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(The association between anemia , maternal age and parity in term pregnancies in our city)

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Abstract

Anemia is a quite common problem in all age groups and sexes in the world, it is particularly important in pregnant women as it may lead to poor maternal and perinatal outcomes.

In this study, we aimed to determine anemia , the impact of parity on anemia and the severity of anemia in term pregnancies in our region.

Methods: A total of 200 pregnant women who admitted to Obstetrics and Gynecology Ddepartment of albatool teaching hospital between 15 of October 2021 and one of March 2022 and who were at 37 weeks of gestation and above without any additional pathologies such as preeclampsia, HELLP syndrome and placental abruption were included in the study. The demographic characteristics and hemoglobin values of pregnant women were evaluated retrospectively.

Results: The anemia prevalence was 52.9% in nulliparous patients and 50.7% in those with parity between 1 and 4, and it was 43.7 in grand multiparous patients.   . Sever and very severe anemia was found only in patients with parity between 1 and 4 .

Conclusion: When compared to parity of patients, the anemia is higher in nulliparaous more than multiparous and grand multiparous   . Iron deficiency anemia is seen at a high rate despite preventive medicine activities.

Keywords: Term pregnancy, labor, anemia,parity

Introduction

Anemia is a condition in which red blood cells or their oxygen carrying capacity is insufficient to meet physiologic needs, which may vary according to age, sex, and pregnancy status [1] . Hemoglobin value <11 g/dL is defined as anemia in pregnancy by WHO[2].Anemia in pregnancy can be further divided as mild, moderate and severe anemia for hemoglobin level mild 10.0–10.9 g/dL, moderate 7–9.9 g/dL and severe <7 g/dL[3]. The predisposing factors of anemia in pregnancy are diverse ranging from the individuals' behaviors to community characteristics. Socioeconomic and cultural, nutrition, parasitic diseases like malaria and hookworm, and human immune deficiency virus infection are the most understood factors responsible for its occurrence[4]. Iron deficiency anemia is a frequent condition during pregnancy. The global prevalence of anemia in pregnancy is estimated to be approximately 41.8%[5];The overall iron requirement during pregnancy is significantly greater than in the non-pregnant state, despite the temporary respite from iron losses incurred during menstruation. Iron needs increase exponentially during pregnancy to meet the increased demands of the fetoplacental unit, to expand maternal erythrocyte mass, and to compensate the iron loss at delivery[6]. Pregnant women with iron deficiency anemia show various symptoms, including pallor, breathlessness, palpitations, hair loss, headaches, vertigo, leg cramps, cold intolerance, dizziness, and irritability. Iron deficiency anemia can also lead to reduced thermoregulation, fatigue, poor concentration, reduced working capacity, decreased maternal breast milk production, and maternal iron stores depletion during the postpartum period [7] [8]. The effect of anemia during pregnancy on maternal and neonatal life ranges from varying degrees of morbidity to mortality. As many studies elucidated, severe anemia (g/L) during pregnancy has been associated with major maternal and fetal complications. It increases the risk of preterm delivery [9][10], low birth weight[11] intrauterine fetal death , neonatal death [12], maternal mortality and infant mortality [13].Laboratory evaluation is fundamental for a definitive diagnosis of iron deficiency and Iron deficiency anemia.As the etiology of anemia includes various causes, the diagnosis cannot be based only on hemoglobin values. For diagnostic clarification, its necessary to evaluate red blood count and serum ferritin (SF) levels.

The most reliable parameter to revel iron deficiency is serumferritin, and

screening of serum ferritin concentration at the beginning of pregnancy is recommended [14].If serum ferritin is <30 g/dl, there is high probability that iron stores are depleted, even in the absence of anemia. Serum ferritin values <30 g/dl is associated with an hemoglobin concentration <11 g/dl during first trimester, <10.5 g/dl in second trimester and <11g/dl in third trimester are diagnostic for iron deficiency anemia in pregnancy. Iron therapy should be considered in such cases [15].

With this study, we aimed to determine hemoglobin values, of term pregnant women who admitted to Obstetrics and Gynecology Department of albatool teaching hospital, just before the delivery and therefor to identify the prevalence of anemia in term pregnancies in our region which may lead to serious maternal and newborn morbidity and mortality and to determine the distribution of anemia according the parity and age.

Method

A total of 200 term pregnant women (at and above 37 weeks of gestation) who admitted to albatool teaching hospital between 15 of December 2021 to 1 of March 2022. Were included in the study age , number of gravidity and number of full blood count parameters at the times of entrance to delivery room were retrospectively evaluated and recorded. Patients with hematological diseases or prominent hemorrhage, pre term pregnant women, those with multiple pregnancies and patients diagnosed with placental abruption, pre/eclampsia and HELP syndrome were excluded from the study.

According to WHO recommendations, pregnant
women with hemoglobin values below 11 g/dl were consider anemic and they are classified as mild (10- 10.9g/dl)
moderate (7–9.9 g/dl), severe (below 7 g/dl) and very severe anemic (below 4 g/dl). Nulliparous cases were included in Group I, cases with parity between 1 and 4 were included in Group II and cases with parity above
 5 were included in Group III and distribution of hemoglobin values according to parity was assessed .In order to assess the impact of age on the prevalence pregnant women were classified into age groups which were 19 years old and below (also known as adolescent pregnancy), 20–35-year-old and 35-year-old and above, and the prevalence of anemia was investigated in each age group .

The statistically analysis of data done for categorical variables according to the chi- square test for independence , and T- test for independent sample for quantitative variables using spss soft ware version 26.

Results

The ages of patients included in the study were between 15 and 40 years of the pregnant women admitted for delivery ,13%(n=26) of them were below 19 years old ,75% (n=150) of them were between 20 and 35 years old and 12% (n=24) of them were above 35 years old. Of these patients, 34 of them were nulliparaous, 134 of them were multiparaous and 32 of them were grand multiparaous.

(Table1)Evaluation of anemia levels according to the parity .

Status	Normal hemoglobin Hb>11 n(%)	Mild anemia Hb(10-10.9) n(%)	Moderate anemia Hb(7-9.9)	Severe anemia Hb<7	P value
Nulliparaous	16(47.1%)	14(41%)	4(13%)	0(0.0%)	
Parity 1 to 4	66(49.3%)	22(16.4%)	40(29.9%)	6(4.5%)	0.019
Parity >5	18(56.3%)	8(25%)	6(18.8%)	0(0.0%)	

P value < 0.05 significance ,p value 0.01-0.00 highly significance,

p value > 0.05 no significance

 In table2 We found there is significance association between anemia prevalence and parity in term pregnancies (p value 0.019)

In this table ,hemoglobin values were within normal limits in 47.1% of nulliparaous cases, in 49.3% of cases with parity between 1and 4 and in 56.3% in cases with parity above 5.The anemia incidence of nulliparaous cases was 52.9%(n=18) .In this group 41%(n=14) of cases had mild anemia ,13% (n=4) of cases had moderate anemia and severe anemia wasn't found in nulliparaous cases. . Of case with parity between 1 and 4, 50.7% (n=68) had anemia. In these cases, 16.4% (n=22) of them had mild anemia,29.9% (n= 40) of them had moderate anemia and 4.5%(n=6) had severe anemia. In grand multiparous cases, anemia incidence was 34.7%(n=14) .In this patients group 25%(n=8) of cases had mild anemia, 18.8%(n=6) of cases had moderate anemia and severe anemia wasn't found in grand multiparaous.

The distribution of ages of patients according to their severity of anemia shown in table 2 and we found (p value =0.185) mean no significance association between anemia and maternal age.

Table 2   Evaluation of anemia levels according to the ages in term pregnancies.

Status	Normal Hb >11 n(%)	Mild anemia Hb(10-10.9) n(%)	Moderate anemia Hb(7-9.9) n(%)	Sever anemia Hb<7	P value
Age <19	10(38.5%)	10(38.5%)	6(23.1%)	0(0.0%)	
Age 20 – 35	76(50.7%)	30(20.0%)	40(26.7%)	4(2.7%)	0.185
Age >35	14(58.3%)	4(16.7%)	4(16.7%)	2(8.3%)	

In table 2 anemia incidence was 61.5% in pregnant women who were below 19-year-old, which was considered as adolescent pregnancy,38.5%(n=10) had mild anemia , 23% had moderate anemia and Hemoglobin values were within normal limits in 38.5% (n=10)in this age group. Anemia prevalence in pregnant women between 20

and 35 years was 49.3%.While 20% of anemic pregnant women had mild anemia, 26.7% had moderate anemia and 2.7% of them had severe anemia.

Hemoglobin values were within normal limits in 50.7% (n=76) of pregnant women in this age group. Anemia prevalence was 41.7% in pregnant women who were above 35 years old .while 16.7 % (n=4) had mild anemia, 16.7% had moderate anemia and 8.3%(n=2) had severe anemia. Hemoglobin values were within normal limits in 58.3% (n=14) of pregnant women in this group.(P value =0.185) mean there is no significance association between anemia prevalence and maternal age.

Table 3 comparison of age and hemoglobin values of patients between the groups.

	GI=Parity 0 (n=34) Mean±SD/ (Max-Min)	GII=Parity 1-4 (n=134) Mean±SD/ (Max-Min)	GIII=Parity >5 (n=32) Mean±SD/ (Max-Min)	Total (n=200) Mean±SD/ (Max-Min)	Double comparison of groups		
					GI-II	GI-III	GII-III
Age	21.65+_/5.268(36-18)	25.76±5.471/((40–15)	32.69±4.935/ (38–23)	26.17±6.232/ (40–15)	0.000	0.000	0.000
	Mean (Max-Min)	Mean (Max-Min)	Mean (Max-Min)	Mean (Max-Min)	GI-I	GI-III	GII-III
Hemoglobin	10.8 (14–9)	10.35 (14–6)	10.63(12–7)	10.47 (14–6)	0.083	0.589	0.371

GI Group 1,GII group 2,GIII group 3

In table 3 when group I,II and III were evaluated in terms of ages and hemoglobin levels it was found that there was statistically significance difference between group I and group II ,group I and group II,group II and group III in terms of age levels of cases (p value <0.05). While there was no statistically significance difference between groups in terms hemoglobin of cases (p value >0.05)

Discussion

Anemia is most common hematologic disorder encountered during pregnancy. The most frequent cause of anemia during pregnancy is iron deficiency. It's known that many factors such as socioeconomic condition, education level,age parity etc affect the hemoglobin level of pregnant women. In this study Anemia was reported in 50% of term pregnancies this agree with another study performed on term pregnancies in Eastern Black sea region [16]. In the study of Bestepe et al. anemia prevalence in afyon city was found 29.4% (17) .

In our study we found anemia is decrease with increase parity ,with nulliparaous was 52.9% ,multiparaous 50.7% and with grand multiparous 34.7% . This mean primi gravida more anemia than multi gravida the reason could be due to little sample size in my research and limited time ,may due to poor foods availability and most of females don't take iron stores prior getting pregnant. This results agree with another study done in Ethiopia Getaneh et al [18] .but dis agree with study done in Pakistan that show increase anemia incidence with parity ,with nulliparaous 43% whereas in multiparanemia was observed as 60% [19].

In our study also we found anemia most common in females less than 19 years old 61% l think this may due to un healthy diet with low iron intake and vitamis, low socioeconomic status and eat canned food .This results agree with another study done in UK Barrso et al Found that anemia was 96% higher in young mothers (20) .as well as Briggs et al stated that adolescent (age <19) were 2.5 times more likely to be anemic than adults.(21) but our results disagree with Ahmed z et al their study stated that the age of mather is significant associated with anemia ,with majority of mothers 56.6% who are more than 40 years old more likely to being anemic .

Conclusions

Our study is retrospective and limited number of cases is restriction. We compared to the parity of patients we found anemia is higher in nulliparaous than multiparaous. Through wide prospective studies planned, more successful steps can be taken to prevent iron deficiency anemia during pregnancy by identifying failed steps in practices carried out to prevent iron deficiency anemia and focusing on these failed steps.

Recommendation

Encourage young age group women for good diet and healthy which contain iron and vitamins ,get away from canned food and heavy drinking of tea consumption and coffee and advice about pre conception follow up and investigations to early diagnosis and treatment of anemia.

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