

Anaemia

There is a high prevalence of anaemia in the elderly population. Anaemia signifies an underlying disease and is associated with increased morbidity and mortality. It can be underdiagnosed in this age group as the symptoms of anaemia can be attributed to the ageing process. In part two of this review, diagnosis and treatment are discussed.

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Anaemia is an extremely common problem in the elderly and is associated with increased morbidity and mortality. A recent review article found that one in seven to eight of the population over 65 years are anaemic, as defined by the World Health Organization (WHO) criteria.¹ The overall prevalence in the UK is 20.1% in elderly men and 13.7% in elderly women.²

Diagnosis and treatment

Once anaemia has been diagnosed after a peripheral full blood count examination, further investigations are required to establish the cause.

The mean corpuscular volume (MCV) is one of the most diagnostically useful parameters. However, some elderly patients have coexistent conditions, such as myelodysplasia, that also affect the MCV and can disguise the nature of the anaemia (ie, making macrocytic anaemia appear as normocytic).

Stepwise diagnostic approach

Once anaemia has been confirmed the next step is to check the

haematinics, including: ferritin, B12 and folate.

If the ferritin is low, this confirms iron deficiency. Serum ferritin of less than 15ng/ml confirms iron deficiency in the general population. Serum ferritin levels increase with ageing³ and in patients aged over 65 years, serum ferritin less than 45ng/ml may be diagnostic of iron deficiency.⁴ Ferritin is also an acute phase reactant so iron deficiency may be masked in times of stress. However, ferritin levels greater than 100ng/ml make iron deficiency unlikely even in the context of physiological stress.

Once iron deficiency is confirmed, further investigation

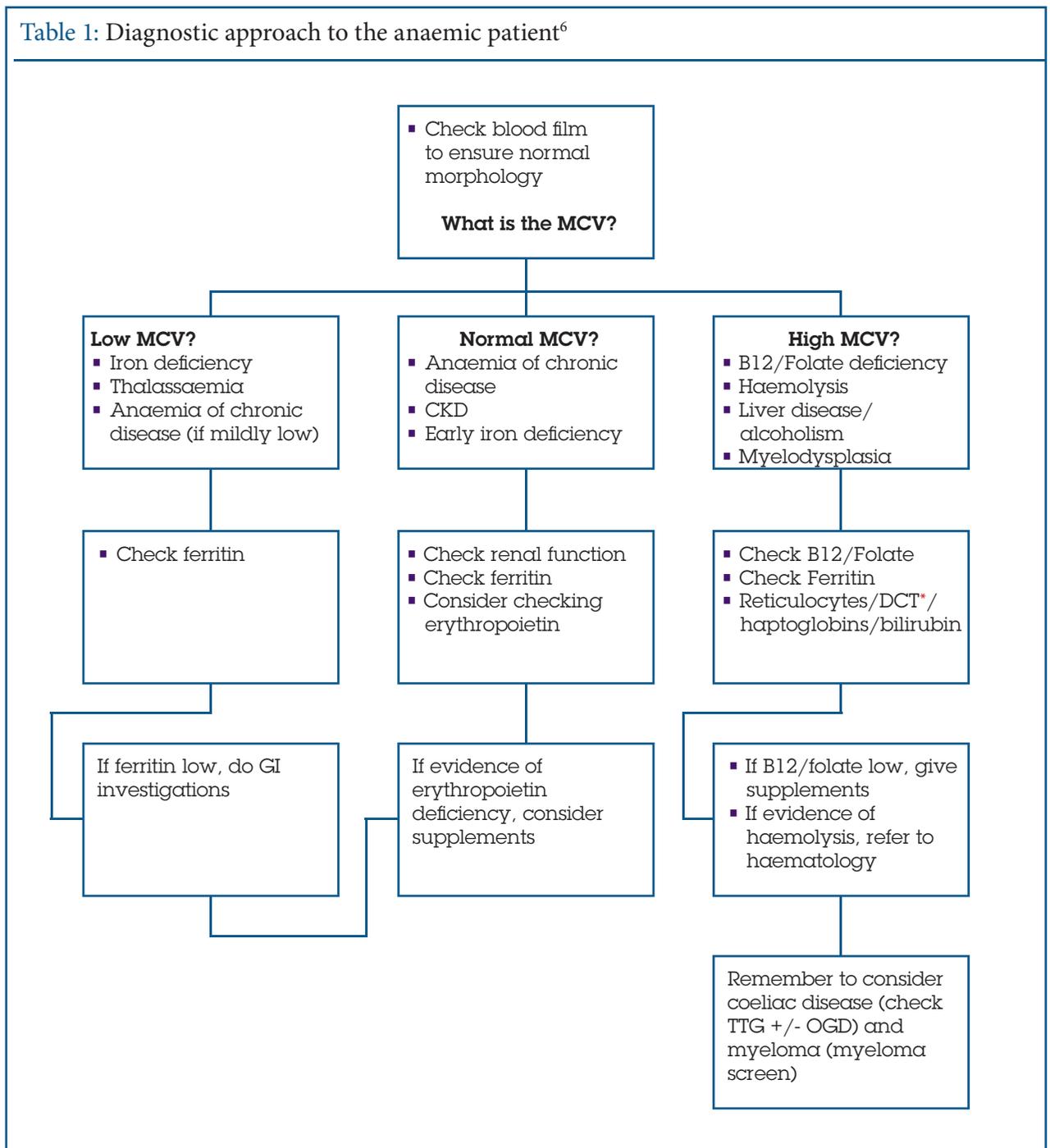
of the gastrointestinal tract is warranted and ferrous sulphate should be commenced. In up to 40% of patients no cause is found, and long-term follow up of such patients has indicated that the anaemia frequently resolves and remains stable with iron replacement.⁵

If the B12 or folate is low, then B12 injections or daily folic acid need to be started to correct the anaemia (respectively). Patients who are found to be B12 deficient should have their intrinsic factor checked for pernicious anaemia. If folate deficiency has been confirmed, the clinician needs to check for coexistent B12 deficiency. This is because

Key points

- Chronic disease is the most common cause of anaemia in elderly patients
- Once anaemia has been diagnosed after a peripheral full blood count examination, further investigations are required to establish the cause.
- In all cases of anaemia, particularly iron deficiency where no cause is found, coeliac disease needs to be considered.
- It is also important to consider myeloma in elderly patients with anaemia.

Table 1: Diagnostic approach to the anaemic patient⁶



although anaemia secondary to B12 deficiency will improve with folate supplementation, neurological damage will not be reversed without B12 replacement. If haematinics are normal, the next step depends on the MCV—although, this can be less helpful in elderly patients, as discussed

earlier, due to coexisting conditions. For all patients, a blood film should be requested to rule out underlying haematological disease, which would prompt haematology referral.

Low MCV

If the MCV is low, with normal

ferritin, thalassaemia is a possibility. This is an inherited disorder resulting from reduced synthesis of one of the globin chains that makes up haemoglobin. In this case, review previous blood results and the microcytosis should be long-standing.

The other possibility is

sideroblastic anaemia, which can be hereditary or acquired, secondary to lead. Diagnosis is by blood film and bone marrow examination, and treatment is with supportive transfusion and some cases respond to high doses of pyridoxine (vitamin B6).

If the microcytosis is a new feature with normal ferritin and blood film, the most likely cause is anaemia of chronic disease. However, the MCV is more commonly normal than low in anaemia of chronic disease.

Normal MCV

If the MCV is normal with normal haematinics and blood film, then anaemia of chronic disease is the most likely cause and there may be features on the blood film to support this. In anaemia of chronic disease serum ferritin will be normal or increased, total iron binding capacity will usually be low, both due to the fact that the iron stores are elevated, and transferrin, as an acute phase reactant, is reduced in the presence of chronic stress. There is no specific therapy other than management of the underlying disease. In some cases, erythropoietin may be helpful.

Anaemia secondary to chronic renal failure and erythropoietin deficiency should also be considered. Check the renal function and review previous renal function. If suggestive of chronic kidney disease, treatment with erythropoietin could be considered after discussion with a nephrologist.

Raised MCV

If the MCV is raised with normal haematinics, a thyroid stimulating hormone (TSH) should be checked to exclude hypothyroidism. An alcohol history should be sought as alcoholism commonly causes

macrocytosis. Medications should be reviewed for drugs that inhibit DNA replication, including methotrexate and zidovudine.

With a raised MCV, the blood film may show features of MDS, although bone marrow examination is often required for definitive diagnosis. Treatment of elderly patients with MDS is supportive with transfusions, and bone marrow is seldom appropriate as it does not alter the management.

Haemolytic anaemia should be sought by checking direct Coombs' test, reticulocytes, haptoglobins and bilirubin (which would be raised). If haemolysis is confirmed, haematology referral is appropriate and treatment depends on the cause. Steroid therapy can be helpful and splenectomy is sometimes necessary.

In all cases of anaemia, particularly iron deficiency where no cause is found, coeliac disease needs to be considered. Assess for clinical features of coeliac disease. But given the subtle presentation in the elderly and recognised substantial delay to diagnosis, clinicians should have a low threshold for further investigation. Diagnosis includes checking serum anti-transglutaminase antibodies to the enzyme tissue transglutaminase. If positive, duodenal biopsy should be sought to look for villous atrophy. Treatment is with a gluten-free diet.

It is also important to consider myeloma in elderly patients with anaemia. The anaemia is normally normocytic, but can be microcytic or macrocytic. Myeloma should be suspected if the anaemia is associated with back pain, weight loss, renal impairment, elevated total protein and viscosity. If these features are present, a myeloma screen should be performed,

including serum electrophoresis and immunoglobulins, serum calcium, renal function, viscosity, urine examination for free light chains (Bence Jones protein) and skeletal survey. Referral to haematology will be necessary for further treatment.

Conclusion

It is important that geriatricians recognise the impact of anaemia on the elderly population. Further investigation of anaemic patients is important to establish the underlying aetiology and enable treatment of the underlying cause wherever possible.

Conflict of interest: none declared

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