

## Radiotherapy

### What is radiotherapy?

Radiotherapy is the use of high-energy radiation (usually X-rays) to kill cancer cells while doing as little harm to the healthy cells as possible. It works by targeting cells that are dividing rapidly and damaging them so they cannot survive or reproduce.

Myeloma cells cannot repair themselves as well as normal cells so more are destroyed. Radiotherapy is very useful in treating myeloma but because it also damages the normal bone marrow cells it is usually only used to treat small areas that are causing particular problems.

### How is radiotherapy used to treat myeloma?

Radiotherapy may be used to destroy myeloma cells and to relieve pain in particular areas where there is damage caused by myeloma bone disease. Radiotherapy can often relieve pain more quickly than chemotherapy and may sometimes be the initial treatment given.

It can be used in the following ways:

- To relieve pain and to destroy tumour in a particular area of bone
- After orthopaedic surgery to reduce the risk of further problems
- To relieve pressure on the spinal cord if growth of myeloma cells expands out of the bone marrow causing spinal cord compression, or if the bones of the spine (vertebrae) collapse due to myeloma bone disease
- To control, or prevent the return, of a solitary plasmacytoma – a solitary plasmacytoma is a single area or deposit of myeloma with no evidence of disease elsewhere in the body
- Over half the body, each half being treated separately, in the management of relapsed disease
- Rarely, over the whole body in preparation for a stem cell transplant

### How is radiotherapy given?

Radiotherapy is a treatment that requires specialist staff and equipment and is carried out in the radiotherapy department of larger hospitals. This means that it is sometimes necessary to travel to another hospital for treatment. Radiotherapy is usually given as an out-patient, unless already in hospital for other treatment.

Radiotherapy treatment has to be carefully planned to make sure the targeted area receives the correct dose of radiation while normal body tissues are as unaffected as possible.

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Normal X-rays, CT scanning or MRI imaging can be used to define the area to be treated. This area is then marked using a special pen to guide the treatment.

Treatment is given using a large machine positioned exactly over the area of the body to be treated. Receiving radiotherapy is very similar to having an X-ray. The radiation beam is invisible but the machine may move and make a noise. Radiotherapy treatment is painless, and only lasts for a few minutes, sometimes seconds. It is important to remain still and breathe normally. Often only one or two treatments of radiotherapy (called fractions) are needed to relieve symptoms – pain normally improves within two to three weeks.

### **What are the side-effects?**

Side-effects vary from person to person, but are almost always temporary and disappear after treatment is finished. Most people have no problems at all.

Side-effects may include:

- Nausea can start within a few hours of treatment but usually only lasts 24 to 48 hours – it is generally only a problem if the upper abdomen or corresponding area of the back is being treated. Nausea can be treated with anti-sickness medication.
- Tiredness and fatigue
- Sensitivity of skin at the site of administration (described as being similar to sunburn) – excessive washing, friction or heat should be avoided and areas treated with radiotherapy should not be exposed to the sun
- Hair within the area being treated may fall out, but grows back once the treatment is finished
- Treatment to the head and neck area can sometimes cause temporary voice loss. The mouth can become dry and there may also be taste changes
- Treatment to the abdomen or pelvic region can cause diarrhoea, which can be treated with medication.

If side-effects develop during or after radiotherapy, it is important to tell the doctor or nurse as most of these problems can be controlled with medication. The radiation does not stay in the body after treatment so a person does not become radioactive, and it is safe to mix with other people.

### **The future**

Researchers are looking at ways to make radiotherapy safer and even more effective in myeloma. Skeletal targeted radiotherapy (STR) is an experimental treatment for myeloma, which gives radiotherapy by a different method. STR is an injectable drug that combines a bone-seeking chemical with a radioactive particle. The drug targets radiotherapy to the bone surface and therefore to the bone marrow, killing myeloma cells.

An alternative method targets the cellular component of the bone marrow including the myeloma tumour cells. These targeted therapies are being used with high-dose therapy and stem cell transplantation and are currently being tested in clinical studies in the UK and USA.

## **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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