

Will the treatment affect my dialysis and drug treatment?

With a greater red blood cell concentration you may need to increase heparin during haemodialysis. Some patients experience a rise in blood pressure which may need medication to lower it. As your appetite returns you will probably want to eat more and a little extra dialysis may be needed. It is wise to stick to your diet to avoid any overload of potassium.

What about iron supplements?

Your body needs enough iron to support the extra red blood cells produced by the treatment. So, if your iron level is low, you will need supplements, either by tablet or by injection.

Will I need more tests?

When you begin taking an erythropoietic agent, your weight, blood pressure and haemoglobin levels will be monitored and the dose adjusted if necessary. You will still need all your usual blood tests.

Are there any side effects?

To minimise the risk of increased blood pressure, which appears in 1 in 5 people, it is important not to neglect your control of salt and fluid intake. The blood pressure should be checked immediately before an injection, which may need to be delayed if the blood pressure is too high. Very rarely, high blood pressure can cause a seizure but careful monitoring should prevent this.

Because the blood is 'thicker' with a raised haemoglobin level, a fistula may be at a higher risk of clotting. Anyone who has angina should report any worsening of symptoms immediately to their doctor, though it should be remembered that angina usually becomes less frequent with an improvement in haemoglobin, because there is more oxygen in the blood. Some people have experienced flu-like effects shortly after injection and others have reported rashes: these effects are not serious and usually reduce with time. Most people have no ill-effects from taking these drugs. As with any other aspect of your treatment, if you feel unwell tell your doctor immediately.

Do I need to take the drug if I am hospitalised?

Usually yes. Tell the doctor or nurse caring for you that you are taking an erythropoiesis stimulating agent (ESA).

How long do I need to take these drugs?

Probably for as long as you are on dialysis. If you have a successful transplant your new kidney may produce enough of its own erythropoietin to allow you to stop treatment.

The dose may be changed depending on your blood tests.

Are these drugs always prescribed for those who need it?

Unfortunately not, as renal units do not always react quickly to the development of anaemia, and in some parts of the country there are problems in funding treatment. If blood transfusions are offered to treat your anaemia, then you should ask about erythropoietic agents. The National Kidney Federation is doing all possible to ensure that these drugs are offered to all who could benefit. Guidance to the NHS from the National Institute of Clinical Excellence (NICE) on the treatment of anaemia should mean that people with kidney disease receive appropriate treatment, wherever in the country they live.

National Guidance on treatment of anaemia:

The National Institute for Clinical Excellence has produced guidance on the treatment of anaemia in people with renal disease. If there isn't a cause for anaemia such as iron deficiency, the recommendation is that ESA should be considered if the Hb is below 11.0g/l, and when it is used, the target range is 10.5-12.5g/dl. More recent guidance from the FDA in America has suggested that the risk of complications of ESA drugs means that the Hb can be allowed to drop below 10g/dl before starting ESA. If you think you should be considered for ESA treatment, tell your doctor.

Note: Reference to fistula and venous line are for HD patients only

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www.kidney.org.uk

*The NKF - the largest Kidney Patient charity in the UK
A federation of more than fifty patient charities, supporting kidney patients & carers*

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Information from The National Kidney Federation supporting kidney patients, their friends & family

ANAEMIA IN KIDNEY FAILURE

The National Kidney Federation cannot accept responsibility for information provided. The above is for guidance only. Patients are advised to seek further information from their own doctor.

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What is Anaemia?

Anaemia occurs when there are not enough red blood cells to carry oxygen from the lungs to places where it's needed. Anaemia, which is always secondary to some other disorder, can be caused by blood loss, blood destruction or, commonly in kidney patients, impaired blood production.

Why does it happen to patients with Kidney Disease?

Damaged kidneys are unable to produce enough of the hormone erythropoietin, which stimulates the bone marrow to produce red blood cells. Within these cells oxygen is carried around the body by a protein called haemoglobin. When haemoglobin cannot be produced in normal amounts then the body does not receive enough oxygen to meet its needs.

Damaged kidney

leads to

Impaired production of erythropoietin

leads to

Reduced number of red blood cells

leads to

anaemia

How do I know if I am anaemic?

Common symptoms are loss of energy and shortness of breath. Someone may also become irritable and frustrated at the difficulty experienced in doing daily tasks. The symptoms of chronic kidney disease - lethargy, mood fluctuations, disturbed sleep patterns and impaired sexual function - may be aggravated. Your doctor can check your haemoglobin level. The normal range is 130-170 grams per litre (g/l) for men and 120-150 g/l for women. These levels are reduced in anamia, sometimes as low as 40 g/l.

How can Anaemia be treated?

Blood tests should be performed to measure the level of iron in the blood, and also two vitamins important in the production of red blood cells (vitamin B12 and folic acid). If there is a deficiency of any of these, supplements can be given. Infections may also cause anaemia; this may be temporary if the infection resolves, but some infections which do not go away rapidly may need further treatment (for example recurrent urine infections, or infections

around a dialysis catheter). It is also important to detect any blood loss from the bowel, and any indigestion should be reported to the doctor, as well as any change in the stools, either with blood being seen, or blackening of the stool (which can be caused by blood from the stomach, which turns black as it passes through the bowel).

Immediate treatment of anaemia requires blood transfusions. Adding red blood cells to the body's low stocks gives a better oxygen-carrying capacity and hence improves the anaemia. However the disadvantages of transfusion limit its usefulness. These include ...

- **Fluctuating haemoglobin**
- **Risk of infection**
- **Formation of antibodies which could complications later transplant**

More recently drugs which act like the natural hormone erythropoietin have been developed in the laboratory. These drugs are called erythropoiesis stimulating agents (ESAs), and sometimes (slightly inaccurately) EPO.

These agents produce an identical response to the erythropoietin normally produced by the kidneys and either may be used to make up the shortage of natural hormone.

Regular monitoring will alert your doctor to a drop in haemoglobin level which can be treated by these drugs, without the disadvantages of blood transfusions.

What will these drugs do for me?

By increasing your haemoglobin level, these drugs will correct the symptoms of anaemia. Your energy levels and appetite should improve. You may experience improved heart and sexual functions. These drugs will not cure your kidney failure but they should make you feel much better so that you can enjoy a better quality of life.

Who can benefit?

These drugs can be prescribed for haemodialysis, peritoneal dialysis and pre-dialysis patients and for those with a failing transplant who are anaemic. Treatment is normally considered when the haemoglobin level is less than 100 g/l and is used to achieve a haemoglobin level of 100-120 g/l (95-115 g/l in children under 2 years of age).

How are these drugs given?

These drugs are given by injection, usually one, two or three times each week dependent upon the type of drug prescribed and the medical instruction given. They are injected under the skin (subcutaneous route) or into a vein or venous line (intravenous) following dialysis. They either come in pre-filled syringes ready to inject, or in vials containing either ready-to-inject liquid or a powder needing water to be added before injection. The treatment can be self-administered at home. The drug should be kept in the refrigerator and removed half-an-hour before injection so that it is not too cold. Check the solution before use. If it is discolored, cloudy or has particles in it, do not use but return it to your supplier for replacement.

How much will I need?

Your dose will be calculated according to your weight and adjusted to achieve a steady rise in haemoglobin level. Your doctor should set a target for your personal level, usually 100-120 g/l. Most patients want to know how their body is responding to treatment. Ask about your haemoglobin levels. Make sure you understand how you will reach your target and how it will be maintained. You can use a "Know Your Numbers" record card to keep your own personal record to refer to.

How quickly will the treatment work?

These drugs will start to work immediately, but it could be a few weeks before your haemoglobin level rises to the point where you begin to feel better. In patients who have started treatment before their haemoglobin level falls below 10g/dl, the symptoms of anaemia should be kept at bay.