

Anaemia in CKD quick reference

Anaemia is an expected feature of advancing chronic kidney disease (CKD). It is rare in CKD G3 but becomes common in CKD stages G4 and G5 and is almost universal in CKD stage G5d.

Pathophysiology of anaemia of CKD

Predominantly a combination of reduced erythropoietin synthesis by the kidney, impaired iron absorption and impaired iron utilisation during erythropoiesis. Factors causing anaemia in the general population, such as gastrointestinal blood loss, chronic inflammation, nutritional deficiencies, and medicine-induced bone marrow suppression, are also common in patients with CKD and can contribute to anaemia in CKD.

Evaluation

Screening for anaemia should be done at least annually in patients with CKD G3 and at least twice a year in patients with CKD G4-5 not on dialysis. Further evaluation should be done if Hb < 110g/L:

- Full blood count (FBC)
- Test for iron stores – usually combination of transferrin saturation (TSAT) and serum ferritin
- Plasma/serum C-reactive protein (CRP) to assess inflammation.

As in the general population, the results of these tests will guide further investigation; e.g. test for B12 and folate levels if MCV elevated.

Referral to secondary care

If further investigation reveals no other cause than CKD or correction of other identified contributors does not result in Hb >100g/L and the patient is symptomatic, it is appropriate to refer to local nephrology services for consideration of erythropoiesis stimulating agent (ESA) therapy.

Management in secondary care

The nephrologist is likely to recommend iron therapy in patients on ESA, aiming for TSAT >25% and serum ferritin up to 800mcg/L. This may require intravenous iron infusion(s).

Target Hb in patients on ESA is 100-120g/L. Adjustment of dose/frequency is likely to be necessary.

Try to avoid blood transfusion in patients who may be kidney transplant candidates due to risk of 'sensitisation' through exposure to foreign HLA antigens.

Patients may be resistant to ESA in the presence of chronic bleeding, systemic inflammation (e.g. acute infection) and under other rarer circumstances (see pathophysiology slide).

Treatment with ESA should be interrupted if there is uncontrolled hypertension.

Prognosis

Treatment of anaemia of CKD has been shown to be associated with improved quality of life but not survival or reduced risk of cardiovascular events.

What to tell patients

Anaemia is to be expected as a feature of advancing CKD and may explain some of the symptoms they are experiencing.

Treatment of anaemia (mostly with ESA and iron) requires specialist advice and is usually effective.

Monitoring and dose adjustment will be necessary.

They will be able to self-administer ESA if they wish.

National guidelines:

<https://ukkidney.org/sites/renal.org/files/Updated-130220-Anaemia-of-Chronic-Kidney-Disease-1-1.pdf>