

Anaemia and kidney disease



Information for patients

Sheffield Kidney Institute (Renal Unit)



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What is anaemia?

Anaemia is a reduced level of red blood cells in the blood. Red blood cells carry oxygen around the body to give energy.

How does anaemia affect the body?

Common symptoms of anaemia are:

- loss of energy
- shortness of breath
- feeling cold
- itching
- mood swings and feeling irritable
- difficulty sleeping
- reduced interest in sex

You may feel some or all of these.

Why do people with kidney disease develop anaemia?

There are three main reasons why people who have kidney disease develop anaemia:

- **Lack of iron.** Iron is needed to make red blood cells. The body can't make iron so gets the iron it needs from the food you eat. When your kidneys start to fail, iron is not absorbed so well, so you become iron deficient.
- **Lack of a hormone called erythropoietin** or EPO for short. Erythropoietin (EPO) is a natural hormone made in the kidney that makes the bone marrow produce red blood cells using iron in the body.
- **Your body is not able to efficiently use the iron** stores that you do have.

How do I know if I am anaemic?

You and your doctor may suspect you are anaemic because you have some of the symptoms described above.

This will be confirmed by blood tests that measure:

- **Your haemoglobin (Hb) level.** Haemoglobin is a protein in the blood that carries oxygen to all the cells in the body and gives the blood its red colour. The usual haemoglobin level is between:

135 – 180 g/L for men

115 – 160 g/L for women

For patients with anaemia caused by their kidney disease we aim for an Hb level of between 110 - 120 g/L.

- **Your ferritin level.** Ferritin is a protein in the body that binds to iron. The amount of ferritin in the blood shows how much iron is stored in your body.

You may also have fewer red blood cells and they may be smaller or paler than usual.

What is iron deficiency?

This is when the body can't absorb the iron from food in the amounts needed, for example, to make red blood cells. Iron is lost if there is blood loss.

There is an increased need for iron if you have EPO hormone treatment for your renal anaemia.

What is erythropoietin deficiency?

This is when the kidneys can't make the hormone erythropoietin (EPO). Your kidneys stop sending a message to the bone marrow to make red blood cells.

How is renal anaemia treated?

The treatment you need will depend on the cause of your anaemia.

Renal anaemia is usually treated with:

- Iron and / or
- Erythropoietin (EPO) hormone treatment

Your doctor will discuss with you if you need to start iron or EPO.

Iron treatment

Iron deficiency can be treated with tablets but you may get side effects, such as stomach irritation or constipation, and the tablets may not be well absorbed. Often not enough iron gets into the body using tablets. The most effective treatment is an intravenous (IV) iron infusion. One dose of IV iron is the same as between 5 and 10 months of tablets.

How is intravenous iron given?

If you have haemodialysis treatment at the hospital, you will be given your iron while you are on the machine.

If you aren't having haemodialysis treatment, you will have your iron infusion in the Sorby Renal Outpatient department. Where possible, we will try to give you the infusion at the same time as your regular outpatient appointment. If that is too far in the future and you need the infusion earlier, you will be sent a letter to book an appointment for this.

A small tube (called a cannula) is placed into a vein in your arm via a needle and the iron solution goes straight into the vein. The amount of iron you need depends on your blood results but you may need several infusions before your ferritin reaches the required level.

The infusion takes 15 minutes. You will be monitored during the infusion and for 30 minutes after the infusion has finished.

What are the benefits of treatment for anaemia?

If anaemia is not treated it can lead to heart complications and puts extra strain on the heart.

Treatment of anaemia may improve your energy and concentration levels and mean you feel less tired, cold and breathless.

Are there any side effects from intravenous iron?

Common side effects are: headache and dizziness.

Very rarely people can have a severe allergic reaction.

You will be given more specific information about side effects depending on the type of intravenous iron you are prescribed.

If you have any questions about intravenous iron, please contact us. We explain how to do this at the end of the leaflet.

Erythropoietin treatment

Erythropoietin deficiency is treated with injections of the hormone EPO.

How is erythropoietin (EPO) given?

EPO is given by injection.

- At first this will be once a week and then may be less often.
- The injection comes ready-made in a filled syringe.
- The needle is very small and the injection goes into the fat of your tummy.

We regularly teach people to give the injections to themselves and you will also need to be able to take your own blood pressure.

If you don't feel able to give the injections yourself or take your blood pressure, we can teach a family member or carer, for example, to do this for you.

Please ring **0114 226 9297** and we will make a date for you to come to the Renal Unit - Sorby Outpatient department for training.

If you are going on holiday, you may need to make arrangements to have your EPO while you are away. This will depend on how long you are away. The Renal Anaemia Service will give you advice about this. We explain how to contact us at the end of this leaflet.

If you start hospital haemodialysis (HD) you can:

- carry on giving your own EPO injection to yourself at home or
- have the injection when you come for your HD treatment

How will I get the medication?

The supply of injections is organised by the Renal Unit and will be delivered by a company to your address. The company will contact you to arrange delivery and will give you their details if you need to contact them for any reason. You will be given a leaflet by the delivery company that explains how their service works. You don't have to pay for the injections or the delivery.

A 12 week supply of injections will be delivered to your home and the injections **must** be stored in the fridge.

- The fridge temperature should be between 2°C to 8°C.
- Do not allow EPO to freeze.

This will make sure the EPO works effectively and safely.

You can take the EPO out of the fridge to reach room temperature before injecting it which will feel more comfortable. This takes about 15 minutes.

You will also be given a container for the used syringes and needles - this is known as a sharps bin.

It is important that you carry on taking this medication and do not run out of stock.

Contacting the company about arrangements for the delivery of your medication is your responsibility.

Are there any side effects from EPO?

A small number of people starting EPO injections have an increase in their blood pressure (BP).

Due to the risk of high BP we would encourage you to learn to take your own blood pressure (or have someone do this for you) at home.

The hospital does not supply blood pressure machines but you can buy one from any large chemist. The blood pressure machine must be the type where a cuff goes around your arm. The staff there will be able to advise you on what may be best for you and can show you how to use it.

You **must** take your own blood pressure before injecting the EPO. The top reading should be less than 170.

- If you take tablets to control your BP or take water tablets you must take these at least half an hour before taking your blood pressure.

If the reading is higher than this **do not** have the injection. You **must** let the Renal Anaemia Service know about this: we explain how to contact the service at the end of this leaflet. We may advise you to see your GP about your blood pressure - you may need treatment for your high blood pressure or have your current medication changed.

How quickly will iron and erythropoietin work?

Iron and erythropoietin start to work straight away, but it may take 2 - 3 months for your haemoglobin (Hb) level to increase so that you start feeling better.

Do I need erythropoietin if I'm in hospital?

You need to carry on with the treatment if your blood pressure readings allow. Having an infection or needing an operation are not reasons to stop using erythropoietin. Please remember to tell the ward staff and doctors that you are on EPO.

You should stop using erythropoietin if you have a stroke or if you have to be investigated for any type of cancer.

If you are not sure, ask a member of staff or ring the Renal Anaemia Service.

Will I need more tests?

You will need a number of blood tests to check how well the medication is working. We may need to adjust the dose depending on your blood results. Please ring the Renal Anaemia Service once you have had your bloods taken so the results can be reviewed.

Your blood will need to be taken and checked every 8 weeks - unless you are told differently.

The blood tests needed are called:

- Full blood count (or FBC)
- Serum ferritin
- Iron profile

How long will I need treatment for anaemia?

EPO is not a cure for your renal anaemia. EPO injections are usually needed long-term but the dose and number of times you need it may change. This will be decided depending on your blood results.

If your dose changes, you will be sent a letter explaining about the change. You should carry on using the syringes you already have before starting the new dose. The delivery company will be told that your dose has changed in time for your next delivery.

Contact details

Renal Anaemia Service:

- **0114 226 9297**

We have a voicemail to leave messages and will call you back if you leave a message and contact number.



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