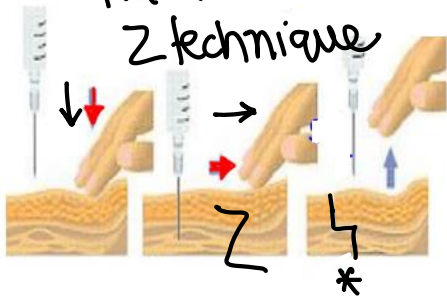


# Anemia

← "HIDDEN HUNGER"



im. IRON:  
Z technique



\* WHO cut off of haemoglobin < 11 gm/dL

Mild	10-11
Moderate	7-10
Severe	< 7 gm/dL: oxy-Hb: Pedal edema

Best site to check for anemia

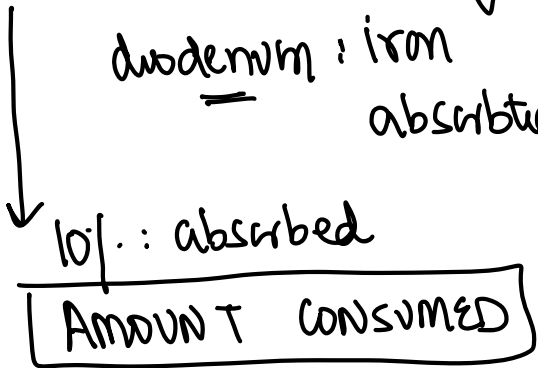
- ✓ 1. Palms CREASES : Dark : no Anaemia  
light : Anemia
2. Nail bed
3. Tongue
4. Conjunctiva

Group/age/physiological status	Haemoglobin cut-off (g l <sup>-1</sup> )
Children	
0.5–5 years	< 110.0
5–11 years	< 115.0
12–13 years	< 120.0
Men	< 130.0
Women	
Non-pregnant	< 120.0
Pregnant	< 110.0



# Why Indians are anemic as compared to western population?

Concept of Bioavailability



CEREAL Rich diet contains phytates : ⊖ iron absorption

IRON SUPPLEMENTATION > 2 HOURS of food intake

+ Vitamin C supplement

IRON UTENSILS COOKING

RDA of iron in female

30 mg

RDA of iron in male

28 mg

→ S. FERRITIN : low : 100

# Causes of Anemia

→ Serum IRON: low

1. Nutritional deficiencies in diet (MC) Iron deficiency Anemia

Iron: ← Duodenum #: celiac sprue  
Folic acid: ← Jejunum #: Tropical sprue  
Vitamin B12: ← Ileum #: CROHN, TB

Ca colon  
↑  
2. Blood loss: → Hemorrhoids  
                  → Necator Americanus  
                  → Ancylostoma duodenale  
↓ UC

3. Destruction of RBC/ Hemolytic anemia  
    ↳ Thalassemia, sickle cell A

4. Faulty RBC production  
    CKD → Epo ↓ : ↓ RBC synthesis : RBC Count ↓

5. Anemia of chronic disease  
    ↳ Rheumatoid A, CROHN'S

-----  
                  celiac sprue  
\* BROW = CI  
Barley, Rye  
oats, wheat  
-----  
anti Tissue  
Transglutaminase  
Alb  
Bajra, Maize, Rice  
-----  
Quinoa  
-----

MC type of anemia is Iron deficiency anemia

Mean cell volume

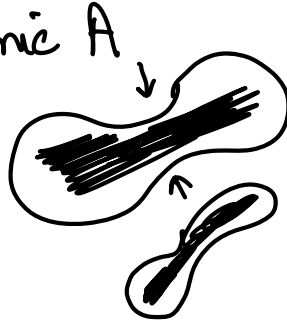
< 80 fl

microcytic

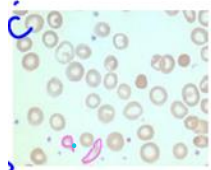
Mean cell haemoglobin

< 20 pg

Hypochromic



UC  
Δ size RBC: Anisocytosis



\* Type of anemia MCHC

Cause:

↑↑Hb + build up stores

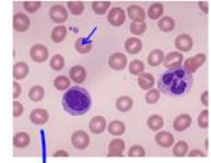
Management

Oral iron supplementation for 6 months

Iron to be taken 2 hrs before after meals and not immediately after meals

Vitamin C to increase bioavailability

Δ shape RBC: Poikilocytosis



Antacids decrease bioavailability

Rate of rise is very slow in initial 2 week but later will be 0.7 to 1 gm per week. Much lesser in Indian patients due to non compliance.

SE = abdominal pain, constipation, diarrhea

ni IRON DEXTRANS > 1m IRON x 10 days

## Single dose

British Society of Gastroenterology guidelines recommend starting treatment of iron deficiency anemia with one tablet of ferrous sulfate, fumarate, or gluconate per day. If that is not tolerated, the patient can take one tablet every other day or try a different preparation. Parenteral iron should be considered when oral iron is contraindicated. Ineffective or not tolerated. Blood transfusions should be reserved for patients with severe symptoms, circulatory compromise, or both.

Treatment guidelines from the American College of Physicians (ACP) for adult patients with anemia and iron deficiency include the following

- A restrictive red blood cell transfusion strategy is recommended for hospitalized patients with coronary heart disease with the trigger haemoglobin threshold lowered to 7-8 g/dL (recommendation: weak; quality of evidence; low)

1 unit PRBC = Hb ↑ 1 gm/dL  
whole blood

↑↑

Earliest lab evidence of response to iron:

Side effects of oral iron

Parenteral iron by Z technique or IV dextran single dose is recommended

RETICULOCYTOSIS: ↑↑↑ | starts  
after

48  
HOURS

Q. 38 weeks un-booked primigravida 25 years of age presents with labor pains. Emergency work up shows Hb = 5gm% with MCHC anemia.

Best intervention

1. Blood transfusion
2. Packed RBC transfusion
3. IV dextran
4. IM jectofer followed by oral iron post partum