

Original Article

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A Descriptive Study on Iron Deficiency Anemia in the Adult Population of Khost Province

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Abstract

Aim of the Study: To know the pattern and frequency of iron deficiency as the cause of anemia in the adult population of Khost Province.

Method of the Study: This descriptive study was conducted in patients who came to Abdali Medical Complex during 11th of August 2022 to 11th of August 2023. Total three hundred patients with the age range within more the 18 years old were included in this study who met all the criteria required for this study. In this study patients' CBC and other related blood tests were checked. Moreover, detailed inquiries were made including chronic diseases, nutritional status, past health conditions, present health problems, Obs/gynecological history of women, family history of anemia were obtained.

Results: From all 300 anemic patients, we found 262 (87.3%) patients had iron deficiency and 38 (12.7%) patients had non-iron anemia. Most (183) of the patients (61%) who had less of iron were aged 21 to 45 Years and of whom 179 (97.8%) were females. On basis of serum ferritin level or SFL, we observed the intensity of deficiency of iron and classify into modest, mildest and acute groups. We found 210 (72%) patients had modest iron deficiency anemia, 33 (11%) patients had acute and the remaining 51 (17%) of patients had the mild level of iron deficiency anemia.

Significance of the Study: This retrospective research study was conducted to know the pattern and frequency of iron deficiency anemia in adult population so as to provide them with better life support and to maintain of health status of these patients. Likely, our study will add to the data on iron deficiency anemia.

Conclusion: According to this study, the prevalence of iron deficiency anemia was more dominant in contrast to other causes of anemia. It was seen that females were more commonly affected by iron deficiency anemia and in whom the pattern of iron deficiency was mostly of the modest type.

Keywords: iron deficiency anemia, CBC, Ferritin, nutrition

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Introduction

Anemia is present in adults if the hematocrit is below 41% (hemoglobin less than 13.5 g/dl in males or below 36% (hemoglobin less than 12.5 g/dl in females. Congenital anemia is suggested by the patient's personal and family history^[1]. The most common cause of anemia is iron deficiency. Poor diet may result in folic acid deficiency and contribute to iron deficiency, but bleeding is the most common cause of iron deficiency in adults. Iron deficiency is the most common cause of anemia worldwide^[1]. Aside from circulating RBCs, the major location of iron in the body is the storage pool as ferritin or as hemosiderin in macrophages. Menstrual blood loss plays a major role in iron metabolism. The average monthly menstrual blood loss is approximately 50 mL but may be five times greater in some individuals. Women with heavy menstrual losses must absorb 3–4 mg of iron from the diet each day to maintain adequate iron stores, which is not commonly achieved. Women with menorrhagia of this degree will almost always become iron deficient without iron supplementation^[2].

In general, iron metabolism is balanced between absorption of 1 mg/day and loss of 1 mg/day. Pregnancy and lactation upset the iron balance since requirements increase to 2–5 mg of iron per day. Normal dietary iron cannot supply these requirements, and medicinal iron is needed during pregnancy and lactation. Decreased iron absorption can also cause iron deficiency, such as in people affected by celiac disease (gluten enteropathy), and it also commonly occurs after gastric resection or jejunal bypass surgery. The most important cause of iron deficiency anemia in adults is chronic blood loss, especially menstrual and GI blood loss. Iron deficiency demands a search for a source of GI bleeding if other sites of blood loss (excess uterine bleeding, hematuria, and repeated blood donations) are excluded. Prolonged aspirin or NSAID use may cause it without a documented structural lesion. Celiac disease, even when asymptomatic, can cause iron deficiency through poor absorption in the GI tract. Zinc deficiency is another cause of poor iron absorption. Chronic hemoglobinuria may lead to iron deficiency, but this is uncommon. Traumatic hemolysis due to a prosthetic cardiac valve and other causes of intravascular hemolysis (e.g.,

paroxysmal nocturnal hemoglobinuria) should also be considered. The cause of iron deficiency is not found in up to 5% of cases^[3].

Iron is not really expelled but rather lost in desquamated cells, especially gastrointestinal epithelial cells. Women who are menstruating will lose an additional, highly variable quantity of iron, and women who are pregnant use iron at a rate that is around three to five times higher than that of healthy males. About 13% of the body's total iron is present in the storage forms of iron, ferritin, and hemosiderin^[2].

Conflict and instability has meant nutrition in Afghanistan has been much less researched than the rest of South Asia. A World Bank publication^[4] summarises knowledge about the nutrition situation in Afghanistan. Using data from the National Nutrition Survey (NNS) of 2004, it reports an under-5 stunting rate of 60.5%, and anemia prevalence amongst non-pregnant women of 25%^[4]. Summary results from a National Nutrition Survey conducted in 2013 have been reported recently in Varkey *et al.*^[5] and Ministry of Public Health & UNICEF^[6], and show that under-5 stunting prevalence has dropped to 40.9%. Anemia prevalence amongst women of reproductive age, including both pregnant and non-pregnant women, was 40% (the dataset is not publicly available, however). A study of 60 households in Northern Afghanistan by Levitt *et al.*^[7] reports anemia prevalence amongst women (including pregnant and non-pregnant) of 25% in study households.

Methods of the Study

This descriptive study was conducted in patients who came to Abdali Medical Complex during 11th of August 2022 to 11th of August 2023. Total three hundred patients with the age range within more the 18 years old were included in this study who met all the criteria required for this study. In this study patients' CBC and other related blood tests were checked. Moreover, detailed inquiries were made including chronic diseases, nutritional status, past health conditions, present health problems, Obs/gynecological history of women and family history of anemia were obtained.

In this study we conducted a detailed and complete examination of physical health of all

A Descriptive Study on Iron Deficiency Anemia in the Adult Population of Khost Province

patients. We checked patients' blood tests, hemoglobin level, serum ferritin level and the CBC reports in laboratory. Blood platelets were also checked. We considered serum ferritin for acute iron deficiency as less than 14 ng/dl. Hemoglobin values were considered to examine the designated limit in women and men as 10 to 12 g/dl.

Results

From all 300 anemic patients [260 (86.6%) females and 40 (13.3%)], we found 262 (87.3%) patients were deficient of iron and 38

(12.7%) patients had inadequacy of non-iron (lack of other minerals) anemia. Most (183) of the patients (61%) who had less volume of iron were aged 21 to 45 Years. On basis of serum ferritin level (SFL), we observed the intensity of deficiency of iron and classify into modest, mildest and acute groups. We found 210 (70%) patients had modest IDA (iron deficiency anemia), 33 (11%) patients had acute and the remaining 57 (19%) patients had mildest deficiency of iron anemia.

Table #1: General Frequency of Iron deficiency anemia

	Frequency	Percentage
Deficiency of Iron	262	87.3%
Men	40	13.4%
Women	260	86.6%
Deficiency of other minerals	30	12.7%

Table #2: Age-related frequency of iron deficiency anemia

Participants	Frequency	Percentage
18-21	80	26.7%
21-45	183	61%
45-80	37	12.3%

Table #3: Frequency of Patients according to serum ferritin levels

Serum ferritin	Frequency	Percentage
<14ng/dl	33	11%
14-44	210	70%
45-99	57	19%

Table #4: Type-related frequency of patients

Type	Number	Percentage
Moderate	210	70%
Acute	33	11%
Mild	57	19%

Discussion

Conflict and instability has meant nutrition in Afghanistan has been much less researched than the rest of South Asia. A World Bank publication [4] summarizes knowledge about the nutrition situation in Afghanistan. Using data from the National Nutrition Survey (NNS) of 2004, it reports an under-5 stunting rate of 60.5%, and anemia prevalence amongst non-pregnant women of 25% [4]. Summary results from a National

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A Descriptive Study on Iron Deficiency Anemia in the Adult Population of Khost Province

(including pregnant and non-pregnant) of 25% in study households.

Conclusion

According to this study, the prevalence of iron deficiency anemia was more dominant in contrast to other causes of anemia. It was seen that females were more commonly affected by iron deficiency anemia and in whom the pattern of iron deficiency was mostly of the modest type.

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