

## Erythropoietin

### Anaemia and myeloma

Anaemia is a common complication of myeloma and may be related to either the disease or to its treatment. Anaemia is a condition in which the body is low in red blood cells. Red blood cells contain a substance called haemoglobin, which transports oxygen round the body.

There are many different causes of anaemia. In myeloma, the anaemia is due to the fact that the myeloma cells stop the normal bone marrow cells producing enough red cells. Usually the anaemia improves when the myeloma responds to treatment. However, chemotherapy treatment can also cause anaemia.

Anaemia in myeloma does not always require treatment but, if necessary, is treated with blood transfusions or erythropoietin (EPO). Anaemia in myeloma is not usually due to lack of iron or vitamins, but this can be checked with simple blood tests.

### What is erythropoietin?

Erythropoietin is a hormone produced by the kidney which stimulates the production of red blood cells. Myeloma patients with kidney failure produce less erythropoietin and therefore may have lowered levels of red blood cells. It is recommended that myeloma patients with kidney failure should receive EPO treatment.

Myeloma patients with anaemia who do not have kidney failure can also benefit from EPO treatment, as the extra EPO can stimulate their normal bone marrow to produce more red cells.

### How is erythropoietin used in myeloma?

Erythropoietin is used to treat anaemia in myeloma patients who have kidney failure. EPO may also be used in other myeloma patients who have moderate to severe anaemia, but EPO is not usually considered until the myeloma has had a chance to respond to treatment. Anaemia usually improves with effective myeloma treatment.

Erythropoietin can take four or more weeks to begin to relieve some of the symptoms of anaemia. Once it has started working, blood tests will determine whether the dose needs to be changed and how long treatment should continue.

Erythropoietin does not work for everyone and if this is the case, the doctor may adjust the dosage, or stop treatment and consider treatment with blood transfusions instead.

There are three types of synthetic EPO that might be used for people with myeloma, depending on the individual situation:

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Charity no. SC 026116  
National Myeloma Week  
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- Eprex (epoetin alpha)
- NeoRecormon (epoetin beta)
- Aranesp (darbepoetin alpha) a derivative of erythropoietin which is longer acting.

## How is erythropoietin given?

Erythropoietin is given by injection under the skin (subcutaneous), usually in the thigh or stomach. It can be given by the patient themselves, or by a carer or nurse. Erythropoietin is usually given one to three times a week.

The number of injections required will depend on the type of erythropoietin that has been prescribed and the severity of the anaemia. Blood tests may be taken to check for deficiencies of iron, folic acid or vitamin B12, which can reduce the effectiveness of EPO and may need correcting.

It is important to store erythropoietin in the refrigerator, but not in the freezer compartment. It should not be left out of the fridge for any longer than necessary, and as instructed on the product leaflet.

## What are the side-effects of erythropoietin?

Most people taking erythropoietin have no side-effects, but some can occur.

These include:

- An increase in blood pressure that may require treatment
- Flu-like symptoms. This is a mild reaction and usually resolves after a few hours or days
- Skin rash
- Rise in the level of platelets in the blood; this will be monitored by regular blood tests

Different brands of erythropoietin can have different side-effects. Any side-effects that are experienced whilst on erythropoietin should be reported to the doctor straight away.

Erythropoietin cannot be given to people with uncontrolled hypertension (high blood pressure).

It should also be used cautiously in patients with:

- Heart disease (such as angina)
- Blood clotting disorders
- Epilepsy
- Liver disease

## The future

Using erythropoietin has certain advantages over blood transfusions as a treatment for anaemia. These include fewer hospital visits, avoiding depletion of reserves of donated blood, and avoiding the potential risk of infection from transfused blood. However there are also certain disadvantages including side-effects and cost.

The National Institute for Clinical Excellence (NICE) has looked at erythropoietin treatment for cancer-related anaemia. They concluded that the present evidence was not good enough to justify general use of EPO for cancer-related anaemia and that more research was needed, particularly to show whether EPO treatment improved quality of life.

## **About this Infosheet**

The information in this Infosheet is not meant to replace the advice of your medical team. They are the people to ask if you have questions about your individual situation. All Myeloma UK's publications are extensively reviewed by patients and healthcare professionals prior to publication.

## **Other information available from Myeloma UK**

Myeloma UK has a range of Essential Guides, Infoguides and Infosheets available, covering many areas of myeloma, its treatment and management. To order your free copies, contact the **Myeloma Infoline** on **0800 980 3332**. This information is also available 24/7 on our website at [www.myeloma.org.uk](http://www.myeloma.org.uk).

If you would like to talk to someone about any aspect of myeloma, its treatment and management, call the **Myeloma Infoline** on **0800 980 3332**. Your call will be answered by Myeloma Nurse Specialists who are supported by medical and scientific advisors. The Myeloma Infoline is open from Monday to Friday, 9am to 5pm, and is free to phone from anywhere in the UK. From outside the UK, call +44 131 557 3332 (charged at normal rate).

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