

Cancer of the prostate is the biggest carcinogenic killer, excluding skin cancers, of men in South Africa (16.3% of all cancer deaths and over 4 000 in number per year). Up to the age of 74, men have a 1 in 23 chance of developing prostate cancer and the rate is climbing as diagnosis improves and the population average age increases.

Almost all patients with metastatic Prostate cancer will initially respond to well-established and innovative anti-androgen treatments. However, progression to androgen independence can occur. Most deaths are due to advanced disease, which results from any combination of lymphatic, blood, bone or contiguous local spread.

Targeted radionuclide therapy with Lutetium 177-Prostate Specific Membrane Antigen (Lu PSMA) is a state of the art and rapidly developing therapy option for advanced prostate cancer. The potential advantage of targeted radionuclide therapy is saving the normal tissue while giving a high radiation dose to the tumour. Lu PSMA therapies are well tolerated with no significant immediate adverse effects reported following injection. The treatment is administered intravenously, with the total injection time of about 30-60 minutes. Lu PSMA therapy was first initiated in Africa at Steve Biko Academic Hospital/University of Pretoria in March 2015.

Dr Masha Maharaj, specialist Nuclear Physician, heads the Nuclear Medicine departments at the Advanced Imaging and Therapy Centres in Durban and Umhlanga. Dr Maharaj has initiated and successfully completed several radionuclide cancer therapies for other advanced cancer types in Kwa-Zulu Natal. Being at the vanguard of Specialized Medical imaging, our mission is to apply the techniques and principles of Nuclear Medicine and Radiology directly to overcome and assist in management in the diseases inflicting our patients here in South Africa and beyond.

The patient was admitted for the treatment at Umhlanga Netcare Hospital. The therapy patient presented to Advanced Imaging and Therapy Centre, with stage 4 Prostate cancer. The cancer was progressing on chemotherapy and hormonal therapy. He was referred by his Oncologist and was considered a suitable candidate for the Lu PSMA treatment. The advantage of the Nuclear Medicine therapies to the patient is evidence-based and funding is within the scope of most Medical Aid Oncology plans.

Nuclear Medicine therapy termed "Theranostics" has made significant progress since the traditional Iodine therapy administered for well-differentiated Thyroid Cancer. There have been milestones in several cancer types, including Neuroendocrine and now Prostate cancer. Each therapy milestone resulting in new potential for delaying progression and improving the quality of life of patients with advanced stage and inoperable cancer.

Nuclear Medicine is a specialized field in Medicine. It allows the non-invasive imaging of processes within the body which assist in the diagnoses of diseases on a molecular level, even prior to those diseases manifesting on anatomical imaging such as x-ray, CT scan or MRI. The early diagnoses and detection is instrumental to prompt patient management. In certain conditions, by visualizing diseases using specialized specific tracers, we are also able to treat the disease by attaching a more suitable therapeutic radionuclide using the same tracer. After therapy we are able to image the patient and confirm successful therapeutic targeting. "We treat what we see, we see what we treat".

The Advanced imaging and therapy centre is a new state-of-the-art imaging and therapy centre in Kwa-Zulu Natal. The centre offers advanced imaging PET/CT, SPECT, mammogram, x-ray, ultrasound and CT, all imaging techniques necessary for assisting in patient management and therapy guidance.

On behalf of Advanced Imaging and Therapy Centre, Dr Maharaj extends her gratitude to the nursing staff and management at Netcare Umhlanga Hospital for their ongoing support and exemplary work ethics in the advancement of patient care and therapy.