BRITISH KIDNEY Patient ASSOCIATION
improving life for kidney patients

ANAEMIA and ESAs (Erythropoietin-stimulating Agents)

What is anaemia?

There are three types of blood cell: red cells (carry oxygen), white cells (fight infection) and platelets (clot blood). A person whose blood is low in red blood cells has anaemia. Without oxygen, tissues and organs - particularly the heart and brain - do not do function well. For this reason, anaemic people may get tired easily and look pale. Anaemia also contributes to heart problems.

Anaemia is common in people with kidney disease, and one of its most important complications. Healthy kidneys produce erythropoietin (EPO), a hormone that stimulates the bone marrow to produce red blood cells. Diseased kidneys, however, often don't make enough EPO. As a result, the bone marrow makes fewer red blood cells. Other common causes of anaemia include blood loss from haemodialysis and low levels of iron and folic acid. Anaemia occurs in patients before dialysis (predialysis), on dialysis, and with a transplant.

Haemoglobin

A full blood count (FBC) is a blood test that measures the number of red cells, white cells and platelets in the blood. The haemoglobin (Hb) reflects the number of red cells in the blood; the higher the number, the more red cells. Usually, the higher the Hb the better. It should be 11–15 g/dL (women) and 13–18 g/dL (men). Any results below these levels indicate anaemia, which may need treatment. Higher results may also cause problems (such as clotting of fistulas). The 'target Hb' for patients with kidney disease is 11–12 g/dL.

When does anaemia begin?

Anaemia may begin to develop in the early stages of kidney disease; for example in CKD Stage 2 when you still have 60–90% of normal kidney function. The blood creatinine level may only be marginally raised at this point, at 120–150 mcmol/L for example (normal range 60–120 mcmol/L). Anaemia worsens as kidney disease progresses. End-stage kidney disease (ESRD), the point at which dialysis or a kidney transplant becomes necessary, doesn't occur until you have only about 10% of your kidney function remaining. Nearly everyone with end-stage kidney disease has anaemia, and will need treatment.

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How is anaemia treated?

ESAs

If no other cause for anaemia is found, it can be treated with a genetically engineered form of EPO, called an ESA. ESAs are 'wonder drugs' that are usually injected under the skin once a week, to once a month. Patients on haemodialysis may receive an ESA intravenously during treatment.

As the required dosage of ESA is very variable, several doses might be needed before the right one is discovered (and Hb is stable at 11–12 g/dL). Side effects of ESAs are rare. They may, however, increase the blood pressure. Some doctors increase the BP tablets as an ESA is started.

Iron

Many people with kidney disease need both an ESA and iron supplements to raise their Hb to a satisfactory level. If iron levels are too low, the ESA won't work well and the person will continue to experience anaemia. Some people take iron tablets. For others, iron is injected into a vein in the arm, or into the tube that returns blood to the body during haemodialysis.

Another blood test – to measure the ferritin in your blood – should also be done. This reflects the iron levels in the body; the higher the better. The normal level of ferritin is 15–350 mcg/L. Doctors will aim to keep it over 200, with a combination of iron tablets and injections.

Text © Dr Andy Stein, 2013, Consultant Nephrologist, UHCW, Coventry.
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