Prescribe ferrous sulphate 200mg twice
Oral iron therapy

Ferritin < 70 ug/L, CRP normal or increased and TSAT >20%

Correct anaemia
Investigate cause if unknown

INCORRECT ANAEMIA
Se ferritin < 30 ug/L when CRP < 30 mg/l
Se ferritin < 100 ug/L when CRP > 30 mg/l
or TSAT <20%

MNEMONIC: "FERMA"

Ferritin may be elevated in patients with cancer, chronic infection, and inflammatory bowel disease.

Microcytic anaemia unlikely to be due iron deficiency
Assess for:
• Acute or chronic inflammatory disease
• Chronic infection
• Malignancy
• Liver disease

Check differential white cell count (WCC), liver function tests (LFTs)

Refer to a Haematologist if:
• Thalassaemia or sideroblastic anaemia suspected
• Cause of anaemia is unknown

Manage as IRON DEFICIENCY ANAEMIA
Discuss management of anaemia with an Obstetrician if pregnant

IRON DEFICIENCY ANAEMIA
STEP 1
• MCV < 76fl or MCH < 27pg

Microcytic anaemia

STEP 2
• Iron studies, including ferritin and transferrin saturation (TSAT)
• CRP

STEP 3
• Correct anaemia
• Investigate cause if unknown (unless further investigation not in patient’s best interests)

Microcytic anaemia is unlikely to be due iron deficiency

IRON DEFICIENCY ANAEMIA
Se ferritin < 30 ug/L when CRP < 30 mg/l
Se ferritin < 100 ug/L when CRP > 30 mg/l
or TSAT <20%

Iron deficiency anaemia is the most prevalent cause of anaemia. It can be due to blood loss, impaired iron absorption or failure to utilise iron stores.

1. Have a high index of suspicion for iron deficiency anaemia in patients with:
• Chronic gastro-intestinal symptoms or evidence of chronic bleeding from gastro-intestinal tract
• Acute or chronic inflammatory bowel disease or malabsorption
• Malignancy
• Menorrhagia
• Recent pregnancy

2. Investigate the cause of anaemia promptly unless the oedematous is already known or further investigations are not in the patient’s best interests (e.g. palliative care patient).

Anaemia should be investigated more urgently in men with a haemoglobin concentration <120 g/L and in women with a haemoglobin concentration <100 g/L, because such low levels of Hb may be indicative of serious disease.

3. Once iron deficiency has been detected treatment should not be delayed
• Oral iron therapy is the treatment of choice in most cases, even if temporary discontinuation for 1 week is indicated to facilitate colonoscopy
• Prescribe ferrous sulphate 200mg twice or three times a day (at least 6hr apart), preferably between meals, if tolerated

Iron should be administered intravenously for patients on haemodialysis, unless this route is contraindicated.

Consult with patient’s Nephrologist about addition of Erythropoiesis-Stimulating Agent (ESA) if inadequate response in Hb with iron therapy alone.

Macrocystic anaemia is most commonly due to excessive alcohol intake, folate and vitamin B12 deficiency but may also occur due to myelodysplasia, myeloma, cytotoxic drug therapy and following gastrectomy or terminal ileum resection
• Do not delay replacement therapy with folac acid and / or vitamin B12. Investigate cause, if unknown.
• Ensure that vitamin B12 therapy is commenced with folic acid when both nutritional deficiencies exist, to avoid neurological complications.

Anoemia prior to scheduled major surgery whether mild or severe, is an independent risk factor for postoperative major morbidity and mortality. Major surgery should therefore be delayed until anaemia is corrected, if it is in the patient’s best interests.

References

Goddard AF, James MW, Mclntyre AS, Scott BB, on behalf of the British Society of Gastroenterology, Guidelines for the management of iron deficiency anaemia. GUT 2011; 60: 1309 - 1316


Northern Ireland Transfusion Committee
Investigation and Management of the Adult Patient with Anaemia

**Normocytic Anaemia**

**STEP 1**
- Full Blood Picture Test
- Ferritin < 30 µg/L when CRP < 30 mg/L
- Ferritin < 100 µg/L when CRP > 30 mg/L
- Normal eGFR and blood creatinine
- Normocytic anaemia
- Elevated blood creatinine, eGFR < 60 ml/min
- Consider CHRONIC KIDNEY DISEASE

**STEP 2**
- Iron studies, including ferritin and TSAT
- Ferritin < 100 µg/L and TSAT < 20% **
- Normal folate and vitamin B12 levels
- Low or normal folate level
- Elevated blood creatinine, eGFR < 60 ml/min
- Consider CHRONIC KIDNEY DISEASE

**STEP 3**
- Correct anaemia
- Investigate cause if unknown
- Macrocyclic anaemia

**STEP 4**
- Monitor response to replacement therapy
- Treat disease causing the anaemia (if appropriate)

**CHRONIC KIDNEY DISEASE**
- Ferritin > 30 µg/L and TSAT > 20%
- Normal folate and vitamin B12 levels
- Normal renal function (eGFR > 60 ml/min)
- Go to STEP 3

**FOLATE AND OR VITAMIN B12 DEFICIENCY**
- Low folate and/or low vitamin B12 level
- **Seek urgent advice from a Haematologist if neurological symptoms secondary to folate or vitamin B12 deficiency or if patient is pregnant**

**MACROCYTIC ANAEMIA**
- Investigate for possible cause:
  - Liver disease
  - Alcohol misuse
  - Hypothyroidism
  - Drug causes e.g. cytotoxics
- If myelodysplasia or myeloma suspected or if cause of anaemia still unknown refer to a Haematologist

**Northern Ireland Transfusion Committee**

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