

This instruction is intended for our patients who are in a care relationship

The Wellbeing Services County of South West Finland

Turku University Hospital

Lutetium-177-PSMA treatment for prostate cancer

This guide is intended for printing. The guide contains fillable sections.

Patient's name and social security number:

Planned activity of ¹⁷⁷Lu and date of administration:

Lutetium-177-PSMA treatment in general

Lutetium-PSMA treatment is intended for patients with advanced metastatic castration-resistant prostate cancer. The PSMA carrier molecule transports the radioactive source (Lutetium-177) to the surface of cancer cells through the bloodstream. The radiation from Lutetium destroys tumour cells. Excess radiopharmaceutical is largely excreted through the kidneys into the urine within the first 24 hours. Due to radiation to the environment, other individuals are protected by conducting the treatment in a single-person isolation room.

Implementation of Lutetium treatment

The treatment is given depending on the response, 2-6 times every 6-8 weeks. The treatment response is monitored through laboratory tests, imaging studies, and by observing your condition.

Two days before the treatment, you will undergo laboratory tests. On the morning of the treatment, you will come to the day ward of the Oncologic Outpatient Clinic (TA3), where the doctor will check your condition, and the nurse will prepare you for the treatment. After the treatment, you must remain in the treatment room for about four hours to allow the activity of lutetium in your body to decrease to permissible levels. If the activity has not decreased sufficiently by the afternoon, you may need to stay overnight in the treatment room. In that case, you will be discharged the following day once the activity has decreased to permissible levels.

After each treatment session, a SPECT-CT imaging is performed at the Department of Nuclear Medicine (U-hospital, 1st floor) immediately after the isolation is completed or at the latest the following morning. Additionally, similar imaging is done one week after the first, third, and fifth

treatment sessions. After the third treatment session, a PSMA-PET-CT imaging is performed (PET Center, 2nd floor).

The nurse will provide you with detailed information about upcoming laboratory, treatment, and imaging schedules.

Other considerations before treatment

If your condition has significantly changed since your last visit, you should inform the doctor. Symptoms to mention include chest pain, fever, urinary problems, and poor control of diabetes.

If you smoke or use snuff, we recommend starting nicotine patches or gum at home, as smoking and snuff use are prohibited in the hospital.

Your schedule

Pre-treatment laboratory tests ___/___20___ at ___ o'clock

Arrival for treatment at TA3 ___/___20___ at ___ o'clock

Implementation of the treatment in the day ward

Take this guide with you when you come for the treatment.

Before arriving at the day ward, you can eat normally at home. During the treatment, you will have your own room with a toilet and entrance area. The nurse will verify your identity, provide guidance on practical matters related to the treatment, and give you radiation protection instructions during the treatment. The doctor will check your condition and the results of blood tests.

In the morning, the nurse will prepare you for the treatment. Your bladder will be emptied at the ward before starting the treatment. If necessary, you will receive anti-nausea pre-medication. The nurse will insert an intravenous catheter, and hydration will start half an hour (30 minutes) before receiving the treatment dose. During the administration of the treatment, your salivary glands will be cooled with ice packs, and you will also receive ice cubes to suck on during the period of radiation isolation. Cooling prevents the accumulation of activity in your salivary glands. The treatment dose will be administered as a rapid injection using two separate syringes through the catheter. Hydration will continue after receiving the treatment dose.

After the treatment, you are not allowed to leave the room, and the staff will not enter the room without a specific reason. Visits by relatives are also not allowed, which should be informed to them in advance. Communication with the nurse will be via phone, and your condition will be

monitored by phone at least once during the isolation period. You can always contact the nursing staff via the phone or patient call button. The room also has camera surveillance, which is used as needed to monitor your condition. Normally, isolation in the ward lasts around four hours. There is a television and radio available in the room for your use. Remember to bring your personal medications (e.g., asthma and eye medications) as the ward may not have your specialized meds. Also, bring your own dental hygiene tools and mobile phone charger in case you need to stay overnight in the treatment room.

The implementation of treatment requires self-directedness. You will pick up meals, drinks, and medications from the table in the entrance area of your room; the nurse will notify you when they arrive. During the treatment, you will wear hospital clothing and indoor shoes. In the cupboard in your room, you will find clean clothes, towels, and other supplies. There is a laundry bag in the toilet for soiled clothes and a trash can in the room for other waste. You can always ask the staff for additional instructions via phone if needed.

Lutetium-PSMA is excreted mainly in urine and in small amounts in faeces and saliva. Most of the activity is excreted through urine within the first 24 hours. Therefore, it is important to drink plenty of fluids, especially during the first day, and to have regular bowel movements. Drink one glass of fluid at least every other hour during the radiation isolation and urinate more frequently than you would naturally need to. This way, excess Lutetium will be efficiently removed from your body. However, moderation is recommended when drinking, as excessive drinking can cause nausea and may be harmful to your heart. If your bowel movements are not normal, inform the nurse or doctor before the treatment.

When using the toilet, flush it with plenty of water (2-3 flushes). You should urinate sitting down to avoid splashing and use toilet paper to dry your genital area. If you need to blow your nose or spit, use a toilet paper or cotton wool, dispose of the paper in the toilet, spit directly into the toilet, and flush it afterwards. Always wash your hands thoroughly after using the toilet or blowing your nose and dry them with paper towels, not a towel. Do not throw paper towels into the toilet. If your secretions end up in inappropriate places, inform the nurse.

Possible side effects of Lutetium-PSMA treatment

The side effects associated with Lutetium-PSMA treatment are often most severe 3-5 days after receiving the treatment. Fatigue is a very common symptom, which usually improves within a few weeks after treatment. Dry mouth and eyes, as well as nausea, may occur. The skin at the injection site often reacts to the treatment with rash, pain, or swelling. It is important to inform the nurse about any symptoms over the phone. Medication that relieves symptoms is available if needed. Inform the nursing staff if you are unable to drink enough due to nausea or severe diarrhoea.

Special situations

If you urinate or vomit in the room, or have diarrhoea, inform the nursing staff immediately. Put dirty clothes in a laundry bag. Wash yourself thoroughly, but do not attempt to clean the room on your own. Avoid spreading urine, vomit, or diarrhoea stains in the room.

If you have a urinary catheter or a stoma, empty it yourself into the toilet and flush the toilet 2-3 times. Dispose of the empty bag in the trash bag in the toilet and wash your hands thoroughly.

Discharge after the treatment period

A radiation dose-rate measurement will be conducted in your room approximately four hours after receiving the treatment. If the radiation dose-rate has dropped below the discharge limit, you will be transferred to the Department of Nuclear Medicine (U-hospital 1st floor) for the SPECT-CT imaging. The nurse will arrange transportation for you.

If the dose rate has not yet dropped below the discharge limit, radiation isolation will continue in the same room until the following morning. In this case, the imaging procedure will also be performed in the Department of Nuclear Medicine the following morning. If your journey home takes more than three hours in a public transportation, you will spend the night in the same room or in a patient hotel.

The SPECT-CT imaging takes about half an hour, after which you will be discharged. Upon discharge, you will receive written and oral radiation protection instructions for home.

Radiation Protection Actions at Home

Radioactivity has not completely disappeared from your body upon discharge. Discharge is possible when the remaining activity poses reasonable radiation exposure to others. However, you may still expose others to radiation, so follow these instructions for **7 days** after the treatment:

- You must go directly home from the hospital.
- The guidance on the mode of transportation depends on the duration of the journey home:
 - For journeys of less than two (2) hours, there are no restrictions, but it is advisable to avoid sitting next to a minor or a pregnant person. It is not advisable to use the WC facilities on public transportation.
 - Try to maintain distance from fellow passengers as much as possible.

- In a taxi, sit as far away from the driver as possible. For travel times of 2-3 hours, it is recommended to use a private taxi.
- For the first week, sleep alone in a separate room at least 3 meters away (even if there is a wall between the beds) from other people.
- Continue drinking more fluids than usual (an extra glass of water every other hour while awake) and urinate frequently to efficiently remove excess radiopharmaceutical from your body.
- Practice careful toilet hygiene, i.e., urinate sitting down, flush the toilet 2-3 times after use, use toilet paper to dry your genital area, wash away any secretion stains and wash your hands thoroughly. Secretions should not end up in other people's hands.
- Avoid close contact (within 2 meters) with others for more than two (2) hours (e.g., abstain from attending large public events).
- Avoid being near small children (under 10 years old) or pregnant individuals. If your children are under 2 years old, it would be good for someone else to take care of them during this time.
- Lutetium-PSMA is also excreted in saliva and sweat. Therefore, do not share cutlery, kitchenware, bedding, towels, etc., with others. After washing, they are completely safe and do not need to be washed separately. Avoid sauna.
- Limit close interactions, such as hugging or sexual contact, to 5 minutes per day.
- For the next 6 months, it is not recommended to conceive a child.

The length of sick leave after treatment depends on the nature of your work. You can go to work with the above-listed restrictions. If you work with children under 10 years old or have prolonged close contact with other people in your work, you should be off work for the time recommended by the doctor after treatment. It is advisable to discuss work and sick leave issues as well as possible childcare arrangements before coming in for the treatment.

If you need to go to the hospital unexpectedly, inform the doctor that you have received Lutetium-PSMA radioligand therapy. Do this even if it is the same hospital where you received the treatment.

The above-mentioned close contact restrictions do not apply to household pets.

Radiation detectors may be found in unexpected places, such as waste disposal sites and government buildings. Upon discharge, you will receive a certificate of treatment received for possible radiation detection. If you are planning to travel abroad within a month of receiving Lutetium-PSMA treatment, you will also receive an English-language certificate for possible customs radiation inspection.

The use of a dry toilet (or an outdoor lavatory) is not recommended for two weeks after Lutetium-PSMA treatment. However, if you must use it, empty the toilet no earlier than 2 months after the treatment. Avoid unnecessary stays in or near the toilet until it is emptied.

The above radiation protection instructions should be followed for a week after receiving the treatment, until __ __ / __ __ / ____.

Follow-up after Lutetium-PSMA treatment

A week after the first, third, and fifth treatments, a SPECT-CT imaging will be performed. You will receive an appointment for the examination at the Department of Nuclear Medicine (U-hospital 1st floor) when you are discharged. The imaging shows the areas where Lutetium-PSMA has accumulated and is used for treatment follow-up. After the SPECT-CT imaging, a radiation dose-rate measurement will be performed in the imaging room, based on which new radiation protection instructions will be given. For the majority of patients, radiation protection actions can be discontinued after the SPECT-CT imaging visit.

At the second and fourth week after treatment, you will be scheduled for laboratory tests for monitoring the treatment response. The values will be reviewed by oncologist. You will also receive a digital symptom survey via Terveyskylä at the second and fourth week after the treatment. The nurse will review the survey results and contact you by phone if necessary.

At the end of the treatment series, you will be invited for blood tests every two weeks for one month after the last treatment. This is primarily to assess possible side effects of the treatment. Two months after the end of the treatment series, you will undergo a PSMA-PET-CT scan, blood tests, and you will be invited to the Oncologic Outpatient Clinic for a doctor's appointment. After this, follow-up studies will be conducted according to your medical condition.

If you have any concerns, you can contact the Oncologic Outpatient Clinic on weekdays from 8:15 am to 2:00 pm at 02 313 0818.