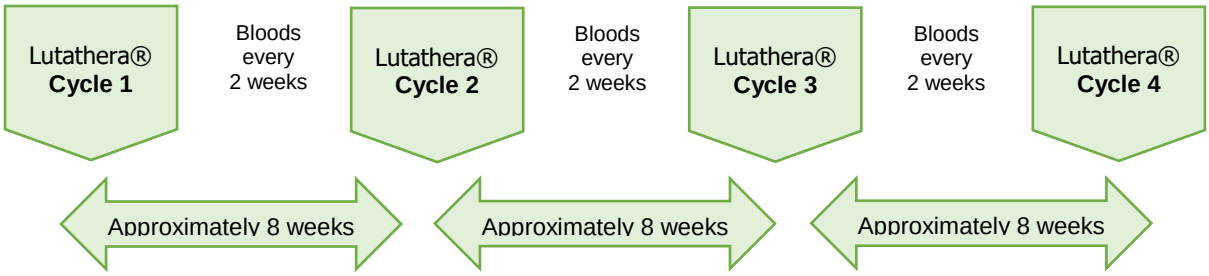
Introductory Information for Patients receiving PRRT (Lutathera) to treat neuroendocrine cancer.

Introduction:

Peptide Receptor Radionuclide Therapy (PRRT) is a treatment for neuroendocrine cancer. This leaflet explains why PRRT is being considered for you, what is involved and the benefits and risks of the treatment.

What is PRRT (Lutathera)?

- **P**eptide **R**eceptor **R**adionuclide **T**herapy or **PRRT** is an approved treatment for neuroendocrine tumours. PRRT delivers radiation therapy directly to any tumours in your body that are visible on your PET/CT Scan.
- The type of PRRT that has been recommended for you is called Lutathera®.
- The procedure consists of four treatments (infusions) ideally given about eight weeks apart, but duration between infusions may be increased due to response to therapy, availability and potential side-effects. There should not be more than 16 weeks between infusions.
- In general, the infusion will require an overnight stay in the hospital. In some cases the remaining three infusions could be given on a day basis or it will require an overnight stay.
- Between each infusion, you will be assessed at the PRRT clinic to review how the treatment is working for you. You will also have regular blood tests to ensure it is safe for you to proceed to the next treatment.
- You will receive a special scan(s) after each infusion to measure the amount of radioactivity delivered to certain organs.
- To protect other people from the radiation you have been given, you will be asked to take some precautions for 2-3 weeks after each treatment.



Why is this treatment being considered for me?

You may have already had other treatments, including somatostatin analogues (injections), chemotherapy or surgery. These treatments may no longer be effective on your cancer. A team of specialist doctors have decided to offer you this treatment

as they feel it is the best option for you and PRRT is an internationally well recognised and used treatment for neuroendocrine cancer.

In making their decision, the doctors will have considered your general health and a range of diagnostic tests, including special imaging investigations.

How does it work?

Some neuroendocrine cancer cells have proteins (receptors) on the outside of them called somatostatin receptors. Lutathera® 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 releases radiation that destroys the cells from the inside. By delivering a high radiation dose directly to cancer cells, PRRT minimises the damage to surrounding healthy cells.

Before being considered for PRRT you will have had a Gallium PET-CT Scan 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 Lutathera ®.

How can I benefit from this treatment?

Since every patient is different, it is difficult to predict exactly how much you may benefit from this treatment. Lutathera® is one of the only effective treatments for inoperable neuroendocrine cancer that has spread in the body. It cannot cure the cancer, but it can cause it to shrink, delay it spreading, and prolong life.

Lutathera® effectiveness was assessed in a big international study.

Are there any side-effects from this treatment?

There are several possible side effects from the treatment procedure, some arising from the amino acids and some from the Lutathera®. **Not all patients will experience these side effects.** Detailed information about the side effects can be found on-line in the Summary of Lutathera® Product Characteristics (on-line address listed at the end of this document). The most common side effects are listed below. A side effect is considered "very common" if they affect at least 1 in 10 patients, "common" if they affect at least 1 in 100 patients and "uncommon" if they affect at least 1 in 1,000 patients.

Short-term side effects:

- ***Tiredness.*** This is a very common but usually mild and may last for a few weeks after treatment.

- ***Nausea / vomiting / decreased appetite.*** Nausea and vomiting are very common during the treatment. You will be given anti-sickness medication before your treatment to help with this.

- ***Fall in blood count.*** This is very common and usually temporary, but could cause a delay in your next cycle of PRRT. A fall in blood count can leave you more prone to infection, bleeding and bruising or leave you feeling tired and short of breath. Your blood count will be checked before you start treatment and every 2 weeks while you are undergoing treatment. If you notice any bruising or bleeding it is important to contact the PRRT nurse specialist or the NET team. Some drops in blood count may require treatment with a blood transfusion.

- ***Diarrhoea.*** This is common but is usually mild and usually should not need any specific treatment.

- ***Abdominal Pain:*** Stomach pain is common and may last for a few days after treatment. If you have persistent or severe pain you should contact the PRRT nurse specialist or the NET team.

- ***Mild hair loss.*** This is common but usually minimal (much less than chemotherapy), and re-grows after the treatment has finished.

- ***Hormonal syndromes.*** The treatment can cause a sudden release of hormones. This is uncommon but if left untreated can result in a hormonal crisis. This is most likely to occur in the first 48 hours after your treatment. We will be monitoring you closely throughout your stay. You might need additional medications or a longer stay in the hospital to treat that. You will be advised to watch for hormonal symptoms after you return home,and what to do in case of emergency.

- ***Tumour lysis syndrome.*** When a lot of bad cells called cancer cells break down really fast in the body following Lutathera infusion, this results in tumour lysis syndrome which can cause an irregular heartbeat, kidney problems or seizures. If you develop any muscle cramps or weakness, confusion, or shortness of breath it is important to contact the PRRT nurse specialist of the NET team.

- ***Allergic reaction.*** Allergy is uncommon and you will be monitored for this during and after your infusion.

Long-term side effects

- ***Impaired kidney function.*** This is common and in some cases patients have experienced kidney failure. The risk of this is minimised by giving you amino acids during the therapy. However, your kidney function will be checked before treatment and every two weeks during treatment, as well as routine monitoring after treatment.

- ***Impaired liver function.*** Patients with liver metastases may be more prone to impaired liver function. Your liver function will be checked before treatment and every two weeks during treatment, as well as routine monitoring after treatment.

- ***Blood cancer.*** Bone marrow disease also known as myelodysplastic syndrome of the bone marrow (usually a forerunner of leukaemia) and acute leukaemia has been noted in about 2% of patients. Your blood counts will be checked before treatment and every two weeks during treatment, as well as routine monitoring after treatment.

- ***Infertility.*** Treatment may cause infertility which can be temporary or permanent.

- ***Risk from radiation exposure.*** Lutathera® contributes to overall long-term radiation exposure. Cumulative radiation exposure is associated with increased risk of cancer. Every effort is made to minimise your radiation exposure and special precautions are provided below which will minimise your risk and your household contacts risk of exposure.

- ***Harm to an unborn child***. Lutathera® can cause harm to an unborn child if given to a pregnant woman. It is advisable that women of child bearing age use effective contraception during the treatment and for 7 months afterwards. Men with partners of child bearing age should also use effective contraception during treatment and for 4 months afterwards. Breastfeeding must be stopped prior to commencement of therapy.

Preparing for your PRRT treatment:

It is important that any long-acting somatostatin analogue injections are stopped ideally 4 weeks prior to PRRT, and short acting somatostatin analogue injections are stopped ideally 24 hours prior to PRRT. This is because these drugs may block the receptors that the therapy is designed to target and therefore potentially reduce the success of the treatment. **HOWEVER, THE REFERRING NET CONSULTANT WILL DECIDE WHETHER YOU SHOULD STOP THESE INJECTIONS OR NOT BEFORE PRRT TREATMENT.**

Prior to starting your course of PRRT, you will have a consultation with the NET consultant and the PRRT nurse specialists at the outpatient PRRT clinic. You will also have a consultation with a Radiologist /Nuclear Medicine Physician and PRRT nurse specialist in the Nuclear Medicine department. They will explain the therapy procedure in detail and address any concerns you may have and provide you with their contact details in case of issues arriving afterwards.

You will also meet with a Medical Physicist who will give you written and verbal instructions about the precautions you will need to take after each infusion to minimise the radiation exposure to others. For example it will be necessary for you to

- Limit contact with young children and pregnant women for up to three weeks after each treatment cycle.
- It may be also necessary for you to avoid places of work where you are in close contact with other people for up to two weeks after therapy. A sick note will be provided if required.

More information about this procedure can be obtained by contacting PRRT@svhg.ie or:

Radiology

Josh Nogales PRRT Nurse Specialist
Anupria Joy
Dr. Nicola Hughes/
Dr. Mathilde Colombie
Department of Radiology
Direct Tel.: 01 221 5662
Reception Tel.: 01 221 4992

Radiation Protection

Ann McCann
Niamh McArdle
Jackie McCavana
Medical Physics Department
Direct Tel.: 01 221 5278 / 4409

NET Team

Dr Hussein Almeamar
Dr Mark Doherty
Tel: 01 221 4407

Further Information about PRRT can also be obtained at:

Neuroendocrine Cancer UK
https://www.neuroendocrinecancer.org.uk/

Includes information, leaflets, news and a patient forum.

Summary of Lutathera® Product Characteristics: Available on-line at: https://www.ema.europa.eu/en/documents/product-information/lutathera-epar-product-information_en.pdf