TESTS AND DIAGNOSIS OF IRON DEFICIENCY

Tests and lab findings for iron deficiency:

- Peripheral smear (microcytosis, hypochromasia widening of the central pallor accounting for >1/3 of the total RBC diameter, anisocytosis)

- Red cell indices:
  a. Mean corpuscular volume (MCV): measurement of the average size of a single red blood cell (↓ MCV <80 fl)
  b. Mean corpuscular hemoglobin (MCH): calculation of the average amount of hemoglobin inside a single red blood cell (↓ MCH)
  c. Red cell distribution width (RDW) (anisocytosis), platelets
  d. ↓ Mean corpuscular hemoglobin concentration - MCHC (<32g/dL), RBC, Hb, Hct

- Serum ferritin (↓ ferritin)

- Serum iron/transferrin = iron saturation (↓ iron saturation <20%)

- Soluble transferrin receptor (sTfR) (facilitates intracellular import of iron; ID induces the expression and release of the transferrin receptor to the circulation)

- Bone marrow iron stain (Prussian blue)

Accepted Definition for ID in HF: ↓ Ferritin < 100 ug/L OR 100-300 ug/L and TSAT < 20 %

Algorithm for Screening, Diagnosis and Treatment Decision for Iron deficiency in Patients with Heart Failure

1. Check iron deficiency status
   - Ferritin <100 ng/ml or ferritin 100-300 ng/ml if TSAT < 20%

2. Check anaemia status
   - Male: Hb < 13 g/dL
   - Female: Hb < 12 g/dL

3. Iron deficiency treatment
   - Note: if Hb >15 g/dL do not administer IV iron

REFERENCES:


Hb = hemoglobin, Hct = hematocrit, HFrEF = heart failure with reduced ejection fraction, NYHA = New York Heart Association HF functional classification, RBC = red blood cell, TSAT = transferrin saturation

CHRONIC HFrEF (NYHA II-IV)

Check iron deficiency status
- Ferritin <100ug/L OR Ferritin 100-299ug/L when TSAT <20%

Check anaemia status
- Male Hb <13 g/dL
- Female Hb <12 g/dL

Iron deficiency treatment
- Note: if Hb >15 g/dL do not administer IV iron

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