

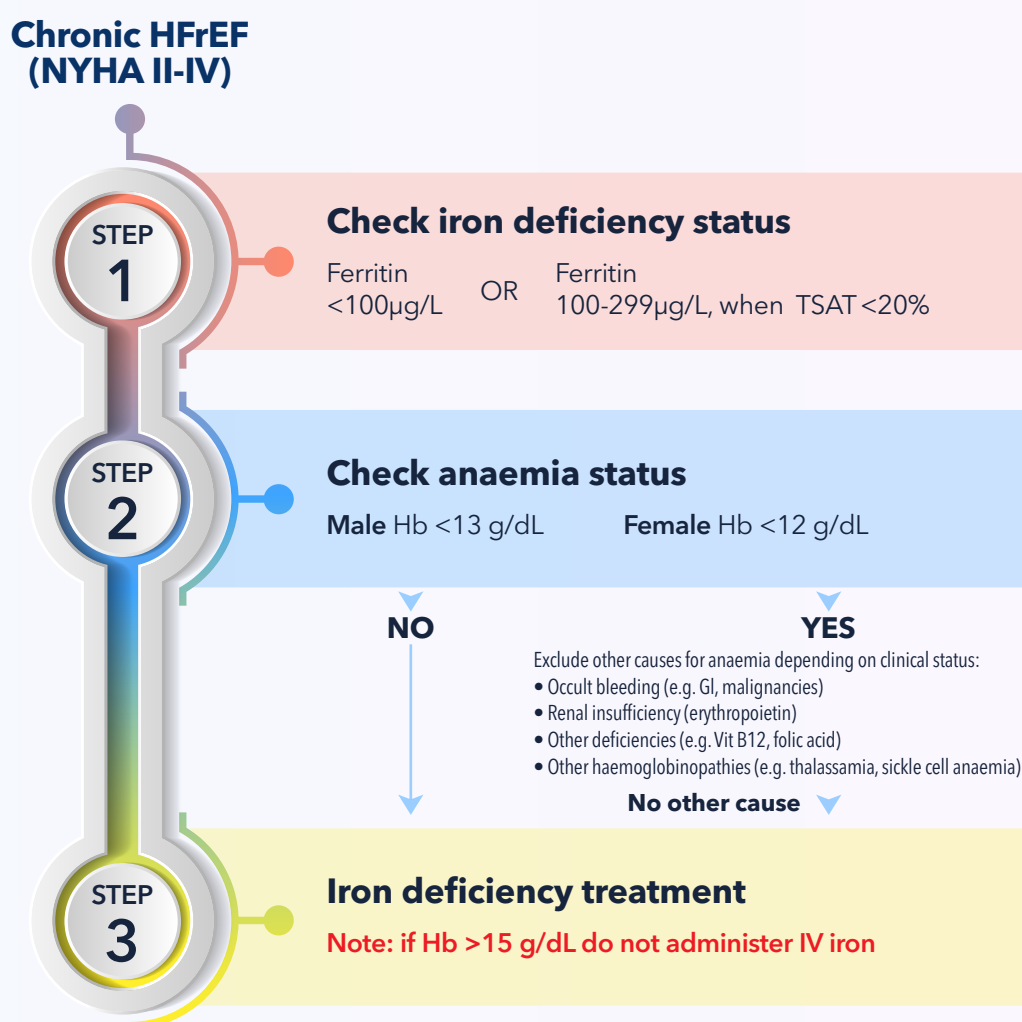
Tests and lab findings for iron deficiency:

- 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 %

| Guideline | 2022 AHA/ACC/HFSA Guideline for the Management of Heart Failure | 2021 ESC Guidelines for Diagnosis and Treatment of Acute and Chronic HF | 2023 HFSA Scientific Statement on Iron Deficiency in Heart Failure |
|-----------|---|--|--|
| Criteria | Ferritin <100 ng/ml or ferritin 100-300 ng/ml if TSAT < 20% | It is recommended that all patients with HF be regularly screened for anemia and iron deficiency with a full blood count, serum ferritin concentration, and TSAT (Ferritin <100ng/ml or ferritin 100-300ng/ml if TSAT <20%) | Although further investigation is warranted to determine optimal definitions of ID, the use of a ferritin of <100 ug/L or Tsat of <20% with a ferritin of 100-300 ug/L to define ID in HF clinical trials that have shown improvement in functional capacity with treating ID lends validity to the use of this definition at present. |

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



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

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