PHARM.D • YEAR 4

Advanced Pharmacotherapeutics

CHAPTER 2

Haematological System

PPT CHAPTER COVER



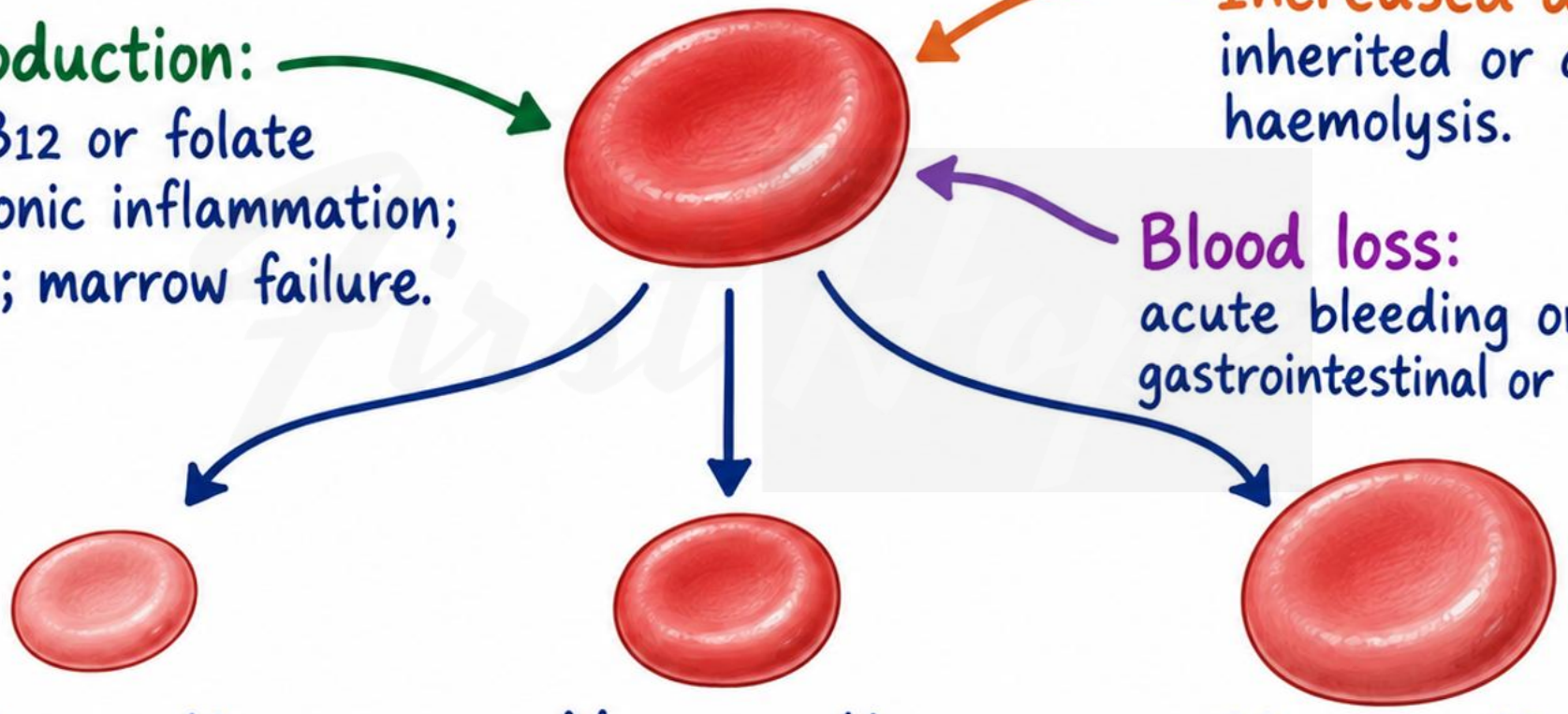
Anaemia: patterns and causes

Anaemia means haemoglobin is below the appropriate reference range for age, sex and physiological state.

Reduced production:
iron, vitamin B12 or folate deficiency; chronic inflammation; kidney disease; marrow failure.

Increased destruction:
inherited or acquired haemolysis.

Blood loss:
acute bleeding or chronic gastrointestinal or menstrual loss.



Microcytic:
MCV below 80 fL.

Normocytic:
MCV 80–100 fL.

Macrocytic:
MCV above 100 fL.

MCV guides investigation; it does not establish the cause.

Recognising anaemia

Common features: fatigue, pallor, exertional breathlessness, palpitations and tachycardia.



Haemolysis may cause jaundice and dark urine.





Iron deficiency may produce pica and spoon-shaped nails.





Check bleeding history, diet, medicines and chronic disease.



Vitamin B12 deficiency may cause paraesthesia, impaired balance and cognitive changes.









Severe breathlessness, chest pain, syncope or active bleeding needs urgent assessment.

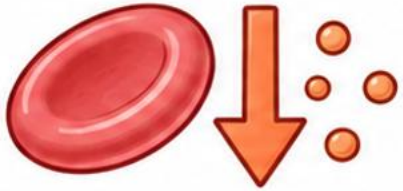
Symptoms and examination must be interpreted alongside the blood count.

Anaemia investigations

Start with CBC, red-cell indices, reticulocyte count and peripheral smear.



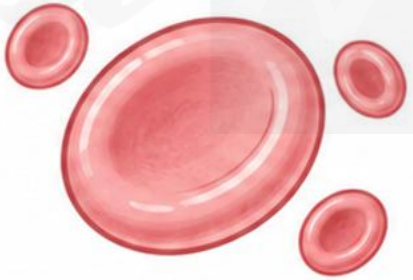
Iron deficiency:



low ferritin and transferrin saturation; serum iron often falls and TIBC rises.

Ferritin can rise with inflammation, masking depleted iron stores.

Macrocytosis:



investigate vitamin B_{12}, folate and other causes.

Haemolysis:



raised LDH and indirect bilirubin, low haptoglobin and often increased reticulocytes.

Direct antiglobulin testing helps identify immune haemolysis.

Investigate the cause of deficiency or bleeding; marrow testing is reserved for selected cases.

Treating iron deficiency

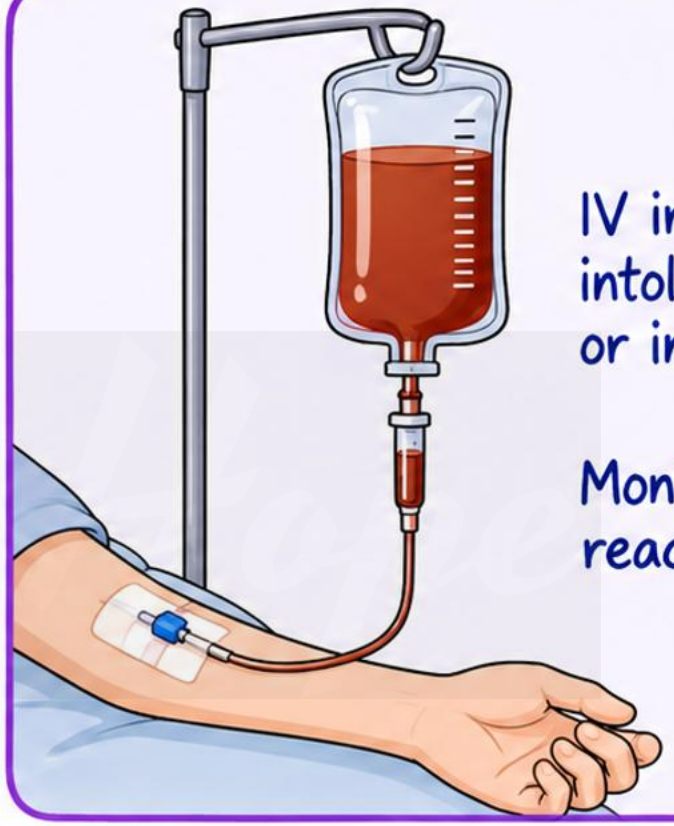


Treat the cause and replace iron; diet alone may not correct established deficiency.

Oral ferrous salts are usual first-line treatment.

Give oral iron at most once daily; alternate-day dosing may improve tolerance.

Discuss nausea, abdominal discomfort, constipation and dark stools.



IV iron is considered for intolerance, poor absorption or inadequate response.

Monitor for infusion reactions.



Check haemoglobin response after about 2–4 weeks.



Continue replacement after haemoglobin normalises to replenish stores, with duration guided by response.

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