Hypochrom Microcytic Anemia In Northwestern Of Tabriz, Iran

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Citation

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Abstract

Context: Hypochrom microcytic anemia is content of Iron Deficiency Anemia (IDA) and Thalassemia that widely prevalent in Iran. AIMS: The present study was undertaken to find the prevalence of Hypochrom microcytic anemia in Tabriz,Iran.

Settings And Design: Citizen of Tabriz were taken for study after they gave a written consent.

Methods And Material: Subjects were given a written questionnaire to elicit anemia related symptoms. Blood counts were done on electronic counter and serum ferritin was assayed by Elisa, MCV(Mean Cell Volume),MCH (Mean Cell Hb), hemoglobin electrophoresis and TIBC (Total Iron Binding Capacity) were done.

Statistical Analysis Used: Students' t test was used to compare the results.

Results: Prevalence of anemia, iron deficiency anemia and minor thalasemia in women was 9.7%, 7%, 1%, respectively, and in men was 9.7% ,2% ,5%.

Discussion: There was not any significant differences between MCV and sexes in anemia. IDA was more common in women than men, but minor thalasemia was more common in men than women.

INTRODUCTION

Iron deficiency anemia (IDA) has worldwide prevalence.([1])IDA has 5% prevalence in the world , but in developing country it is 18% among adult women and 10% in adult men.([2,3,6]) IDA is an end stage of negative iron balance. It is preceded by a stage of latent iron deficiency (ID) where serum ferritin is below 15.0 ng/ml with normal Hb level.([4]) It would be interesting to see the prevalence of ID in addition to IDA. Mild anemia is asymptomatic or cause non-specific symptoms. In IDA, besides Hb, MCV and MCH are also reduced. In recent years the prevalence of IDA reduced in Iran because of iron therapy.

Thalassemia is a congenital disease; Iran lies on thalassemic region of the world, and the prevalence of thalasemia is 2.3% in Iran. ([5]) Anemia causes paleness, heart palpitation, tinnitus, headache, agitation and fatigue.([2,6]) Upon these bad effects of anemia and the high prevalence of this disease in Iran we used to report the prevalence of hypochrom microcytic anemia in Iran.

SUBJECTS AND METHODS

3035 citizens (1623 female and 1412 male) were taken up for study after obtaining their informed consent. Study was approved by the institutional ethics committee. None of the subjects included in the study had been on any hematinic in last six months or had any infection in past one month. They were given a written questionnaire to assess anemia related symptoms. Arbitrary score was assigned according to the response to the questionnaire. Citrated blood samples were being assessed with Technican H_1 (American product) for Hb,HCT and MCV. If blood Hb in male were being under 13.5 mg/dlit or being under12 mg/dlit in non pregnant female, we get 5cc blood more to assess their serum iron ,TIBC, ferritin and retic count .Serum iron ,TIBC and ferritin were being assessed by Tris kit(Australian products) and Hitachi 704 autoanalyser system (German products)in referral laboratory. If there wasn't any evidence of IDA;

blood samples with MCV under 80 were being assessed for Hb electrophoresis with Hellena kits in Hellena set (France production).Whenever blood sample's Ferritin was under 15nanogram/millit we defined them as IDA. ([1]) Minor thalassemia defined as Hb A_2 up to two folds or higher , or increasing of HbF([5]) .Data was analysis with EPI6 with Q square and t test.

RESULTS

3035 of citizens completed the study and were available for repeat blood test. Data of these 3035 subjects is analyzed.1623 subjects were female (53.4%). Mean age was 33 years (range 16-49). 1412 subjects were male (46.5%). 9.7% of understudy people were anemic. Results of baseline studies are shown in (Table-1). Among patients who categorized as IDA, in 82% of these patients MCV was under 80 and 56% of them were infected by parasites. In female who categorized as IDA, mean of ferritin was 6.1±2.8 and in male was 5.1±1.8.Transferin saturation percent was less than 16% in 87.3% of IDA patients and was more than 16% in 12.6% of them. Only in 1.2 % of subjects MCV was lower than 80 without any evidence of IDA or thalasemia; but 34% of these patients had hypoferritinemia; and for the rest of them we couldn't find any reason. In all patients with minor thalassemia MCV/RBC index was lower than 13.

Figure 1

Table 1: The frequency of age, hemoglobin and MCV in anemic patients by sex

	All studied patients				Anemic patients			
Sex	Prevalence percentage	Age x±sd	Hb x±sd	MCV x±sd	Prevalence percentage	Age x±sd	Hb x±sd	MCV x±sd
Female	1623 53.4%	33±16.8	13.5±1.3	87.1±30	157 9.7	33.5±14.7	10.7±1.1	72.1±10.6
Male	1412 46.5	34.5±17	15.2±14.2	87.3±7	137 9.6	31.7±21.5	12.3±1.3	76.9±14.7
All	3035	33/3±16.6	14.3±1.6	87.2±11.8	296 9.7	32±16.4	11.1±1.1	73.4±11.7
P value	-	-	<0.05	NS	-	-	<0.05	NS

Figure 2

Table 2: The frequency of sex, hemoglobin and MCV in anemic patients by age

	IDA				Minor thalassemia				Unknown reason			
Sex	Prevalence percentage	Age x±sd	Hb x±sd	MCV x±sd	Prevalence percent	Age x±sd	Hb x±sd	MCV x±sd	Prevalence percent	Age x±sd	Hb x±sd	MCV x±sd
Female	80 5%	37.9±11.6	10.7±1.4	72±9	12 3%	39.2±17	11.5±1.5	61±5	14 13.2%	40.7±21	10.3±3.3	71.5±23.5
Male	7 2%	35.8±24	12.8±1.8	14.3±77	18 5%	29.5±15	12.5±1.3	61±4.5	8 24%	41.8±27	12.5±0.6	78.6±9.6
All	87	32.6±13.1	10±1.5	9.6±72.9	30	33.2±16.4	12.1±1.2	61.1±4.8	22	41.1±23.2	11.1±2.8	74.2±19.4
P value	-	-	<0.05	NS	-	-	<0.05	NS	-	NS	-	NS

DISCUSSION

In this study the prevalence of anemia was 9.7% in male and female who had entered the study. In one study the prevalence of anemia was 11.5% (12.7% in female and 10% in male) and in 90% of cases the IDA was the reason of anemia.([2]). In this study prevalence of IDA and minor thalassemia in female and IDA in and minor thalassemia in male were 7%,1%,2%and 5%,respectively. This study concludes that IDA was the reason of 75% of anemia. Existing the following study by men more than women might be the reason of the high prevalence of thalassemia in this study .Only in 82% of IDA patients MCV was lower than 80 and in all thalassemic patients MCV/RBC index was lower than 13; these findings was in agree with that was in previous study.([7],[8],[9]) In 87.3% of IDA patients transferring saturation percent was lower than 16. As point as different theories about the relationships between transferrin saturation percent and IDA ;there isn't high specificity for transferring saturation percent test to determine IDA.([10]) In conclusion ,iron deficiency is widespread amongst females in Iran as shown by this study; but anemia was decreased in these days in order to hematinic therapy like other countries . Then this problem must be overemphasized by public health system, because of too easy and available solve for this problem.

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