

Lu-177 PSMA Therapy for Treatment of Advanced Prostate Cancer

What is Lutetium177 Prostate specific membrane therapy?

Lutetium177 Prostate specific membrane antigen (or Lu-177 PSMA) therapy is a treatment for men with advanced prostate cancer. It is used when the disease has metastasised, in cases where therapies have been poorly tolerated or when the disease has progressed despite other treatment.

How does Lutetium177 PSMA therapy work?

PSMA is a protein that is found on the surface of cells in the prostate gland. In most cases of prostate cancer, the amount of this protein on the cell is significantly increased (both in the affected parts of the prostate and in disease that has metastasised). PSMA is bound to the radiation emitter Lutetium-177 which delivers beta radiation. The Lutetium will deliver high doses of radiation to cells bound by the protein, leading to cell damage and eventually killing the prostate cancer cells. The PSMA will target the tumour sites, thereby minimising radiation exposure to other parts of the body.

Safety and side effects

As well as the prostate gland and cancer cells, the PSMA protein will bind to cells in the salivary and the lacrimal (tear producing) glands, kidneys and small intestine. This results in some radiation exposure to healthy tissue in these areas. Potential side effects related to this exposure may include dry eyes and mouth, nausea and vomiting. Tiredness and a fall in the production of blood cells in the marrow may also occur. The effects, however, are usually minimal and temporary. Follow up blood tests are performed to monitor any adverse effects.

Who is suitable for treatment?

Lutetium therapy is used for the treatment of prostate cancer that has spread to regions beyond the prostate and is no longer responsive to other lines of therapy. A F-18 PSMA PET scan is used to assess the extent and affinity of PSMA for the tumour cells before treatment. In a small number of cases, the PSMA molecule will not have sufficient binding to the cancer cells, meaning that treatment would not be effective.

Preparation for treatment

You will need to have had:

- + A F-18 PSMA and a F-18 FDG PET scan performed within the last 3 months
- + Blood tests (including full blood count, renal function and PSA level). You will need to have satisfactory kidney and bone marrow function)
- + We will also ask you to fill in a Quality of Life questionnaire before and after the treatment to help us evaluate its effectiveness.

If you have any questions or concerns regarding your therapy please contact:

How is the treatment performed?

- + You will initially have an appointment with the nuclear medicine specialist who will review your scans and blood tests and discuss if you are suitable for the therapy. If so, a date for therapy will then be booked. They will explain the procedure and answer any questions that you may have. You will be asked to sign a consent form prior to therapy.
- + On the day of the therapy you should be well hydrated, by drinking 1 -2 glasses of water before your appointment. On arrival you will be taken into a therapy room. A cannula/needle will be inserted into an arm vein and some fluid given into the vein. Medication will also be given to help prevent any nausea. The nuclear medicine specialist will then give the Lu-177 PSMA into the vein.
- + After the injection the fluids will continue through the intravenous line for several hours. You will be offered something to eat.
- + You will be in the department for 4-6 hours total.
- + Most patients will then go to either our St Andrew's Hospital or Kurralta Park rooms for scans to check the distribution of the therapy dose.

How will this affect those around me?

Although you will have been administered a dose of radioactive treatment, by the time you leave the department, there should be no resultant significant exposure to people or animals close to you. However, you will be advised if there are any necessary short-term precautions to take.



Dr Jones & Partners
Nuclear Medicine Department
Ph: (08) 8402 4415 between 8:30am and 5pm