

# Iron Deficiency Anaemia in Women & Its Homoeopathic Management

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## ABSTRACT

Anaemia is an important public health concern and is a burning problem faced mainly by women from childhood to menopausal age, affecting almost 25% of the global population. In India, more than 50% of the children, non-pregnant and pregnant women being affected by this condition. Amongst anaemia, Iron deficiency is the most common micronutrient deficiency worldwide. Iron is necessary for various functioning of body including formation of haemoglobin, brain development and regulation of body temperature, muscle activity, and catecholamine metabolism. Lack of iron directly affects the immune system; it diminishes the number of T-cells and the production of antibodies. Besides haemoglobin, iron is a component of myoglobin, the cytochromes, catalase and certain enzyme systems. Iron is essential for binding oxygen to

the blood cells. The central function of iron is "oxygen transport", and cell respiration.

**Keywords:** India, Iron Deficiency Anaemia, haemoglobin, erythrocytes, anaemia, PBF-peripheral blood smear.

## INTRODUCTION

Anaemia is a reduction in haemoglobin (Hb) or haematocrit (HCT) or RBC count. In India, anaemia affects 58.6% of children, 53.2% of non-pregnant women, and 50.4% of pregnant women. Anaemia prevention and control in India is "Iron deficiency centric".

Below table depicts the level of anaemia indifferent age groups in children, women & men.

	Population	Non-Anemia (Gm/dL)	Anemia (Gm/dL)		
			Mild	Moderate	Severe
1	Children 6-59 months of age	11	10.0-10.9	7.0-9.9	<7.0
2	Children 5-11 years of age	11.5	11.0-11.4	8.0-10.9	<8.0
3	Children 12-14 years of age	12	11.0-11.9	8.0-10.9	<8.0
4	Non-pregnant women (15 years of age and above)	12	11.0-11.9	8.0-10.9	<8.0
5	Pregnant women	11	10.0-10.9	7.0-9.9	<7.0
6	Men (15 years of age and above)	13	11.0-12.9	8.0-10.9	<8.0

## WHO Criteria for Anaemia and Grade of severity

### Types-

The aetiology of anaemia depends on whether the anaemia is hypo-proliferative (i.e., corrected reticulocyte count <2%) or

hyper-proliferative (i.e., corrected reticulocyte count >2%).

Hypo proliferative anaemias are further divided by the mean corpuscular volume into microcytic anaemia (MCV<80 fl), normocytic anaemia (MCV 80-100 fl), and macrocytic anaemia (MCV>100 fl).

- 1) Hypo-proliferative Microcytic Anemia (MCV<80 fl)
- 2) Hypo-proliferative Normocytic Anemia (MCV 80-100 fL)
- 3) Hypo proliferative Macrocytic Anemia (MCV>100 fL)
- 4) Haemolytic anaemia -Haemolytic anaemia (HA) is divided into extravascular and intravascular causes.

- Extravascular haemolysis: red cells are prematurely removed from the circulation by the liver and spleen.
- Intravascular haemolysis: red cells lyse within the circulation, and is less common.

Iron is of great importance in human nutrition. The adult human body contains between 3-4 g of iron, of which about 60-70 per cent is present in the blood (Hb iron) as circulating iron, and the rest (1 to 1.5 g) as storage iron. Each gram of haemoglobin contains about 3.34 mg of iron. Sources- There are two forms of iron, haem-iron and non-haem iron. Haem-iron is better absorbed than non-haem iron. Foods rich in haem-iron are liver, meat, poultry and fish. They are not only important sources of readily available iron but they also promote the absorption of non-haem iron in plant foods eaten at the same time. Foods containing non-haem iron are those of vegetable origin, e.g., cereals, green leafy vegetables, legumes, nuts, oilseeds, jaggery and dried fruits. They are important sources of iron in the diets of a large majority of Indian people. The bioavailability of non-haem iron is poor owing to the presence of phytates, oxalates, phosphates and dietary fibre which interfere with iron absorption.

Other foods which inhibit iron absorption are milk, eggs and tea.

### Definition-

Anaemia is defined as Haemoglobin below two standard deviations of the mean for the age and gender of patient. Iron Deficiency anaemia is seen when your body doesn't have enough Iron to produce haemoglobin. Iron deficiency anaemia can be primary i.e. due to deficient intake of iron in the diet or can be secondary i.e. caused after inflammation in body called Anaemia of Chronic. Iron deficiency anaemia develops when there is reduction in circulating red cell mass as well as haemoglobin concentration below normal, thereby reducing the size and oxygen carrying capacity of the RBC's.

Incidence-Approximately 25% of people worldwide have anaemia. Iron deficiency anaemia is the most common cause of anaemia worldwide, which results in microcytic and hypochromic red cells on the peripheral smear. In Men the incidence is of around 25% while women it is around 57%.

### Causes & Risk Factors-

The cause of iron-deficiency anaemia varies based on age, gender, and socioeconomic status. Iron deficiency may result from -

- Insufficient intake of Iron
- Decreased absorption
- Blood loss
- Low dietary intake
- Crohn's disease
- Renal system- kidney failure
- Increased systemic requirements for iron such as in pregnancy
- Decreased iron absorption like coeliac disease.
- Iron deficiency anaemia is the most common form of anaemia in young children on cow's milk.

- In developing countries, a parasitic infestation is also a significant cause of iron-deficiency anaemia. Dietary sources of iron are green vegetables, red meat, and iron-fortified milk formulas

### **Pathophysiology-**

Iron is mostly absorbed from duodenum and upper part small intestine in the ferrous state. The rate of iron absorption is influenced by many factors like iron reserves in the person, the presence of inhibitors (e.g., phosphates), and promoters (e.g., ascorbic acid and ascorbic acid-rich foods) of iron absorption, and disorders of duodenum and jejunum. Iron absorption is greater when there is an increased demand for iron, as for example during pregnancy. Iron absorption from Indian diets is less than 5 per cent, the bioavailability being poor. Iron metabolism absorption-The absorbed iron is transported as plasma ferritin and stored in liver, spleen, bone marrow and kidney. The characteristic feature of iron metabolism is conservation. When red cells are broken down, the liberated iron is reutilized in the formation of new red cells. The total daily iron loss of an adult is probably 1 mg, and about 12.5 mg per 28 days cycle in menstruating women.

### **Clinical presentation-**

#### **Symptoms**

- Weakness
- Shortness Of Breath
- Fatigue
- Chest pain
- Difficulty in Concentration
- Pica
- Irritability
- Hair loss
- Pallor is the most important clinical sign, but it is not usually visible unless haemoglobin falls to 7 g/dL to 8 g/dL.
- Bruises

- Chills
- Dizziness

#### **Signs**

- Pallor
- Koilonychia
- Recurrent oral ulceration
- Cracks in angle of mouth
- Soreness in tongue
- Cold sensation in both hands

#### **Complications-**

Several systemic complications that could occur when there is severe iron deficiency anaemia are-

- Immune system-Increased risk of infections
- Cardio vascular system-Heart conditions
- Developmental delay in children
- Pregnancy complications
- mind-Depression

Differential Diagnosis-the differential diagnosis of iron deficiency anaemia can be-

- Lead poisoning
- Microcytic anemia
- Anaemia of chronic disease
- Haemoglobin C disease
- Haemoglobin D disease
- Autoimmune haemolytic anemia
- Hemoglobin S-beta thalassemia

#### **Investigations-**

- Blood haemoglobin estimation -it is a widely used method to diagnose anaemia. Haemoglobin concentrations a relatively insensitive index of nutrient depletion. This is because anemia is a late manifestation of iron deficiency which can frequently occur without the manifestation of anaemia.
- Serum iron concentration: This is a more useful indicator than hemoglobin concentration. The normal range is 0.80 to 1.80 mg/L; values below 0.50 mg/L indicate probable iron deficiency.

- For estimating total iron storage other biomarkers such as ferritin and transferrin are more reliable.
- Serum ferritin: The most sensitive tool for evaluating the iron status is by measurement of serum ferritin. It reflects the size of iron stores in the body. Values below 10 mcg/L probably indicate an absence of stored iron.
- Serum transferrin saturation-should be above 16%, normal value is 30%.
- Peripheral blood smear-microcytic and hypo-chromic red cells are seen in iron deficiency.
- Serum electrolytes must also be tested for to rule out micronutrient deficiencies.
- Haematoscopy
- Management- Iron supplements which must be given 10 weeks before delivery in pregnancy women.

In pregnant women with anaemia, & at 36 weeks, direct blood transfusion is suggested and dietary changes. Diet & Regimen-consume food rich in iron and vitamin C, which in turn increases iron absorption from food. Under the Intensive National Iron Plus Initiative (INIP), oral and parenteral iron preparation, folate and albendazole 400 mg in 2nd trimester are emphasized for the prevention and treatment of maternal anemia. As per current protocol, management of maternal anemia is by hemoglobin (Hb) level only, and treatment is being given irrespective of the status of iron as well as other micronutrient storage.

### **Homeopathic Management-**

#### 1.Ferrum metallicum-

- appearance of full bloodedness or false plethora with abnormal paleness of all mucous membranes
- Face-ashy pale or greenish in colour or earthiness, becomes bright red in flushes due to emotions.

- Pulsating headache, throbbing all over the body
- Palpitation with anaemic murmur in the veins of neck
- Oedema and puffiness of extremities.
- Vomiting as soon as food is taken
- Patient is easily exhausted
- Patient is constantly chilly with fever in afternoon or evening simulating hectic fever.
- Uncomplicated chlorosis
- Prostration with dullness
- Indicated in anaemia of chlorotic girls and women.
- In severe cases ferric phosphoric is suggested instead of ferric metallic.

#### 2.Arsenicum album-

- Anasarca
- Useful in anaemia due to malaria
- Disintegration of blood corpuscles
- Excessive prostration with rapid loss of vital fluids.
- Oedema, emaciation
- Violent, irregular palpitations
- Desire for acidic food, brandy
- Extreme restlessness (mental, physical) and anxiety, Great fear of death
- Debility from prolonged exertion
- Gastroataxia

#### 3.Cinchona officinalis-

- Complaints due to loss of vital fluids such as blood, semen, diarrhoea, leucorrhoea, over lactation and from all exhausting discharges
- Complaints due to long-lasting diarrhoea, sexual excesses, loss of semen
- Great debility, trembling seen
- Suitable for women whose have haemorrhage and have not recovered from it.
- Feeble circulation

- Dropsy due to loss of blood
- Sensitive to draught of air but still wants to be fanned.
- Pale and sallow complexion, weak
- Aversion to exercise
- Sleeplessness
- Intolerance to fruits, milk leads to diarrhoea after eating, midnight
- Sour belching, Poor digestion with bloated abdomen
- Heaviness of head with loss of sight and person faints
- Ringing in ears
- Palpitations with rush of blood to head
- Redness of head with cold hands.
- 30th potency suggested to be productive cure by Dr. George Royal

#### 4. Natrum muriaticum-

- Anemia from loss of vital fluids
- Cachexia
- Despite the patient eating well, general Emaciation
- Menstrual irregularities -scanty- watery menses every in every 2to 3 months.
- Hypochondriasis
- Great exhaustion from slightest exertion of mind and body.
- Skin is dry and yellowish with paleness, thin worn face
- Fluttering Palpitation with sensation as if bird's wing were fluttering in left chest and intermittent action of heart
- Distension and pressure sensation in stomach.
- Constipation with contraction of anus.
- Melancholic, easily angered, depression of spirits.
- Symptoms aggravated by motion, sudden noise, consolation.
- Attacks of throbbing headache with dyspnoea especially while ascending stairs.

#### 5. Kali carbonicum-

- Frequent chilliness, every time patient steps out of door he feels chilly.
- Vertigo when turning head rapidly or due to travelling in car with humming in ears.
- Decrease in total RBC's in blood.
- Weakness of sight due to sexual activities.

#### 6. Phosphorous-

- Anaemia in deep seated chronic diseases.
- Suitable to persons who are tall, slender, narrow-chested, phthisical
- Easily catch cold.
- Menses are too early, copious, bright red.
- Chronic loose stools
- Great thirst for cold refreshing drinks.
- Indicated in cases of anemia due to jaundice.

#### 7. Sulphur-

- Flushes of heat
- Hot vertex, cold feet, burning of soles.
- Weak sinking feeling in epigastrium at forenoon.

#### 8. Pulsatilla nigricans-

- Chloro-anaemic women
- Indicated in cases of excessive intake of iron supplements
- Always feel chilly but, complaints are better in open air
- Feels worn out, all tissues are relaxed.
- Phlegmatic temperament
- Fleshy, pale look
- Late, scanty, dark, painful protracted menstruation.
- Cries easily, seeks consolation
- Palpitations, short breath due to anxiety
- Pain under clavicles of either or both sides.
- Absence of thirst
- Dizziness on rising from seat or bed
- Weak digestion, diarrhoea



### 9. Calcarea carbonica-

- Psoric scrofulous or tubercular diathesis
- Desire for sour, indigestible things
- Disgust for meat
- Bloated abdomen
- Vertigo and palpitation on ascending stairs.
- Patient is in state of worry, constantly imagining calamities

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