

Anaemia

Presentation

Definition

- Anaemia is defined as an Hb < 130 g/l in males and 120 g/l in females.
- In Pregnancy: Hb <110 g/l (T1), <105 g/l (T2), <100 g/l (T3).

Clinical Findings

- Step 1 is to establish the presence of anaemia: FBC noting Hb, MCV, MCH.
- Step 2: confirm with repeat FBC as well as other tests (reticulocytes, ferritin, B12/folate, U+E, creatinine, LFTs, CRP, blood film) with full clinical history and examination.
- Step 3: Establish type of anaemia and commence appropriate corrective therapy
- Step 4: monitor response to corrective treatment. Consider referral to appropriate speciality e.g. iron deficiency anaemia to gastroenterology / abnormal blood film to haematology.

Causes

Microcytic anaemia (MCV <80fl)	<p>1) Iron deficiency anaemia: if ferritin <30 very likely. If ferritin >30 check iron studies and CRP.</p> <p>2) Non-iron deficient causes</p> <ol style="list-style-type: none"> Non-haematological: acute or chronic inflammation, chronic infection, malignancy, liver disease, renal failure Haematological causes: Haemoglobinopathy e.g. Beta thalassaemia trait, Rare causes: e.g. sideroblastic anaemia, paroxysmal nocturnal haemoglobinuria.
Macrocytic anaemia (MCV >100fl)	<ol style="list-style-type: none"> Low B12 / folate: reticulocytes usually low, can get other cytopenias Haemolysis: reticulocytes raised, Blood film often suggestive (needs haematology referral) Alcohol / liver disease Hypothyroidism Drugs Pregnancy Bone marrow disorder e.g. MDS / myeloma / aplastic anaemia
Normocytic anaemia (MCV 80-100fl)	<p>Wide differential diagnosis. Particularly in elderly patients often multifactorial cause if mild.</p> <ol style="list-style-type: none"> Iron deficiency (early) Mixed haematinic deficiency Non-haematological e.g. renal failure, liver failure, hypothyroidism, anorexia / nutritional Haematological e.g. myeloma / haemolysis / Hb S,C,D.

History

Clinical history should include:

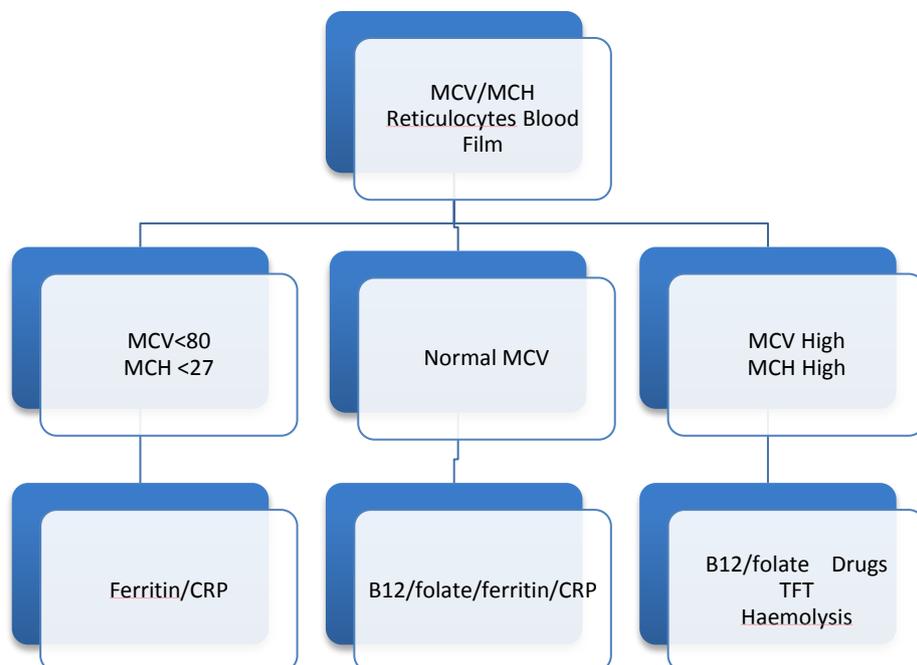
- Bleeding history / bowel symptoms
- Drug history
- Family history
- Social history including diet, alcohol and ethnic group

Symptoms and Signs

- Are there constitutional symptoms suggestive of malignancy (fever, weight loss, night sweats)
- Assess for lymphadenopathy and hepatosplenomegaly and masses.

Investigations

- Initial investigations should be directed by the MCV/MCH, reticulocytes and blood film



Initial investigations (once anaemia established)	Investigations to consider
Repeat FBC + Blood film and reticulocytes	LDH, direct coombes test, haptoglobins (if haemolysis suspected)
B12/folate	TFTs
U+E / LFTs	Serum immunoglobulins and protein electrophoresis
Ferritin / iron studies	Auto-antibody screen: if connective tissue disorder suspected
CRP	Erythropoietin level
	Testosterone
	Coeliac / pernicious anaemia screen

Referral

Patients that SHOULD NOT be referred to haematology

- Patients with iron deficiency anaemia or blood loss (raised reticulocytes with no evidence of haemolysis) should be referred to the gastroenterologist (other than menstruating women) .
- Uncomplicated B12 or folate deficiency does not need to be referred to haematology.
- Anaemia due to chronic kidney disease

Indications for urgent referral to haematology for assessment

- Unexplained progressive symptomatic anaemia (usually Hb < 90 g/l)
- Evidence of haemolytic anaemia
- Anaemia with leucoerythroblastic blood film (without other cause e.g. prostate cancer)
- Anaemia with associated cytopenias, splenomegaly or lymphadenopathy
- Anaemia with abnormal blood film where haematology referral recommended
- Consider discussing / referring patients with persistent unexplained anaemia

References

- 1) A Smith. Guide to evaluation and treatment of anaemia in general practice. Prescriber 23(21):25. Wiley 2012