



**PREVALENCE CROSS SECTION STUDY ON IRON DEFICIENCY ANEMIA  
CONTROLLING AND MANAGEMENT AT QUEEN ALIA AND MILITARY CANCER  
CENTER HOSPITALS IN ROYAL MEDICAL SERVICES, JORDAN (2023-2024)**

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### ABSTRACT

**Introduction:** The most common cause of anemia worldwide is iron deficiency. Iron is needed to form hemoglobin, part of red blood cells that carry oxygen and remove carbon dioxide from the body. Iron is mostly stored in the body in the hemoglobin. About one-third of iron is also stored as ferritin and hemosiderin in the bone marrow, spleen, and liver. Iron from the food is absorbed into the body by the cells that line the gastrointestinal tract; the body only absorbs a small fraction of the iron. The iron is released to the blood stream, where a protein called transferrin attaches to it and delivers the iron to the liver. Iron is stored in the liver as ferritin and released as needed to make new red blood cells in the bone marrow. When red blood cells are no longer able to function, they are re-absorbed by the spleen. Iron from these old cells can also be recycled by the body. You can usually correct iron deficiency anemia with iron supplementation. Sometimes additional tests or treatments for iron deficiency anemia are necessary, especially if its suspect that you are bleeding internally. Iron deficiency anemia must be managed in a proper way, because it has many complications. **Methodology:** Prospective prevalence, cross sectional study will be conducted; a team of six doctors will full fill questioner, which will be explained and discussed with patients. The target sample will be from patients who will visit hematology and internal medicine outpatient clinics of military cancer hospital and queen alia military hospital to study socio-demographics, symptoms, signs, treatment measures, risk factors, types and causes. Study will be conducted in (2023-2024). Analysis will be done by SPSS 21 program. **Results:** demographic tables were discussed. It was obvious that Patient's age was statistically significant since those with age less than 20 years and participated in the study showed 65.8% of iron deficiency anemia, 68.6% females showed iron deficiency anemia, low income was also significant in those who complained of iron deficiency anemia it showed 60.2%. 61.1% of those complaining of iron deficiency anemia had family history. **Conclusion:** Iron deficiency anemia is a preventable common disease; dietary in take is one important way to treat this type of anemia. Many causes are treatable. Patient education on causes, management must be cleared for every patient. Pregnancy and menstrual problems in females are major causes for this type of anemia.

### INTRODUCTION

Iron deficiency anemia is one of the types of anemia, it is due to loss of iron in red blood cells, this loss of iron is called iron deficiency anemia. In this type of anemia, blood cells will have an abnormal shape. And also an abnormal function were it dose note have the same capability to carry oxygen to body organs due to that a lot of complications and effects on body will appear due to lack of oxygen supply.

It was mentioned by hematology oncology association that iron deficiency anemia is diagnosed by medical history, physical exam and laboratory exams.<sup>[1]</sup>

According to the American Society of Hematology, most people do not realize they have mild anemia until they have a routine blood test.<sup>[2]</sup>

Symptoms and signs in iron deficiency anemia may range from mild, which is not noticed to sever which has obvious effect on patients. Most common signs and symptoms seen on patients is tiredness and shortness of breath, there is many other symptoms according to severity like weakness, pale skin, chest pain and tachycardia, cold hands, brittle nails, poor appetite.

There is many causes for iron deficiency anemia, most common causes for his type of anemia are blood loss and there is many causes to that like bleeding, prolonged

menses, peptic ulcer, colonic polyp. All these causes lead to loss of blood which ends with iron deficiency anemia, also other causes like dietary problems like lack of iron in food, specially meat, eggs, green leafs, all these foods contain iron. Sometimes patients have problems in absorbing iron like when we have ulcers.

A study in John Hopkins showed that most common causes of anemia where body changes and malabsorption.<sup>[3]</sup>

Celiac disease is a major cause to have iron deficiency disease where the small intestine cannot absorb iron leading to this type of anemia. Pregnancy is a major cause also cause in this situation both mother and infant needs more supply than usual.

There is many risk factors, which lead also to iron deficiency anemia. Some of these risk factors are like vegetarian people because they do not eat the proper amount to supply patients. Frequent blood donors may lead to anemia and women with prolonged menstruation may complain of iron deficiency anemia.

Iron deficiency anemia may lead to many complications like heart complication like enlargement of heart muscle and heart failure. In addition, it may lead to problems in growth.

Preventive measures in iron deficiency anemia is an important measure to control iron deficiency anemia. Some of these measures are like increase the intake of meat, seafood, vegetables, and beans. So as a result, patients must increase the intake of iron supplements.<sup>[4]</sup>

Iron deficiency anemia treatment as mentioned in the first paragraph may be by preventive measures, and it may be by iron supplements, which is by either tabs, or injections. It was mentioned in the medical Australian journal that management of iron anemia might be oral therapy were the recommended dose for oral intake is 100-200 mg daily and it can be taken on two or three divided doses. Tabs may lead to gastrointestinal upset that is why we divide the dose.<sup>[5]</sup>

On treatment for iron deficiency anemia storage must increase 20 g/l every 3 weeks, and within 6 months replenish to iron stores will be achieved.

Parenteral therapy is the second line for treating iron deficiency anemia where we use. Underuse of IV iron may have stemmed in part from concerns about the risk of serious allergic reactions — for example, 0.6% of patients treated with high molecular weight iron dextran (no longer available in Australia) had life-threatening allergic reactions.<sup>[6]</sup>

Iron polymaltose needed to replenish iron stores in the body is one to two and a half thousand mg; this amount will be taken in five hours.

## METHODOLOGY

Prospective prevalence, cross sectional study was conducted; on a sample which included 108 patients. A team of six doctors full filled questioner, which was explained and discussed with patients. The target sample was from patients who visited hematology and internal medicine outpatient clinics of military cancer hospital and queen alia military hospital to study socio-demographics, symptoms, signs, treatment measures, risk factors, types and causes. Study was conducted in (2023-2024). Analysis is done by SPSS 21 program.

## RESULTS

**Socio demographic table. 1.**

Variable	108 Total. NO	Percentage
Age		
>20	37	34.2%
<20	71	65.8%
Sex		
Male	34	31.4%
Female	74	68.6%
Region		
North	28	25.9%
South	62	57.4%
Med	18	16.6%
Income		
>300	43	39.8%
<300	65	60.2%
Smoking		
Yes	72	66.6%
No	36	33.4%
Family Hx		
Yes	66	61.1%
No	42	38.9%

In table number one socio, demographic tables were discussed. It was obvious that Patient's age was statistically significant since those with age less than 20 years and participated in the study showed 65.8% of iron deficiency anemia, 68.6% females showed iron deficiency anemia, low income was also significant in those who complained of iron deficiency anemia it showed 60.2%. 61.1% of those complaining of iron deficiency anemia had family history.

**Risk factors table No. 2.**

Variable	Total. No 108	Percentage
Diet	84	77.7%
Problems with the small intestine.	8	7.4%
Menstrual periods.	46	42.5%
Pregnancy.	6	5.5%
Family history	12	11.1%

Table number two discusses most common risk factors associated with iron deficiency disorders. It was significant the association of dietary habits with iron deficiency anemia, 77.7% of patient in this study. 7.4%

of patients participating in this study and having iron deficiency anemia who are complaining of problems in small intestine. 42.5% of patients are women

complaining of having menstrual period problems. 5.5% also were pregnant women. Family history is always a risk factor for having iron deficiency anemia.

### Signs and symptoms table No.3

Variable	Total. No 108	Percentage
Extreme fatigue	48	44.4%
Weakness	33	30.5%
Pale skin	34	31.4%
Chest pain, fast heartbeat or shortness of breath	36	33.3%
Cold hands and feet	13	12%
Headache, dizziness or lightheadedness	64	59.2%
Brittle nails	36	33.3%
Inflammation or soreness of your tongue	11	10.1%
Poor appetite, especially in infants and children with iron deficiency anemia	46	42.5%

Table number three discusses most common signs and symptoms seen in patients with iron deficiency anemia. 44.4% of patients complained of fatigue. 30.5% of patients complained of weakness pale skin was seen in 31.4% of patient visiting the clinic, 33.3% complained of chest pain. 12% complained of cold extremities, headache was significantly seen in iron deficiency anemia patients, 33.3% of patients complained of brittle nails. 42.5% of patients complained of poor appetite.

iron deficiency anemia was age it showed that those with age more than 20 year and had anemia were 34.2% and this result is consistent with other studies that showed that people with age older than 30 years old were around 85% of patients complaining of iron deficiency anemia. 31.4% of patients complaining of anemia were males were females were 68.6% this is consistent with other studies which showed that It is slightly more common in females (9.9%) than males (7.8%).<sup>[8]</sup>

### Management No.4

Variable	Total. No 108	Percentage
Improve diet	88	81.48%
Oral tab ferrous	54	50%
Oral tab with on empty stomach	23	21.2%
Oral tab with antiacid	46	42.5%
Oral tab with vit c	48	44.4%
Oral contraceptive	41	37.9%
Use antibiotic	37	34.2%
Surgery	12	11.1%

Table number four discuss the management of iron deficiency anemia. Were 81.48% of patients improved by improving diet habits, 50% of patients were treated by ferrous tab. 21.2% of patients were treated by oral tabs on empty stomach. 42.5% of patients took anti acids with oral tabs. 44.4% of patients took vitamin C with oral tabs. 37.9% used oral contraceptives. 11.1% of patients needed surgery to overcome the cause of iron deficiency anemia.

### DISCUSSION

When we speak about iron deficiency anemia we are saying that iron-deficiency anemia affects approximately 610 million people worldwide or 8.8% of the population. It is well known that it is so common in children 1-3 around 15% of cases.<sup>[7]</sup>

In this study we discussed socio demographic and one of most important variables which showed association with

When we speak on income effect on iron deficiency anemia it was seen in our study, were it showed 60.2% of patients were from low- income communities this is consistent with other studies.

61.1% of patient who participated in this study had family history, which was consistent with other studies, which showed that family history is a main cause of iron deficiency anemia.

In our study, we discussed most common causes and risks leading to have iron deficiency anemia. Dietary intake and contents were a main cause for iron deficiency it showed that 77.7% of patients had dietary problems. This result also was mentioned in other studies that in babies and adolescents it may outpace their dietary intake of iron which can result in deficiency in the absence of disease or a grossly abnormal diet.<sup>[9]</sup> Dietary factors, such as spices intake, were hypothesized to cause ulcers until the late 20th century, but have been shown to be of relatively minor importance.<sup>[10]</sup>

Menstrual problems was a significant problem in having iron deficiency anemia in female patients that appeared in this study it was 42.5% of patients in this study. This cause is consistent with other researches. Women with (heavy menstrual periods) are at risk of iron-deficiency anemia.<sup>[11]</sup>

Also pregnancy was a risk factor for iron deficiency anemia, it showed 5.5% of those who participated in this study, it was mentioned in other researches that iron-deficiency anemia occurs in many pregnant women

because their iron demand on stores need to serve their own increased blood volume and be a source of hemoglobin for the growing baby and placental development.<sup>[12]</sup>

As mentioned before those with family history and those with intestinal malabsorption problems must have a lot of attention because they have more possibility of having iron deficiency anemia.

Iron deficiency anemia is associated with multiple signs and symptoms; most common seen is fatigue, weakness, pale skin, shortness of breath, chest pain, and cold extremities brattling in nails, headache and poor appetite. All of these were detected in patients who visited the clinic. And in other studies and articles, similar signs and symptoms were detected in a John Hopkins research where it concentrated on same signs and symptoms and added to concentrate on splenic enlargement.<sup>[13]</sup>

Management of iron deficiency anemia is important and we must concentrate on dietary intake. In our study it was will noticed that 81.4% of patients were on diet therapy to improve iron level in blood and stores, 50% of patients used ferrous as tab to restore storages, 21.2% of them used tablets on empty stomach to increase absorption, 42.5% of patients used anti acid with it. 11.1% needed surgery treatment to overcome causes of iron deficiency anemia.

## CONCLUSION

Iron deficiency anemia is a preventable common disease; dietary in take is one important way to treat this type of anemia. Many causes are treatable. Patient education on causes, management must be cleared for every patient. Pregnancy and menstrual problems in females are major causes for this type of anemia.

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