

Plasmapheresis

This Infosheet explains what plasmapheresis is, why it is used in myeloma, how it is performed and what the potential risks and complications of this treatment are.

What is plasmapheresis?

Bone marrow is the material found in the bones that produces all type of blood cells. This includes plasma cells, a type of white blood cell, which form part of the immune system. It is the plasma cells that become malignant or cancerous in myeloma.

Normal plasma cells produce antibodies (also called

immunoglobulins) to help fight infection. In myeloma the abnormal plasma cells produce large amounts of a single type of abnormal antibody, known as paraprotein, which has no useful function.

Plasmapheresis, also known as plasma exchange, can be used to remove paraprotein from the blood.

Blood is made up of red cells, white cells and platelets. These cells are suspended in a liquid known as plasma, which is made up of water, electrolytes (salts), proteins and other molecules. Plasmapheresis is a procedure for separating the liquid plasma from the cells.

Why is plasmapheresis used in myeloma?

The best way of reducing paraprotein levels in the long-term is with effective treatment to reduce the abnormal plasma cells that are producing the paraprotein. However, anti-myeloma treatment can take time to act and it may sometimes be necessary to reduce the paraprotein level in the blood more rapidly.

In some myeloma patients, very high levels of paraprotein can build up in the blood, interfering with circulation and causing it to thicken. This is called hyperviscosity. Symptoms of hyperviscosity can include eye problems, dizziness and headaches.

Plasmapheresis is an effective method for reducing the thickness of the blood quickly, which is important in patients with hyperviscosity. It may need

to be repeated two or three times a week until anti-myeloma treatment takes effect. Anti-myeloma treatment is still also needed as plasmapheresis has no effect on the underlying problem - the abnormal plasma cells.

How is plasmapheresis performed?

Plasma can be separated from the blood cells in two different ways. One way uses a machine called a cell separator, which spins the blood at high speed to separate the cells from the liquid plasma. The other way passes the blood through a membrane (plasma filter), which acts like a sieve where only the liquid part of the blood passes through. The plasma residue containing the paraprotein is discarded. Replacement plasma from a donor is added to the separated cells and the blood is returned to the patient.

In both methods a small plastic tube (cannula) is used to take blood from a vein in your arm or your neck and passed through the cell separator or filter. An anti-coagulant is added to the blood to keep it from clotting during the procedure. The blood is removed and returned at the same rate so that only a small

amount of blood is outside the body at any one time.

The procedure generally takes between two and three hours.

Plasmapheresis is carried out by specialist teams, usually in either the haematology department or kidney unit. It can be performed as an out-patient procedure or patients can be admitted; the choice will depend on whether the patient needs to be in hospital for other reasons.

What are the potential risks and complications of plasmapheresis?

Plasmapheresis can be uncomfortable but is not usually painful. Side-effects are uncommon. Some patients may feel light-headed, dizzy or have a reaction to the replacement plasma proteins, but such side-effects are usually easy to deal with.

Plasmapheresis can affect the level of calcium in the body, causing numbness or a tingling sensation. These effects usually

pass quite quickly and are simple to treat.

It is common to feel tired after the procedure, so, if you are being treated as an out-patient, it is a good idea to arrange for someone to help with transport home.

Future directions

Hyperviscosity is a complication that can add to the burden of myeloma. It is important to find the best way to prevent and treat this complication, and ongoing research will give doctors a greater understanding of how plasmapheresis can help myeloma patients.

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 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 or to talk to one of our Myeloma Information Specialists about any aspect of myeloma, call the **Myeloma Infoline: 0800 980 3332** or **1800 937 773** from Ireland

The Myeloma Infoline is open from Monday to Friday, 9am to 5pm and is free to phone from anywhere in the UK and Ireland. From outside the UK and Ireland, call **0131 557 9988** (charged at normal rate).

Information and support about myeloma is also available around the clock at **www.myeloma.org.uk**

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