

Haematology Guidelines

Severe Anaemia

1. Recognition and assessment

Definition

Haemoglobin (Hb) < 70 g/L

Symptoms and signs

- Shortness of breath (especially on exertion)
- Weakness, lethargy
- Palpitation
- Headaches
- Pallor of mucous membranes
- Tachycardia
- Features of cardiac failure
- Koilonychia (iron deficiency)
- Jaundice (haemolytic or megaloblastic anaemia)
- Evidence of infection or spontaneous bruising (alerts to possibility of marrow failure)
- Abdominal or rectal mass (GI malignancy)

Patients with severe anaemia may have no symptoms

Previous history

Ask about:

- Recent bleeds
- Menstrual loss
- Melaena
- Altered bowel habit
- Diet
- Family history of anaemia

Investigations

- FBC, Reticulocyte count and film
- U&E
- Liver function (non-urgent unless jaundiced)
- Group and save serum
- Direct Antiglobulin test (Coombs test)
- Serum ferritin (non-urgent, but take before blood transfusion)
- Serum B12 and folate (non-urgent, but take before blood transfusion)

Patients admitted with severe anaemia have often had blood tests requested via their GP.

Check with the lab as the diagnosis may have been made already!

Interpretation of lab findings

Microcytic/hypochromic:

- MCV < 80 fl
- MCH < 28 pg

- Iron deficiency (absolute or functional)
- Thalassaemia
- Anaemia of chronic disease (ACD)

Note: MCV has poor sensitivity for iron deficiency, MCH is better. Most patients with iron deficiency have a normal MCV but low MCH

Normochromic/normoocytic:

- MCV 80-100 fl
- MCH > 28 pg

- Anaemia of Chronic Disease
- Acute blood loss
- Iron deficiency (though mostly hypochromic)
- Haemolytic anaemia (may also be macrocytic)
- Bone marrow failure, e.g. leukaemia, myeloma, infiltration by carcinoma

Macrocytic:

- MCV > 100 fl

- Megaloblastic (B12 or folate deficiency)
- Alcohol with blood loss or folate deficiency for example
- Liver disease with blood loss or folate deficiency for example
- Myelodysplasia
- Aplastic anaemia
- Multiple Myeloma

2. Immediate treatment

None required unless evidence of GI bleed (see Acute upper gastrointestinal haemorrhage) or cardiac failure (see Cardiac failure)

**Urgent transfusion is not required unless there is active bleeding.
EXCESSIVE AND RAPID TRANSFUSION CAN BE HARMFUL**

If blood film indicates leukaemia discuss with on-call haematologist.

3. Subsequent management

- If symptomatic, consider blood transfusion – one to two units of blood given over 3 hr/unit. Give furosemide (frusemide) if required 20 mg orally as single dose with first unit
- Severe anaemias due to haematinic deficiency will have developed very slowly and respond to oral replacement therapy, depending on type of anaemia
- Iron deficiency – ferrous sulphate up to 200 mg orally daily – ALWAYS look for cause of blood loss, e.g. menstrual/GI bleed. Lower doses in elderly and pregnant persons may be considered. Consider iv iron pre-operatively or pre-discharge or if intolerant of oral iron.
- Macrocytic anaemia

Ensure samples for haematinic assays have been taken and received by the lab before commencing therapy

- If low b12 is found please refer to Trust guideline on the diagnosis and management of b12 deficiency (**put ref hyperlink here**)
- Autoimmune haemolytic anaemia (AIHA) – lab will perform direct Coombs' test (DCT) if indicated. If positive DCT suggests AIHA, discuss with on-call haematologist – give prednisolone 60 mg orally daily
- If autoimmune haemolytic anaemia is life threatening do not delay blood transfusion. Transfusion with ABO, Rh and K matched blood is more appropriate than delaying until full serological investigations have been completed. In patients with a clinically significant cold type antibody, the use of a blood warmer and ensuring a warm environment for transfusion is rational although the evidence of benefit is limited.
- <https://onlinelibrary.wiley.com/doi/full/10.1111/bjh.14478>
- Other anaemias – ask for haematology opinion (always review blood film comments first)

4. Monitoring treatment

- Reticulocyte count – after three to five days (if appropriate)
- Hb – weekly (should rise by 10 g/week if treatment successful)
- Check response at 2 weeks as a minimum

5. Discharge policy

- Arrange appropriate out-patient investigations
- Iron deficiency: upper GI endoscopy and either sigmoidoscopy plus barium enema or colonoscopy
- B12 deficiency: see guideline
- Folate deficiency: dietary assessment and advice. Anti-endomysial IgA if coeliac disease a possibility
- Other anaemias: consider follow-up in Haematology Clinic

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Severe Anaemia		
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Guideline for Vitamin B12 Management in Secondary Care (Adults Only) British Society for Haematology guideline on autoimmune haemolytic anaemia. https://onlinelibrary.wiley.com/doi/full/10.1111/bjh.14478		
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