

Lutetium therapy

This leaflet aims to answer your questions about having lutetium therapy. It explains the benefits, risks and alternatives to the treatment, as well as what you can expect when you come to hospital. If you have any further questions or concerns, please speak to a doctor or nurse caring for you.

What is lutetium therapy?

Lutetium therapy (lutetium-177-DOTA-oxodotretotide) is a type of treatment known as a targeted radionuclide therapy or peptide receptor radionuclide therapy (PRRT).

It uses a drug consisting of:

- oxodotretotide – a man-made (synthetic) form of the naturally occurring hormone somatostatin
- lutetium-177 – a substance that emits radiation.

This combined drug is given as an infusion (via a drip) into a vein. It binds to the surface of neuroendocrine tumours, with oxodotretotide directing the location of the tracer and the lutetium delivering a high local dose of radiotherapy directly to the tumour.

Neuroendocrine tumours are a group of rare cancers that can arise anywhere in the body but often begin in the bowel, pancreas gland or lungs.

The aims of lutetium therapy are to slow down or prevent tumour growth and to reduce some of the symptoms the tumour causes.

Lutetium therapy is usually given as a course of four treatments, eight to twelve weeks apart.

Why do I need this treatment?

Research shows that lutetium treatment can increase life expectancy, relieve symptoms and improve quality of life for people who have neuroendocrine tumours.

Your doctor may recommend this treatment if you have a neuroendocrine tumour that is getting worse and has stopped responding to other treatment. To check if you are suitable for lutetium treatment, you will need to have a DOTATATE PET (positron emission tomography) scan in our PET department. We will also need to check how well your kidneys are working and will arrange a special kidney test called a glomerular filtration rate (GFR) for you.

What are the risks?

There are two main types of possible side effects – those relating to the treatment itself and those relating to the radiation dose to your body.

Side effects related to the treatment

The treatment may cause the following side effects.

- It can make you feel sick – this usually only happens on the day that treatment is given. We will give you some anti-sickness medicine beforehand to prevent this.
- It can cause increased pain due to inflammation of the tumour, especially if it is in your bones, liver or pancreas. This usually passes within 72 hours following treatment. A low dose of a steroid (dexamethasone) will be prescribed to help reduce this, but you may need to take your usual pain medication more regularly.
- It may cause a temporary increase in the intensity of your day-to-day symptoms, such as flushing, sweating, palpitations or wheezing, and increased frequency of diarrhoea. This usually settles within 24-48 hours. You may need to increase the amount of anti-diarrhoea medication you are taking.
- It may result in temporary hair thinning. Your hair will regrow normally once you have completed lutetium treatment.
- It can make you feel tired for a few weeks after each cycle of treatment. Your clinical nurse specialist will talk to you about how you can manage any tiredness when you go home.

It is also possible that you feel no different and do not experience any of these side effects.

Side effects related to the radiation dose

Lutetium therapy can affect parts of your body other than the tumour. In particular, it may affect your bone marrow and kidneys. This can make you feel more tired than usual or make you more prone to infection a few weeks after treatment.

We will arrange for you to have regular blood tests after each cycle of treatment to check your blood count (blood cells) and to see how your kidneys and liver are working. Your clinical specialist nurse will discuss this with you.

Side effects from the radiation can also include damage to healthy cells, although these cells take up very low amounts of lutetium compared to the tumour itself. There is a very low risk that this might damage your bone marrow or cause a secondary blood cancer in the future, several years after you have completed the lutetium treatment.

It is important that you let your doctor or clinical specialist nurse know if you have any new or unexpected health problems after lutetium treatment, even if they are not listed above.

Lutetium and pregnancy

As lutetium therapy involves radiation, it is not given during pregnancy as this might harm a developing baby. All women of child bearing age are asked to provide a sample of urine to rule out pregnancy before starting each lutetium therapy cycle. Both men and women are advised not to conceive during their treatment and for at least six months after completing treatment. Reliable contraception should be used throughout this period. Your doctor will discuss this further with you.

Are there any alternative treatments?

Several treatments may help people who have neuroendocrine tumours. These include:

- Painkillers – for pain relief.
- Somatostatin analogues – these are synthetic forms of the hormone somatostatin, and include the drugs octreotide, lanreotide and pasireotide. They are given by injection for specific symptom relief and to help stabilise your illness.
- Interferon alpha – a biological therapy that can help to prevent tumour growth and symptoms. It is given by injection.
- Surgery – if the tumour is accessible, surgery can either remove the tumour completely or reduce tumour size and improve symptoms.
- Chemotherapy – uses drugs used to kill cancer cells to reduce tumour size and improve symptoms. It is usually given via a drip into a vein in your hand or arm. The majority of neuroendocrine tumours are not very sensitive to chemotherapy treatment.
- Targeted therapies (for example sunitinib or everolimus) – these drugs, which are taken by mouth, reduce tumour growth and spread.
- Embolisation – a technique that reduces the blood flow to the tumour to control symptoms. This can sometimes be combined with chemotherapy or radiation therapy, in order to prevent growth of tumour cells.
- Radiofrequency ablation – a procedure carried out under general anaesthetic, which uses a low electrical current to deliver heat to remove liver tumours.
- Targeted radionuclide therapies – these are types of radiation therapy, and include ¹³¹I-MIBG targeted radionuclide therapy.

These treatments may be given one after another, or together.

After discussing all your treatment options, you may decide you prefer not to have any treatment, or your team may feel that these sorts of treatments will not help you. In this case, they can refer you for palliative care near your home. This supports you and helps to ease your symptoms, but it will not cure you. You can also have palliative care in combination with some of the treatments listed above.

Consent - asking for your consent

We want to involve you in decisions about your care and treatment. If you decide to go ahead, you will be asked to sign a consent form. This states that you agree to have the treatment and you understand what it involves.

If you would like more information about our consent process, please speak to a member of staff caring for you.

How do I prepare for my lutetium treatment?

Each lutetium therapy cycle typically involves three days of hospital appointments and may include an overnight stay. It will take eight to ten months to complete all four cycles. Your follow-up appointments after completing your last treatment cycle will take place over the next 12 months. During that time, you will also keep in contact with the doctor who is in overall charge of your care.

Before each cycle of treatment, you will be asked to provide blood samples and undergo a physical examination. These tests, together with the completion of a short questionnaire on your general health, will help us to assess your suitability for treatment.

We need to know about any medicines you are taking or have been given, even ones you have bought yourself. If you are also being treated with octreotide (Sandostatin LAR®) or lanreotide injections, we need to know the date of your last injection, so that we can plan for each cycle of lutetium therapy to be given in the days just before your injection. If you are taking daily octreotide injections we will advise you when you should stop these. You will be able to eat and drink and take all other medication as normal on the day of your treatment, unless otherwise instructed by the team during your pre-treatment appointment.

If you need to stay in hospital overnight after the therapy you will need an overnight bag with nightwear and toiletries.

The time visitors can spend with you will be restricted. We will talk to you about this before you start your treatment. Children under 16 years old and pregnant women must not come with you or visit.

What happens during the procedure?

Your treatment will be given in the Nuclear Medicine Department at Guy's Hospital. The whole procedure takes around five hours to complete.

A cannula (a small plastic tube) will be placed into a vein in your arm. First, we will give you medicine through the cannula to stop you feeling sick or vomiting. Then an infusion (drip) of amino acids will be given through the cannula. This helps to protect your kidneys from the radioactivity.

We will interrupt the amino acid infusion after about one hour to allow the administration of lutetium-177 DOTA-octreotate to start. The lutetium infusion takes 30 minutes. After it has finished, the infusion of amino acids will be restarted to run for another three hours. The cannula will then be removed.

A member of the nuclear medicine physics team will monitor the level of radiation in your body at intervals following your treatment.

What happens after the procedure?

After your treatment, you may be admitted to Sarah Ward where you will stay overnight. More information about Sarah Ward is in our leaflet, [Welcome to the Nuclear Medicine Unit on Sarah Ward](#). Alternatively, you may be able to stay in hospital accommodation close to Guy's, with friends or relatives who live locally, or in a hotel nearby. We will agree the best plan for you **before** you come for treatment so that you know what to expect.

On the morning after your treatment, you will return to the Nuclear Medicine Department for post-therapy scans. These scans may take up to two hours and are to check that the treatment has gone to plan.

After the scans, you should be able to go home as soon as the level of radiation in your body is low enough. A member of our nuclear medicine physics team will measure your radiation levels and talk to you about any precautions you will need to follow when you leave hospital. These precautions are necessary to reduce the radiation dose to other people whom you come into contact with and will be confirmed in writing.

After leaving hospital

You should follow the advice about radiation precautions you have been given. Make sure you keep the paperwork somewhere safe, in case you need to refer to it.

You will be asked to have a blood test every two weeks, for eight to ten weeks, to check what effect the therapy has had on your blood cells, kidneys and liver. These will be arranged with your GP. Your clinical nurse specialist will contact you regularly after we have received the blood test results from your GP, to answer your questions and provide you with help and support.

Returning to work

The type of work you do should be taken into consideration when deciding when to go back to work. Your consultant and clinical nurse specialist will discuss this with you.

And finally

Guy's and St Thomas' Hospitals work closely with a network of other hospitals as a joint European Centre of Excellence for the management of neuroendocrine tumours. We are working together to give our patients the best possible care and share best practice. To make sure that everyone you meet always has the most up-to-date information about your health, we may share information about you between the hospitals. This information is managed securely according to strict NHS rules and will only be accessible to staff who are directly involved in your care.

Useful sources of information

Contact us

If you have any questions or concerns about your lutetium therapy treatment, please contact us:

- Clinical nurse specialist, **t: 020 7188 6304**
- Nuclear medicine physicists, **t: 020 7188 3802**
- Nuclear medicine department, **t: 020 7188 4112**

For more information leaflets on conditions, procedures, treatments and services offered at our hospitals, please visit **w:** www.guysandstthomas.nhs.uk/leaflets

Neuroendocrine Tumour Patient Foundation

w: www.netpatientfoundation.com

Macmillan Cancer Support

w: www.macmillan.org.uk **t:** 0808 808 0000 (free telephone helpline)

Pharmacy Medicines Helpline

If you have any questions or concerns about your medicines, please speak to the staff caring for you or call our helpline.

t: 020 7188 8748, Monday to Friday, 9am to 5pm

Your comments and concerns

For advice, support or to raise a concern, contact our Patient Advice and Liaison Service (PALS). To make a complaint, contact the complaints department.

t: 020 7188 8801 (PALS) **e:** pals@gstt.nhs.uk

t: 020 7188 3514 (complaints) **e:** complaints2@gstt.nhs.uk

Language and accessible support services

If you need an interpreter or information about your care in a different language or format, please get in touch.

t: 020 7188 8815 **e:** languagesupport@gstt.nhs.uk

NHS 111

Offers medical help and advice from fully trained advisers supported by experienced nurses and paramedics. Available over the phone 24 hours a day.

t: 111 **w:** 111.nhs.uk

NHS website

Online information and guidance on all aspects of health and healthcare, to help you take control of your health and wellbeing.

w: www.nhs.uk

Get involved and have your say: become a member of the Trust

Members of Guy's and St Thomas' NHS Foundation Trust contribute to the organisation on a voluntary basis. We count on them for feedback, local knowledge and support. Membership is free and it is up to you how much you get involved. To find out more, please get in touch.

t: 0800 731 0319 **e:** members@gstt.nhs.uk **w:** www.guysandstthomas.nhs.uk/membership

Was this leaflet useful?

We want to make sure the information you receive is helpful to you. If you have any comments about this leaflet, we would be happy to hear from you, fill in our simple online form, **w:** www.guysandstthomas.nhs.uk/leaflets, or **e:** patientinformationteam@gstt.nhs.uk

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