Peptide receptor radionuclide therapy (PRRT)

We've given you this factsheet because we believe you may benefit from a cancer treatment called peptide receptor radionuclide therapy (PRRT). It explains what PRRT 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 speak to a member of the nuclear medicine team.

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 peptide receptor radionuclide therapy (PRRT)?

PRRT is a type of internal radiotherapy used to treat neuroendocrine cancers. Neuroendocrine cancers are a group of rare cancers that can occur anywhere in the body, but often begin in the bowel, pancreas gland or lungs.

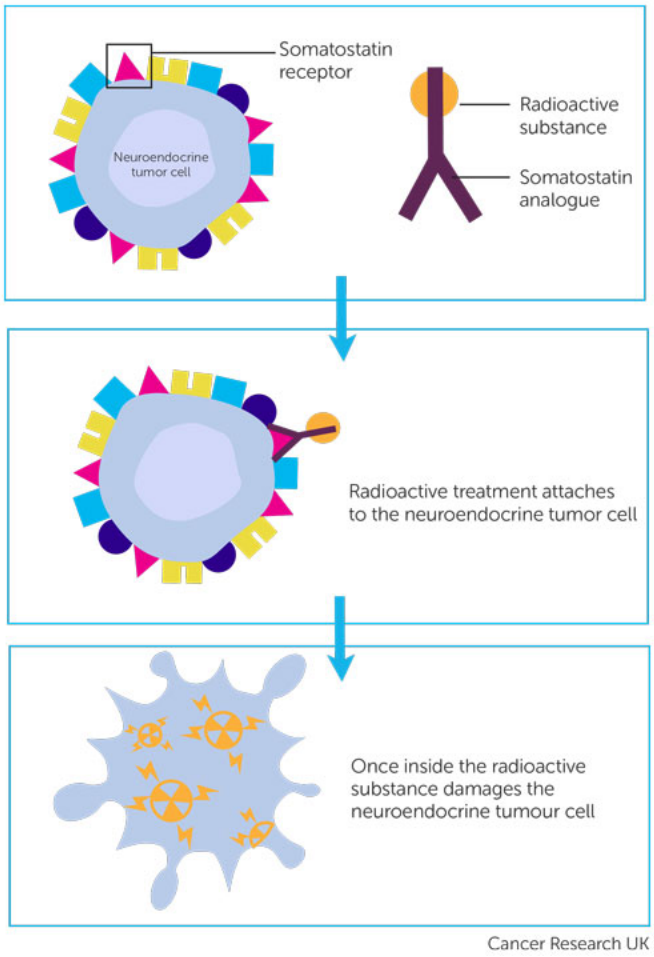
The aim of PRRT is to:

- stop or slow down the growth of tumours (cancer cells)
- improve your quality of life by controlling your cancer-related symptoms
- improve your chance of survival

How does PRRT work?

Some neuroendocrine cancer cells have proteins (receptors) on the outside of them called somatostatin receptors. PRRT works by specifically targeting these receptors with a drug containing somatostatin (a hormone) and Lutetium-177 (a radioactive substance). When injected into the bloodstream, the hormone somatostatin attaches to these receptors and the Lutetium-177 then enters the cancer cells and emits radiation that destroys the cells from the inside. By delivering a high, localised radiation dose directly to cancer cells, PRRT minimises the damage to surrounding healthy cells.

You will have had a nuclear medicine scan or a PET-CT to check whether the neuroendocrine cancer cells in your body have these somatostatin receptors. If these scans show that they do, they can be targeted with PRRT.



Why might I need this therapy?

We may offer you this therapy if:

- other cancer treatments haven't been successful
- your blood tests and scans show that your cancer is progressing
- you are experiencing cancer-related side effects

Who has made the decision that PRRT may be appropriate for me?

Your oncologist has discussed your case with us and we have decided that this therapy may be appropriate for you. We will invite you to a clinic appointment to talk through the treatment and your options with you in more detail. We will only proceed with the therapy with your consent. We will give you time to decide and discuss the therapy with your relatives, if you so wish. We will never begin therapy at this first clinic appointment, so please don't worry about making an immediate decision.

Who will administer the therapy?

The therapy will be administered by a nuclear medicine doctor and a team of healthcare professionals.

Where will the therapy take place?

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

How should I prepare for the therapy?

Somatostatin injections

If you are having any somatostatin injections (in hospital or out in the community), it is important that you let us know the date of your last injection so we can plan your treatment dates. If you are having short-acting somatostatin injections, you must not have these for **three weeks before** PRRT and **one week after** PRRT.

What to bring with you

For each cycle of treatment, please bring:

- a list of the medicines you are currently taking
- something to eat and drink during your appointment (alternatively, we can arrange for our hospital canteen to provide you with a light meal, and we have coffee and tea making facilities on the unit)
- something to help occupy you while you wait after receiving the therapy, such as a book or a laptop (Wi-Fi is available in the hospital, please ask your nurse for the login details)
- a spare set of clothes and shoes (in case we ask you to stay in hospital overnight)

The therapy is done as a day case, so you will not usually need to stay in hospital overnight. However, occasionally, you may need to stay in hospital overnight, so we can make sure you're feeling well before you go home.

Consent

We want to involve you in decisions about your care and treatment. If you decide to go ahead with PRRT, we will ask you to sign a consent form before your first cycle of treatment. This states that you agree to have the treatment and you understand what it involves. For more information about our consent process, please speak to a member of our team.

What will happen during the therapy?

When you arrive for your appointment, we will weigh you and then take you to your room. We will then complete your admission documents and take your blood pressure and temperature.

We will begin the therapy by inserting a cannula (a thin plastic tube) into a vein in both of your arms. Once these are in place, we will give you an anti-sickness tablet. We will then attach a drip of amino acids to one of the cannulas. This is to help protect your kidneys from the radioactive treatment. You will receive this drip for approximately four hours. We will then attach the radioactive drip to your other cannula. You will receive this drip for approximately 20 minutes.

We will then ask you to remain in the room alone for approximately eight to nine hours. The reason for this isolation period is because you will temporarily be radioactive after receiving PRRT. To protect others from unnecessary radiation exposure, we will ask you to stay in the room until your radioactive levels have dropped to a safe level. To help us work out when you are safe to go home, we will use a special monitor to regularly measure your radiation levels. During the isolation period, you will be free to eat, drink and move about within the room. There will also be a toilet in the room that you can use.

What will happen after the therapy?

Going home

Once your radioactive levels have dropped to a safe level, you will be able to go home (usually late afternoon around 5pm). If you need to stay in hospital overnight, you will be able to go home the following day (usually around lunchtime). Unfortunately, we cannot predict exactly when you will be able to go home, as it differs for each person.

Due to the radioactive nature of the therapy, you will not be able to have a relative or friend stay with you during your appointment. Please arrange for someone to pick you up after your therapy. We can always arrange to contact them on your behalf when we know an approximate time.

Having a scan

After your therapy, we may need to take one or more scans of your body to look at the uptake of the therapy into the cancer cells. This is usually on the same day as your therapy, but occasionally, we may ask you to come back into the department at a later date. We will confirm this with you during your appointment.

The scan will be similar to the nuclear medicine or PET-CT scan you had before the therapy. You will not usually need to undress for the scan.

Because we are a university hospital, we may share your scan images (with all personal details removed) with other medical teams or use them for research or service evaluation. Please let us know if you do not want your images to be shared.

Blood tests

You will need to have routine blood tests every two weeks while you receive PRRT.

Are there any risks or side effects?

PRRT is generally well tolerated by most people. However, as with any medical treatment, there are some possible risks and side effects.

The most common side effects related to the therapy are:

- nausea (feeling sick). We will give you some anti-sickness medicine beforehand to prevent this.
- fatigue (extreme tiredness). You may feel tired for a few weeks after each cycle of treatment.
- a temporary increase in the intensity and frequency of your day-to-day symptoms, such as flushing, sweating, palpitations and diarrhoea. This usually settles within 24 to 48 hours.
- temporary hair thinning. Your hair will regrow normally once you have completed the treatment.

You may also experience a slight fall in your blood count in the first few weeks after the therapy. All of these side effects are temporary and will resolve without additional treatment.

The radiation from the therapy can cause some damage to your healthy cells. There is a 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, as well as the risks and benefits, with you during your consultation.

Exposure to radiation

A small amount of radiation will remain in your body for a few days after receiving the therapy. You will be safe to go home, but you must follow the written instructions we give you when you leave hospital. These instructions contain important information about:

- minimising contact with other members of your household (particularly children and pregnant women)
- hand washing and bathroom hygiene (you will naturally excrete some radiation in your urine and faeces (poo))

If any of the instructions are going to be a problem for you, or you live with children or someone who is pregnant, please talk to the doctor or nurse when they see you in the clinic, or contact us on **023 8120 6627**.

Follow-up care

We will discuss future cycles of treatment with you before you go home. Most people will have at least four cycles of treatment (approximately eight to twelve weeks apart). The number of cycles and duration between each cycle will depend on:

- your general fitness
- whether you experience any treatment-related side effects

It will take eight to ten months to complete all four cycles. Once you have completed all four cycles, we will discharge you back to the doctor who referred you for this therapy.

We will contact you approximately nine days before each cycle of treatment is due to confirm the date and check that you are well enough to receive treatment (this will be a telephone or a video appointment).

You will need to have a total of four blood tests (one every two weeks) after your therapy at your closest medical facility. We will give you the relevant forms before you leave hospital.

Contact us

If you have any questions or concerns, please contact us.

Nuclear medicine department
Telephone: **023 8120 6627** (9am to 5pm, Monday to Friday)

Radionuclide therapy nurse
Telephone: **023 8120 6627**

When you begin your treatment, you will be given a contact card containing your radionuclide therapy nurse's contact details and our hospital's oncology emergency 24-hour mobile number.

Useful links

www.cancerresearchuk.org/about-cancer/neuroendocrine-tumours-nets/treatment/radiotherapy/peptide-receptor-radionuclide-therapy-prrt

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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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