, on the other hand, is also reduced but this was not significant statistically, see table (1).

In this study, it has been seen that the changes in all parameters during pregnancy becomes more obvious in last two trimesters of pregnancy, see table (1).

Table (1): Hemoglobin (Hb), hematocrit (Hct), Mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH) and mean corpuscular hemoglobin concentration (MCHC) for pregnant and non-pregnant females.

Females / Parameters	Nonpregnant (50 females) (Mean ±SD)	Pregnant (50 females) (Mean ±SD)	1st trimester (6 females) (Mean ±SD)	2nd trimester (33 females) (Mean ±SD)	3rd trimester (11 females) (Mean ±SD)
Hb (g/dl)	13.9±1.7	10.02±2.1***	11.25±1.4**	9.6±2.3***	10.5±1.2***
Hct (%)	47.7±51.3	31.6±6.8+	36±4.5+	29.8±7.3+	34.9±3.4+
MCH (pg)	29.1±2.4	24.7±3.6***	27.1±2.1+	24.6±3.9***	23.8±2.8***
MCHC (pg/cell)	34.6±2	32.05±2.8***	31.2±1.02***	32.9±3**	30±1.4***
MCV (fl)	84.1±6	76.98±10.1***	86.8±5.6+	74.6±10.6***	79.1±6.8+

+ Non-significant (p value >0.05), * significant (p value <0.05), ** highly significant (p value <0.01), very highly significant (p value <0.001).

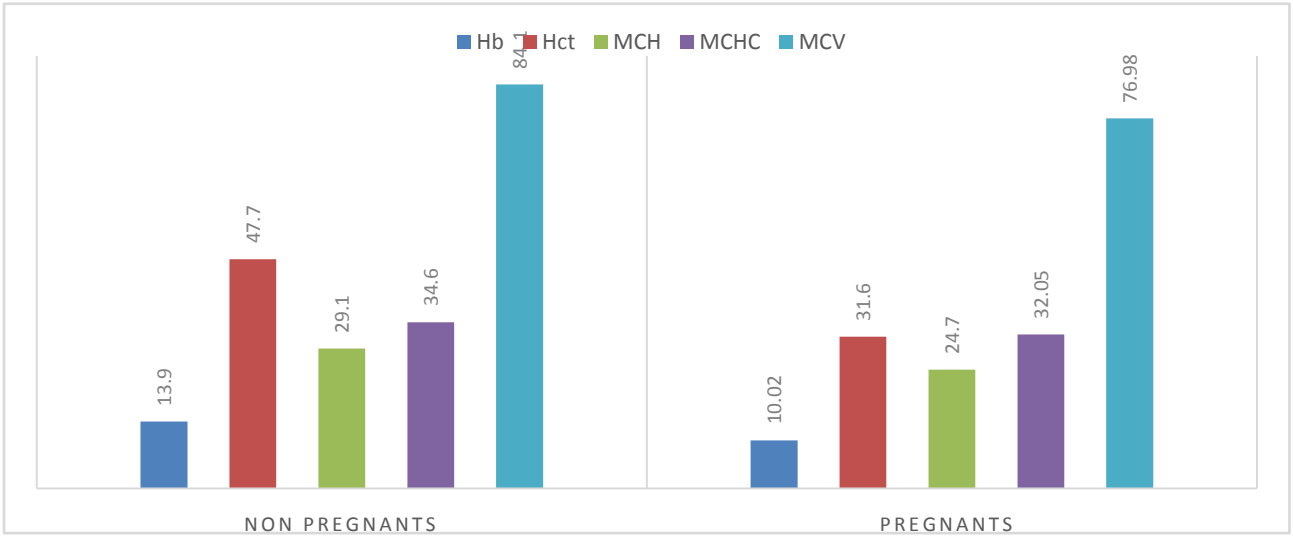

Figure (1): Shows distribution of studied hematological parameters in non pregnant women and pregnant women.

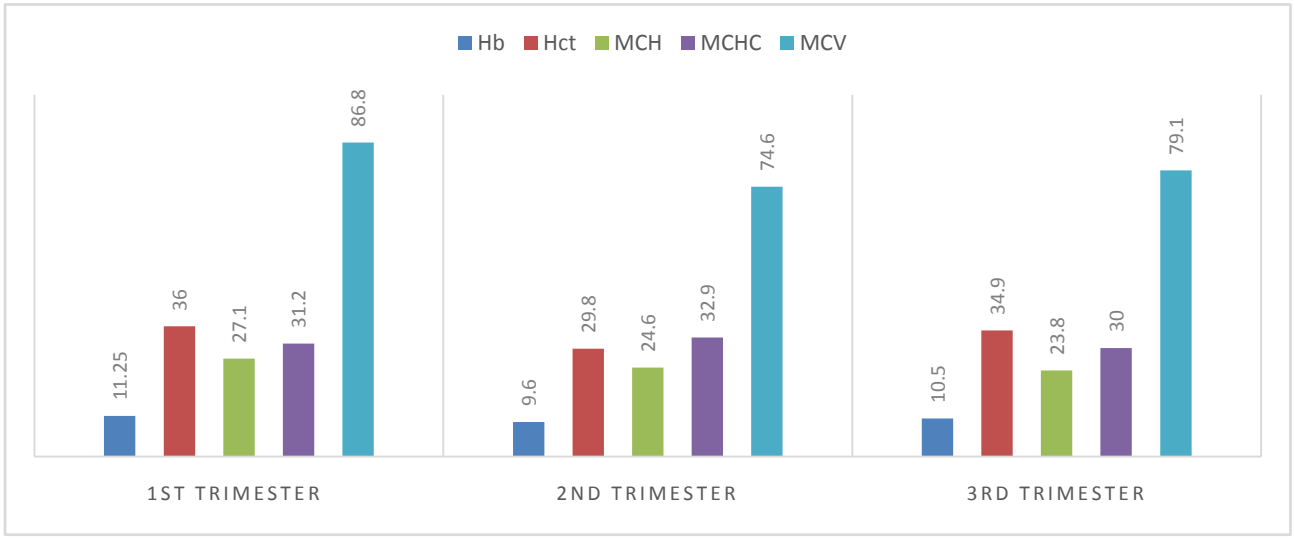

Figure (2): Shows distribution of studied hematological parameters in different trimesters of pregnancy.

Discussion:

The present study showed that there is high prevalence of anemia among pregnant females, especially during second and third trimesters of pregnancy.

A large number of studies done worldwide estimated that there is high prevalence of anemia in pregnant women, especially in third trimester. Also, they estimated that majority of these cases have mild to moderate anemia [1, 2, 6, 9, 10, 11, 12, 13, 14, 15, 16].

Nwizu *et al.* and Stevens *et al.* found that there is low prevalence of anemia among pregnant women [17, 18].

Conclusion:

Regarding results of present study, prevalence of anemia during pregnancy in Kirkuk province is high and type of anemia is mild anemia so it requires improvement of primary health care services for all women at childbearing age and improvement of antenatal care services for all pregnant women.

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