

Anaemia in Pregnancy and Lactation

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Anaemia

Non pregnant females

12 g / dL

Pregnant women

11 g / dL (in 1st & 3rd trimester)

(CDC 1990)

10.5 g / dL (in 2nd trimester)

Physiological Anaemia

(from a normal of 12 g / dL to a normal of 11 g / dL) is due to a greater increase in plasma volume as compared to RBC volume

Increased iron requirement during pregnancy

Total cost of one pregnancy is about 1000 mg which is not met by a normal Indian diet.

After Delivery

- In spite of normal blood loss, haemoglobin levels usually are same as pre-delivery.
- Later rise to non-pregnant levels because of puerperal decrease in plasma volume.

Incidence

Almost 80% of women in the lower S/E class and vegetarians are anaemic.

Etiology of Anaemia in pregnancy

ACQUIRED

Nutritional

- **Iron deficiency**
- **Iron and folic acid deficiency**

Anaemia due to acute blood loss

Anaemia of inflammation

Anaemia of malignancy

Acquired haemolytic anaemia

Aplastic or hypoplastic anaemia

HEREDITARY

- **Thalasseмии**
- **Sickle cell haemoglobinopathy**
- **Other haemoglobinopathies**
- **Hereditary haemolytic anaemia**

Effect of Anaemia on pregnancy

On the mother

- **Normal pregnancy causes an increase in blood volume of almost 40 - 50%.**
- **With anaemia, this volume increases even more leading to extra load on the heart.**
- **If there is any heart disease → worsening even by mild to mod anaemia.**
- **If there is no pre-existing heart disease, severe anaemia because of increased load on heart and hypoxia can cause congestive cardiac failure.**

Less resistance to infection

Less capacity to withstand any bleeding - APH, PPH

Anaemia is a cause for direct Maternal mortality in 20% and indirect cause in another 20%.

Milder degrees of anaemia can lead to decreased work capacity and generalized lethargy and weakness, palpitation, dyspnoea.

Fetal effects

- **Severe anaemia - hypoxia - IUGR**
- **Preterm labour**
- **Folic Acid deficiency implicated in Neural Tube Defects and even abruptio placentae.**

Diagnosis

Commonest cause of Anaemia in pregnancy is

- **Iron deficiency**
- **Combined Iron and FA deficiency**

Investigations

- **Mandatory**
- **Hb and Haematocrit**
- **Peripheral blood film for type of cells**
(Hypochromic Microcytic red blood cells)

If possible

Serum ferritin. (Specially if Hb level does not rise even after giving iron supplements). Less than 15 $\mu\text{g/L}$ show Fe deficiency anaemia

Red cell indices

On giving iron supplements

Response is seen by

- Reticulocyte count in PBF $\uparrow\uparrow$ es within 7 - 10 days
- Hb level may take three weeks to show a rise

Treatment

- **200 mg elemental Fe / day in anaemic women**
- **100 mg elemental Fe / day in non-anaemic pregnant women**

Fe therapy should be continued for three months

- **If patient is unable to take oral iron**

Parenteral iron

Intramuscular Fe can be given after giving a test dose (50 mg I/M) and waiting for 24 hours for any adverse reaction.

Then 100 mg / day deep I/M.

Guidelines for blood transfusion in anaemic pregnant women

- **Any woman less than 6 g / dL at any time**
- **In cases of placenta praevia / prev APH in index pregnancy, a baseline haemoglobin of 8 g / dL is mandatory. Preferably build up to 10 g / dL.**

Ideally

- **No woman should labour with haemoglobin of less than 8 g / dL**
- **If at onset of labour haemoglobin is between 6 - 8 g/dL, always have cross matched blood ready.**

If blood is not available and patient is in labour:

1. Prevent PPH

a) High dose oxytocin drip (40 units in 500 ml) after delivery of baby

or

b) Tab. Misoprostol 4 Tabs. / 800 mcg) to be kept per rectum

c) Inj. Syntocinon 5 units + Methergine 1 ampoule I/M after delivery of placenta

To prevent anaemia in the new born :

Keep the baby at a lower level than the placenta for at least 40 seconds and then clamp the cord. Can not be done If :

- a) Baby requires immediate resuscitation by Paediatrician**
- b) Preterm babies**
- c) IUGR babies**

Anaemia due to acute blood loss

Anaemia from PPH / Ectopic pregnancy / abortion / H.mole

In acute blood loss, blood and fluids have to be replaced to stabilise the patient. Once the acute condition is over, residual anaemia and can be treated by oral iron. No need to given more blood if haemoglobin is > 6 g / dL and no likelihood of further bleeding.

Anaemia due to chronic infections and neoplasms

(Tuberculosis, endocarditis, osteomyelitis, HIV infections)

or

Conditions like chronic renal failure, SLE, Inflammatory Bowel Disease, cancer, chemotherapy, HIV infection

Treatment

Recombinant Erythropoietin may have to be given in consultation with physician .

Experience with this in pregnancy is scant as recombinant erythropoietin is reported to cause hypertension and placental abruption in pregnant women.

Folic Acid Deficiency

(Requirement during pregnancy is 400 mcg / day)

Earliest evidence of folic acid deficiency is

- Hypersegmentation of neutrophils in PBF**
- Macrocytic RBC**
- If severe - leukopenia and thrombocytopenia may develop**

Treatment is folic acid 5 mg / day response is dramatic

With 4 - 7 days reticulocyte count increases

Leukopenia and thrombocytopenia are corrected.

Folic Acid supplementation Policy

All young women who are likely to conceive should be given 5 mg folic acid / day to

- Decrease incidence to neural tube defects**
- Additional folic acid supplements are required in multifetal pregnancy**
- Haemolytic anaemia like sickle cell disease**
- Crohn disease**
- Alcoholism**
- Some inflammatory skin disorders**
- Patients on anti convulsants**

Vitamin B₁₂ deficiency

Megaloblastic anaemia due to B₁₂ deficiency is very rare and is due to lack of intrinsic factor which is required for absorption of Vit B₁₂ usually seen only in patients of partial / total gastric resection in child bearing age women / Crohns disease / ileal resection

Treatment is by 1000 mg cyanocobalamine (Vit B₁₂) I/M at monthly intervals.

Haemolytic Anaemia

- **Detected by spherocytosis and reticulocytosis on PBF**
- **There may be thrombocytopenia and leukopenia**
- **May be auto immune haemolytic anaemia. This responds to glucocorticoids.**
- **Could be drug induced. Withdraw the offending drug.**

Drugs known to cause haemolytic anaemia :

- Acetaminophen
- Cephalosporins
- Erythromycin
- Ibuprofen
- Isoniazid
- Methyl dopa
- Penicillin
- Probenecid
- Quinidine
- Rifampin
- Thiopental

HELLP Syndrome

- In patients of Pregnancy Induced Hypertension (PIH), overt, fragmentation, haemolysis with visible haemoglobinemia can occur.
- Fulminant haemolysis can occur in infections by clostridium perfringens, Group A β -haemolytic streptococcus or gram negative bacterial endotoxins.

β-Thalassaemia

Thalassaemia Minor

**When, in spite of iron therapy Hb level does not rise,
PBF shows hypochromic, microcytic picture, β-thalassaemia minor
is to be suspected.**

Hb A₂ is increased to > 3.5%

Hb F is increased to > 2%

Hb is 8 - 10 g / dL

Prophylactic iron and folic acid 60 mg + 1 mg are given

Husband should be tested

**If positive then prenatal testing by CVB for major β-thalassaemia
can be offered**

Name**Composition****Cost (per cap.)****Anemidox****Ferrus fum 360
FA 1.5 mg
B₁₂ 15 mcg
Calcium 200 mg
Vit D 400 IU
Vit C 75 mg****Re. 1/-****Autrin****Ferrous Fum 350
B₁₂ 15 mcg
FA 1.5 mg
Vit C 150 mg****Re. 1/-****Conviron - TR****FeSO₄ 60 mg
FA 1.5 mg
B₁₂ 15 mcg
Vit C 75 mg****Rs. 3.50/-**

Name

Composition

Cost (per cap.)

Biofer (Biochem)

**Iron Hydroxide
Polymaltose
(Iron 100 mg)
FA 1 mg
Vit C 100 mg**

Rs. 5/-

Femed (Comed)

**Iron Hydroxide
Polymaltose
(Iron 100 mg)
FA 1 mg
Vit C 100 mg**

Rs. 5/-

Fered (Wallace)

**Iron Hydroxide
Polymaltose
(Iron 100 mg)
FA 1 mg
Vit C 100 mg**

Rs. 5/-



Thanks