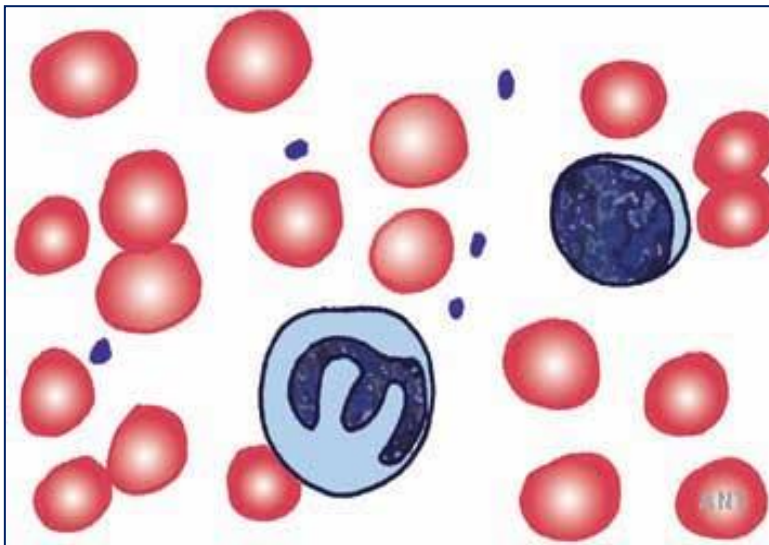


## ***Kidney Health Information***

### **Anaemia and Kidney Disease**



*The picture shows healthy blood cells under the microscope. Red blood cells look red with a pale centre, where they are thin. White blood cells are shown as big blue cells, two different types are shown here. The little blue dots are platelets*

Normal healthy blood is vital for health and well being – it carries cells and nutrients around our body, helping us to feel well and energetic. There are three main types of cells in the blood:

- **Red blood cells** are doughnut-shaped cells produced in the bone marrow. They contain **haemoglobin** (Hb), which carries oxygen in the blood.
- **White blood cells** (wbc's) help to fight infection – also called Leucocytes.
- **Platelets** – contain substances that aid blood clotting if we cut ourselves – also called Thrombocytes
- A **Blood Count** (FBC or CBC) is a blood test that shows the amount of haemoglobin, red cells, white cells and platelets in blood.

Haemoglobin is responsible for the red colour of blood. It is carried in red blood cells. It is a combination of an iron-containing molecule **haem** and the protein **globin**.

## Anaemia and Kidney Disease

Anaemia is a common condition where there are not enough red blood cells, or not enough haemoglobin in the red blood cells to carry the usual amount of oxygen around the body.

It can occur in many diseases, but common causes are:

- Bleeding
- Shortage of things needed to make blood: most commonly **iron**, but also folic acid and vitamin B12
- Illnesses that cause inflammation such as rheumatoid arthritis
- In pregnancy you need to make more blood so need more iron etc.
- Diseases affecting the bone marrow, where blood is made

There are many other causes – for instance, in some diseases, blood cells are destroyed too fast.

Normal kidneys secrete a hormone known as **Erythropoetin (EPO)**. This controls the production of red blood cells. In severe kidney disease, anaemia can occur because of a shortage of erythropoetin.

### What are the symptoms of anaemia?

- Becoming short of breath more quickly than you should
- Loss of energy
- Feeling tired

All of these can have other explanations apart from anaemia.

### The Kidney Patient

Anaemia can occur in people at the bottom end of Stage 3 kidney disease but usually only becomes a big problem at [Stages](#) 4 or 5 Shortage of Erythropoietin is often important but other causes can contribute.

- Patients on Haemodialysis may lose a little blood at each treatment
- Extra iron and folic acid are commonly needed.
- Other illnesses can play a part too.

## Treatments for anaemia in kidney patients

Iron is often low in patients with kidney disease, and extra iron is needed if extra blood cells are to be made to improve the anaemia.

Blood transfusion used to be the only really effective treatment for renal anaemia, but had a number of problems

- Blood transfusions carry a small risk of infection each time
- You may become 'immune' to blood cells from blood transfusions, so that
  - It may become difficult to match a transplant in the future
  - It may become difficult to match blood for further transfusions
  - You may have transfusion reactions during transfusions
- Repeated transfusions can lead to iron overload

Since 1985 **EPO** has been a very successful treatment for renal anaemia. It needs to be given by injections every few days to weeks. It replaces the EPO that healthy kidneys would be producing. Side effects are rare but some are important:

- High blood pressure, especially if the haemoglobin (Hb) level rises rapidly, or becomes too high.
- Clotting of fistulas used for haemodialysis may be more likely at high Hb levels
- Heart trouble may be a problem with high Hb levels
- Very rarely an immune reaction to EPO treatment causes Pure Red Cell Aplasia, a very severe anaemia that needs blood transfusions to treat it.

The best level for Hb in kidney patients is probably low-normal or a little bit lower than normal. This relieves the symptoms of anaemia without causing complications.

**Finding out more:**

[The EPG Renal Anaemia Knowledge Centre](#) Extensive information on Anaemia for Doctors and other Health Care Professionals.

[Anaemia in Patients with Chronic Renal Failure](#) from The Kidney Transplant/Dialysis Association, Inc.

[Chronic Renal Failure](#) from the website of EDREN

[EPO-associated PRCA](#) from the website of EDREN

*Please be aware that we have made every effort to ensure this information is accurate, however we cannot guarantee that there are no mistakes. Also, the best management plans for individual patients may vary from those outlined here. Only the doctors caring for the patient will be able to advise on this. Please consult your own doctor.*

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*Illustration produced by Beth Shortt ([www.bethshortt.com](http://www.bethshortt.com))*

Kidney Research UK, Kings Chambers, Priestgate, Peterborough PE1 1FG

Kidney health Information telephone number: 0845 300 1499

Or email: [kidneyhealth@kidneyresearchuk.org](mailto:kidneyhealth@kidneyresearchuk.org)

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