Radium-223 therapy for the treatment of bony metastatic prostate cancer

We have given you this factsheet because your doctor has referred you for a treatment called radium-223 therapy. It explains what radium-223 therapy is, what the therapy involves, and what the possible benefits and risks are. We hope it will help to answer some of the questions you may have. If you have any further questions or concerns, please contact us using the details at the end of this factsheet.

Before agreeing to the therapy, you will have a consultation with a specialist doctor and nurse, where you will have the opportunity to ask any questions you may have.

What is radium-223 therapy?

Radium-223 therapy is a targeted treatment which uses radioactive material to treat prostate cancer cells that have spread to the bones (known as bony metastatic prostate cancer).

How does radium-223 therapy work?

The treatment involves having six intravenous (directly into a vein) injections of a radioactive substance (radium-223) over a period of six months (one injection every four weeks).

Radium-223 specifically targets areas in the bone where cells are dividing quickly (for example, prostate cancer cells that have spread to the bone). After radium-223 is injected into the bloodstream, it travels around the body and is taken up by cancer cells in the bone but not by healthy cells. The radium-223 then collects in these areas and as it decays, it releases small radioactive particles called ‘alpha particles’. These alpha particles can destroy cancer cells, helping to slow the growth of the cancer.

Why might I need this therapy?

There are a number of reasons why your doctor may recommend you have radium-223 therapy, including if:

- your body is no longer responding to other cancer treatments
- your blood tests and scans show that your cancer is progressing
- you are experiencing cancer-related symptoms and complications

Your doctor will have explained to you why they believe you would benefit from having this treatment.

What are the benefits?

The aim of radium-223 therapy is to:

- improve your life expectancy and quality of life
- control or improve your symptoms (including bone pain)
- increase the amount of time before you experience bone-related complications such as weakened bones that may fracture (break)

How should I prepare for the therapy?

No special preparations are necessary.

Tests and scans

You will need to have a blood test a week before each treatment session to make sure that your blood count is within the normal range. You can book this blood test either at your local GP surgery or hospital. Your prostate cancer clinical nurse specialist (CNS) will review your blood test results and then arrange a telephone appointment to discuss the results with you.

Before you begin treatment, your doctor will also probably organise for you to have a bone scan in the nuclear medicine department.

Bringing someone with you

Due to the specialist examinations and treatments performed in the nuclear medicine department, we must only have essential people in our waiting room. Please do not bring anyone with you to your appointment unless you need them as a carer or comforter. If you do bring a carer or comforter with you, **they must be over the age of 18 and they must not be pregnant**. When you arrive, we will ask them to read a factsheet and we will also record their details.

Consent

Before you begin treatment, we will arrange for you to have a clinic appointment with a nuclear medicine consultant (a doctor who has expertise in diagnosing and treating a range of conditions with the use of radioactive substances). At this appointment, the consultant will explain what radium-223 therapy involves, including the benefits and risks. This is a good opportunity for you to ask any questions you may have. If you are happy to go ahead with the treatment, the consultant will ask you to sign a consent form.

Feeling unwell

If you feel unwell before any of your planned treatment sessions, please contact the nuclear medicine department as soon as possible using the details at the end of this factsheet.

Where will the therapy take place?

The therapy will take place in the nuclear medicine department, which is located on D level, centre block at Southampton General Hospital.

Who will administer the therapy?

The therapy will be administered by a specialist healthcare professional.

What will happen on the day of the therapy?

When you arrive for each treatment session, we will weigh you to ensure that the prescribed amount of radium-223 is correct.

We will begin the therapy by inserting a cannula (a small plastic tube) into a vein in your hand or arm. To check the cannula is working, we will first inject a small amount of saline solution (salt water) into the cannula. Then we will slowly inject the radium-223 into the cannula (over about a minute). Lastly, we will flush the cannula again with some saline solution before removing it.

The nuclear medicine consultant will visit you when you come in for your third and sixth treatment sessions to discuss how your treatment is going.

How long will it take?

The treatment usually takes around an hour.

What will happen after the therapy?

You will be safe to go home immediately after your treatment, but you **must** follow the written instructions we give you when you leave hospital. We have included the information below as a reminder.

Exposure to radiation

Contact with other people

Because this type of treatment delivers its radiation within your body, only very small amounts exit your body. A small amount of radiation will remain in your body for a few days after receiving the therapy. Because of this, you can continue as normal, but you should try to avoid close contact with young children (under the age of five) and anyone who is pregnant for a week after each treatment.

Hygiene

You will excrete a small amount of radiation in your urine and faeces (poo) for one week after each treatment, so it is important that you maintain good hygiene practices when you go to the toilet. Wash your hands thoroughly after using the toilet and clear up any spills, carefully throwing any waste directly into the toilet or in an outside bin.

Fertility and sexual activity

Radiation can damage other cells than just the targeted prostate cancer cells. Because of this, you must not conceive a child for six months from the end of your treatment. If you are sexually active, you **must** use condoms even if you or your partner is using another form of contraception.

If you have any concerns about your future fertility, please discuss them with us before you start treatment.

Important safety information

The radiation from this therapy will remain in a person's body for up to three months after their last radium-223 treatment. To ensure the safety of the public, certain protocols must be adhered to following the death of someone who has recently received radiation. It is important that your family and carers are aware that they have a social responsibility to inform our nuclear medicine department immediately if you were to pass away within three months of your last treatment.

Are there any side effects?

Unlike chemotherapy, the side effects are usually mild and temporary.

Temporary side effects (lasting up to a few days) may include:

- nausea (feeling sick)
- loose stools (poo) and diarrhoea
- pain (over-the-counter pain relief medication such as paracetamol should help with this)
- feeling tired
- a lower blood count than normal

If you experience any of these symptoms or become unwell during your treatment, it is important that you tell us. Your prostate cancer CNS is the best contact (see contact details at the end of this factsheet). Alternatively, you can call the 24-hour acute oncology service for advice on **023 8120 1345**.

Effects of radiation

The radiation from the therapy can sometimes cause damage to your healthy cells. There is a very small risk that this damage may develop into cancer in the future. However, we believe the potential benefit from the therapy outweighs the risk from the radiation. We will discuss all possible side effects with you during your consultation.

What follow-up care will I receive?

Your oncologist may or may not wish to review you while you are receiving radium-223 therapy. If you are experiencing issues during your treatment and you would like a review with oncology, please let us know and we will arrange this for you.

After you have finished all six treatment sessions, we will transfer your care back to the oncology team who will arrange any necessary follow-up appointments.

Contact us

If you have any further questions or concerns, please contact us using the relevant details below.

Prostate cancer clinical nurse specialist (CNS)
Telephone: **023 8120 6369** (Monday to Friday, 8am to 4pm)

Nuclear medicine department
Telephone: **023 8120 6627** (Monday to Friday, 8.30am to 6pm)

Alternatively, you can call our switchboard on **023 8077 7222** and ask for the team you would like to speak to.

If you are unwell and need advice when our nuclear medicine department is closed, or you are unable to contact us for any reason, please call the 24-hour acute oncology service on **023 8120 1345**.

Useful links

www.cancerresearchuk.org/about-cancer/prostate-cancer/metastatic-cancer/treatment/radiotherapy/radium-223

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For help preparing for your visit, arranging an interpreter or accessing the hospital, please visit **www.uhs.nhs.uk/additionalsupport**

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