

Prevalence of Anaemia in Females of Reproductive Age Group

Abstract

Background: The presence of anaemia is an important indicator of public health since it is linked to poor health outcomes. The restricted nature of available data makes it difficult to relate the iron status of pregnant women. It is yet unclear whether therapy option is most successful in reducing postpartum anaemia symptoms.

Aim and objective: To discuss the existence of anaemia in females of conceivable age and during pregnancy, as well as the causes and treatments for the condition.

Description: The woman ought to contain bodily stores of iron as 500 mg, that corresponds to serum ferritin levels of 60-70 g/L, for completing a normal pregnancy along with no intake of iron supplements even without developing iron deficiency or iron deficiency anaemia. Iron deficiency anaemia caused by a less percentage of iron, is most common kind of anaemia worldwide. Anemia is a prevalent problem among HIV-positive persons, especially women. It can make you feel restless, reduce your quality of life, and make it more likely that your HIV infection will worsen.

Conclusion: The experimental relevance of few temporary good fatigue count in female patients alongside blood transfusion remains unknown, also such small benefit must get weighed against understood risks, such as maternal mortality (not stated) as well as maternal immunological sensitization, all of that might disrupt subsequent pregnancies. When comparison between oral iron to a placebo is made, it's unclear if effectiveness (symptom alleviation) overcomes the documented gastrointestinal side effects.

Keywords:

Physiological, Prevalence, Persistent, Postpartum, Erythropoietin

INTRODUCTION

Anaemia is a condition wherein the haemoglobin content of the blood is less than usual due to a shortage of one or more important nutrients in the body(1). Half of all cases of anaemia are thought to be caused by iron deficiency, with genetic blood disorders and infections like hookworm and malaria being the other significant concerns(2).

The prevalence of anaemia is an important public health indicator since it is linked to poor health outcomes. Even while iron deficiency is the most common cause of anaemia, limited oxygen-carrying capacity can also be caused by other illnesses such as chronic diseases, which are still a serious health problem in the United States(3).

This review, which includes both pregnant ladies and females of fertile age, was conducted to assist discussions at an NIH workshop on prenatal screening and supplements.(4).

The restricted nature of available data makes it difficult to relate the iron status of pregnant women. Such descriptions may be made by looking at the iron levels of women of reproductive age; thus, a successful pregnancy is reliant in part on the mother's health before she gets pregnant. Because there is a necessary physiologic increase in the demands for absorbed iron during pregnancy to augment the woman's rbc's mass and ensure an appropriate iron supply for the functioning of the placenta and the growing baby, prepregnancy body iron stores are crucial. The total amount of iron required for a healthy pregnancy is 1000–1200mg.(4).

In a nutshell, iron is necessary and is a critical component of pregnancy. Anemia before surgery is rather frequent. Pre-operative anaemia is associated with a higher risk of poor outcomes following surgery, as well as an increased length of critical care and hospital stay, postoperative problems, and an even worse overall result. Although pre-operative anaemia is a strong predictor of the requirement for blood transfusion, transfusion is associated with increased length of stay, surgical anomalies, and death.

The identification, diagnosis, as well as management of pre-operative anaemia are high demands mostly in pre-operative care of patients.(5).

WOMEN AND ANAEMIA

Iron deficiency anaemia, which is caused by a lack of iron, is the most common kind of anaemia worldwide. For a variety of reasons, women are more prone to be affected by this kind of anaemia. First, women between the ages of 12 and 49 are likely to shed blood once a month during regular periods. The woman ought to have body iron stores of 500 mg, which corresponds to serum ferritin (SF) concentrations of 70–80 g/L, to finish a successful pregnancy without taking iron supplements even without developing iron deficiency (ID) as well as iron deficiency anaemia (IDA).(4).

Iron is necessary for the production of new blood, which substitutes the blood shed throughout each menstrual cycle. Anemia is more likely in women who have particularly lengthy periods or who have extremely heavy bleeding. Some women lose iron as a result of endometrial fibroids (noncancerous growths in the womb) that flow slowly, or as a result of bleeding caused by the use of certain iuds (IUDs) for contraception.(6).

Second, additional iron is required for the healthy growth of the foetus throughout pregnancy. In fact, pregnant women require 50 percent more iron than usual (27 mg per day instead of the usual 18 mg per day). During childbirth, women lose blood as well. Women who are pregnant or wanting to get pregnant should have their iron levels checked and inform their doctors if they have any signs or symptoms of anaemia. Iron-fortified prenatal supplements can help women overcome low iron levels and pregnancy-related anaemia. Premature birth, low birth weight, and postnatal depression are all increased by severe anaemia during pregnancy. In some circumstances, there is a higher risk of baby mortality immediately before or after birth.(4).

If a woman had two or fewer interval pregnancies, she is more likely to develop anaemia during pregnancy.

- Are pregnant with many children.
- Are vomiting a lot because of morning sickness.
- They don't eat a lot of iron.
- Are carrying a lot of weight before you get pregnant.
- Have a history of anaemia prior to becoming pregnant.(7).

OUTCOMES OF ANAEMIA

As the haemoglobin percentage falls below two-thirds of typical, physiological indications and symptoms such as uneasiness, dyspnoea, and a drop in heart rate appear. With a haemoglobin as little as 50 g/l, healthy people can develop cardiovascular clinical manifestations. Even more so in the well-to-do, less extreme anaemia causes impaired functional ability and physical performance, as well as a decreased quality of life. Indeed, anaemia is considered to have the same influence on public health as diabetes as well as cardiovascular diseases.(5)

Anaemia is a worldwide problem that affects children and women of childbearing age unevenly. Anaemia affects cognitive and motor development, alongwith job ability. Iron deficientanaemia is also associated to poor reproductive outcomes in pregnant women, such as delivery before full term, birth weight comparitively low, and low reserves of iron in the newborn, which can contribute to abnormal development. The majorpprevalent reason of anaemiafound as iron deficiency, although there are several nutritional and non-nutritional reasons as well. The concentration of haemoglobin in the blood is used to diagnose anaemia, and it is affected by a number of variables, including the altitude (metres above sea level), smoking, and trimesters of pregnancy, age and genders. Whenever blood haemoglobin levels are combined with certain other iron status markers, information regarding the reason regarding deficiency of iron is obtained. The presence of anaemia within particular population might be exploited to exaggerate the problem's public health implications.(8)

WHAT CAUSES ANAEMIA?

This occurs when a woman loses too much blood during her monthly cycle, has recurrent nose bleeding, or intestinal bleeding; this is known as 'iron deficiency anaemia.'

Limit your intake of B vitamins: anaemia can be caused by a lack of vitamin B folic acid; "pernicious anaemia" occurs when the body is prohibited from receiving sufficient vitamin B12.

HIV can inhibit red blood cell formation within the bone marrow cells (referring to soft portion inside bones)

HIV-related opportunistic infection i.e OIs are common.

Damaged bone marrow cells as well as kidneys

Thyroid issues in certain people (problems considering hormone responsible for regulating weight)

Few of the most often prescribed medicines for the treatment of HIV and associated diseases.

DIAGNOSIS

The causes of anaemia can be substantially reduced by investigation and therapy. Anemia often detected by calculating haemoglobin as well as hematocrit levels (HCT). Proportion of red blood cells i.e. RBC in the blood is known as HCT. A total blood count that is considered as routine blood test that calculates haemoglobin and hematocrit (CBC). A CBC or complete blood count shall be checked as inclusive of one's routine body health examinations.

- Haemoglobin(Hb) levels in ladies shall be about 13 grams per deciliter - an Hb level lower than 6.5 g/dL considered extremely dangerous and also might result to be fatal.
- HCT level in ladies shall be in the range of 35 – 45 percent.

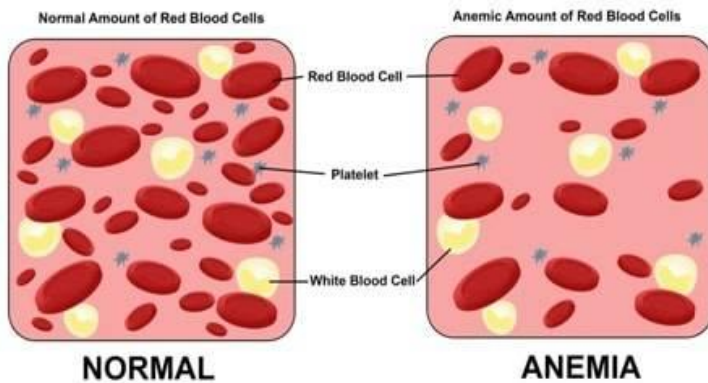
TREATMENT

- The treatment for anaemia is determined on the cause.
- If blood loss is the cause of the issue, the origin of the blood loss must be identified and corrected.
- If blood loss is the cause of the problem, the source of the blood loss must be identified and rectified if iron levels are low, as they are commonly in women. The results will be suggested by a woman's health care practitioner in order to boost the amount of iron in her blood. Women might well be able to change their diet to include foods that contain enough iron. Dark green leafy vegetables (collards, lettuce, kale, chard), red meat, legumes (chickpeas, legumes, soybeans), shellfish (mollusks like oysters, clams, and scallops), and fermented bread and cereals all contain iron. Iron pills can also help to boost iron levels. Before consuming any additional vitamins, consult with your doctor.
- If your folic acid level is low, you may be able to supplement your diet with foods that contain folic acid. Dark green leafy vegetables, asparagus, legumes (lima beans, bean sprouts, chickpeas, lentils), luscious fruits (oranges, grapefruits, tangerines, lemons, limes), as well as beef liver are all high in folic acid. Folic acid pills are also available for women. Folic acid is critical for expectant mothers. Adequate folic acid levels (suggestions: 400 micrograms/day) can help prevent birth anomalies
- No matter how much vitamin B12 we get in our food, we may require B12 injections (shots) or a type of B12 we place under our tongue if our levels are low. This is due to the fact that few people can tolerate this vitamin in the form of food or pills. If you solely eat a vegetarian diet, your vitamin B12 levels may be low, and you may need to take liquid B12 under your tongue
- If a drug you're taking is causing you to develop anaemia, we may need to stop using it. However, it is critical not to discontinue taking a medication without first consulting your doctor. When advanced HIV disease is the cause of anemia, HIV treatment may improve symptoms.

There are other medicines that aid in the production of extra erythrocytes. These medicines (brand names Epogen and Procrit) contain erythropoietin, often known as EPO (you get a shot of the drug). A blood transfusion may occur in a small number of patients with severe anaemia (getting blood directly into your blood vessels). However, transfusions are only carried out if the blood is needed immediately or if no other options are available. Speaking with your doctor will assist him or her in determining the best course of therapy for you based on the cause of the condition. (6)

If you take an iron-fortified vitamin before giving birth to a child and the mother is anaemic, the worried health care practitioner may need to look into other possible explanations. In some circumstances, you may need to consult a doctor that specialises in blood abnormalities (hematologist). If iron insufficiency is the reason, more iron may be recommended. If you've had gastric bypass or small bowel surgery in the past, or if you can't take oral iron, you could need a direct injection into a vein. (1)

ANEMIA



(9)

Figure 1: Showing normal and abnormal amount of erythrocytes.

POSTPARTUM IRON DEFICIENCY ANAEMIA

Iron insufficiency after childbirth causes anaemia through blood loss or even less intake of iron in the diet. Iron deficiency is linked with a less-than-normal blood Hb accumulation, which might be exacerbated from reasons different from anaemia as should be localised in view of any accompanying clinical manifestations. Fatigue, inability to breathe correctly, and vertigo are all possible causes. Oral or direct injection of iron into veins, erythropoietin, which directs erythrocyte production, and erythrocyte transfusion are all possibilities for treatment. (10).

WAYS TO AVOID COMMON VARIATIONS OF ANAEMIA DURING GESTATION

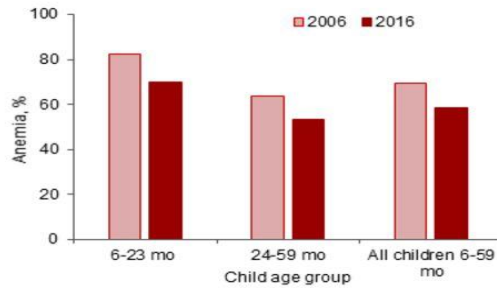
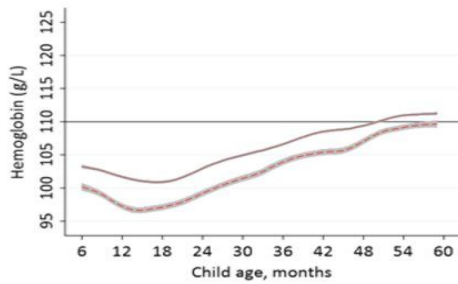
Prenatal vitamins generally include the bulk of the micronutrients that pregnant women require, such as iron and folic acid.

If a woman's iron level is low, the doctor might suggest iron supplements apart from regular prebirth vitamin to her.

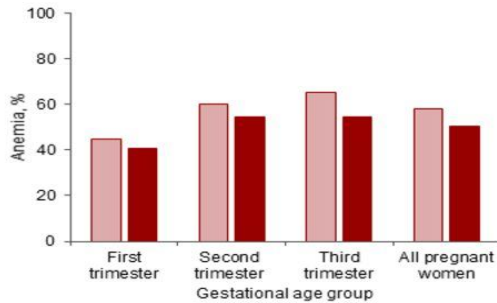
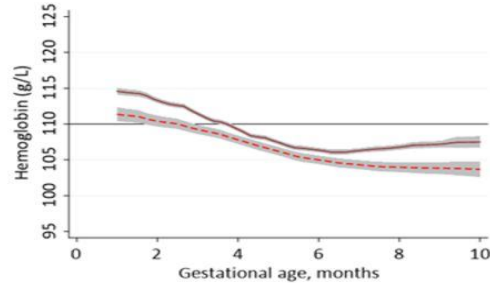
The majority of people can receive enough quantity of iron as well as folic acid during gestation through eating proper foods.

By eating the appropriate foods, most individuals can receive enough iron and folic acid throughout pregnancy.

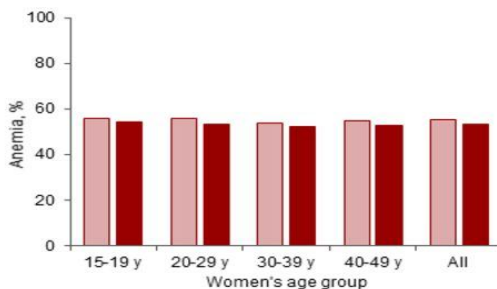
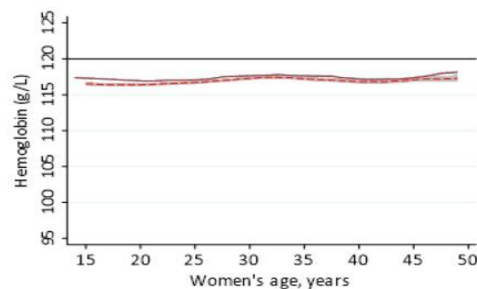
A. Children



B. Pregnant women



C. Non-pregnant women of reproductive age



(10) Figure 2: Showing prevalence of anaemia in different age groups.

TAKING CARE OF SELF

Anemia seems to be a prevalent problem among Human Immunodeficiency Virus-positive persons, specifically ladies. It might make one feel restless, reduce your quality of life, and make it more likely that your HIV infection will worsen.

Talk to your doctor in case you are fatigued for no apparent cause or if you have been experiencing either of the listed symptoms above. He can do tests to determine if anaemia is the cause of the anomaly. If that's the case, your doctor will investigate the source of the anaemia and provide treatment choices. Anemia treatment enhances the strength and survival of HIV patients.

HOW TO DETECT ANAEMIA

A physical examination will be performed by the health care provider to search for indicators of iron deficient anaemia. One could:

- Examine the skin, gums, or even nail beds for signs of paleness.

- Pay attention to your heartbeat to see if it's fast or irregular.
- Pay attention to your lungs for signs of quick or irregular breathing.
- Measure the size of your spleen and liver by touching your abdomen.(10)

Accurate blood count often being first test done to recognize anaemia. CBC defines several points of given blood.

Such test states the quantity of Hb and hematocrit. Hemoglobin (Hb) being an iron-enriched protein is found in erythrocytes besides is considered for transport of oxygen within the whole body. Hematocrit is defined as measurement of amount of area in one's blood erythrocytes takes up. Anemia is detected by a less level of haemoglobin even hematocrit. In most of racial and ethnic aggregation, the usual range of these levels differs. Your test results can be explained to the individual you want by a health care expert. The CBC also recognizes the number of erythrocytes, leukocytes, and thrombocytes in our blood. Not so normal results might be a sign of sickness, a blood disorder, or even some other anomaly.

Conclusively the CBC examines average corpuscular volume. MCV is a measurement of erythrocyte mean size. The results could provide insight into the reason of anaemia. Erythrocytes with iron-deficient anaemia, for instance, are frequently smaller than normal.(7)

TESTS ALONGSIDE PROCEDURES REGARDING GASTROINTESTINAL BLOOD LOSS

A faecal occult blood test may be recommended to determine if inner bleeding has been causing iron deficient anaemia. This test checks for blood in the faeces and can reveal intestinal haemorrhage.

If test detects blood in that case other tests and procedures might be required for pinpointing the certain location of bleeding. Such procedures as well as tests might be used to find out bleeding inside stomach, intestines, colon, or even pelvic organs.(10-15)

CONCLUSION

We were unable to make a definite conclusion about the accuracy regarding therapies of postpartum iron deficient anaemia due to a lack of data. The confirmation was of poor quality. Clinical outcomes were reported infrequently. Because laboratory readings do not always correlate with clinical therapy benefits, they may not be reliable indications of success. It is yet unclear whether therapy option is most beneficial in relieving postpartum anaemia symptoms. Although intravenous iron was superior in terms of gastrointestinal effects, allergy along with cardiac functions did occur, as well as further data required for determining if intravenous iron shall be blamed. The prognostic value of few temporary higher fatigue count in women treated from blood transfer is unknown, as well as this small benefit shall get weighed against known risk, such as maternal mortality (not stated) plus maternal immune sensitization, both of that might damage future pregnancy. On comparing oral iron with a placebo, often it's unclear if benefit (symptom alleviation) outweighs the documented gastrointestinal side effects. Due to a paucity of evidence, we were unable to draw any conclusions about erythropoietin treatment. More study should be done to assess therapy effectiveness based on clinical outcomes, such as the existence and severity of anaemia symptoms.

There is currently no portable iron reader on the market that is designed specifically for iron limiting. A transferable iron reader in a practical format is urgently needed to minimise or eliminate iron deficiency anaemia, specifically in developing countries as well as rural areas. Our teams are now working on a new, low-cost, and convenient iron reader that can be commercialised worldwide. The prevalence of anemia/IDA could be reduced in the coming years, particularly in rural areas.

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UNDER PEER REVIEW