

Vienna, Austria

Annual Congress of the  
European Association of Nuclear Medicine

October 21 –25, 2017  
Vienna, Austria

## CTE 3 (Technologists)

Monday, October 23, 14:30-16:00

### Session Title

Prostate Imaging and Therapy

### Chairs

Andrea Santos (Lisbon)

Giorgio Testanera (London)

### Programme

14:30 - 15:00 Paolo Castellucci (Bologna): PET-CT Imaging in Prostate Cancer

15:00 - 15:30 Thorsten Dirk Poeppel (Essen): Radionuclide Therapy in Prostate Cancer

15:30 - 16:00 Andrea Skanjeti (Lyon): Radiation therapy and PET-CT aided radiotherapy planning in Prostate cancer

### Summary

Prostate carcinoma is the most common life-threatening cancer affecting men in the Western World (M. Hodolic, S. Goldsmith). Prostate carcinoma tends to develop in men over 50 years old, affecting approximately 80% of men over 80 years old.<sup>1</sup>

The pathways to diagnose prostate cancer has been increasing and developing over the years and also improving its efficacy to help diagnose.

Nuclear Medicine contributes with non-invasive techniques that effectively help to diagnose, stage and follow-up the disease. <sup>18</sup>F-FDG is the more available radiopharmaceutical for PET-CT technology but due to its lack of specificity for prostate cancer has been poorly used in this pathology. Choline radiopharmaceuticals (labeled with Fluor-18 or Carbon-11) has played an important role along the past years as the best option for prostate disease. With the development of new radiopharmaceuticals, a prostate tumor-specific agent is emerging as a promising new probe, thanks to its possible diagnostic and theranostics applications: PSMA-based radiopharmaceuticals.

Nuclear Medicine also plays an important and emerging role in radionuclide therapy in prostate cancer. Bone metastases of prostate cancer have been treated recurring to radiopharmaceuticals such as samarium and strontium and, more recently the alpha-particles emitter, Radium-223.

Radiotherapy is one important and frequent pathway for treatment of prostate cancer. Nuclear Medicine, with all these diagnostic procedures can help to increase the efficacy of the radiotherapy treatment, by giving accurate information to be considered in radiotherapy planning.

<sup>1</sup> M. Hodolic, S. Goldsmith: Prostate Carcinoma, in *Nuclear Oncology* (2015).

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### **Educational Objectives**

- Get familiar with prostate cancer diagnostic pathways
- Identify diagnostic procedures for prostate cancer
- Describe the clinical importance of PET-CT and SPECT in the staging and follow-up
- List the radiopharmaceuticals available
- Discuss the advantages and disadvantages of each diagnostic procedure
- Understand the different protocols for each diagnostic procedure available (Choline vs PSMA)
- Differentiate between diagnostic and therapeutic radiopharmaceuticals
- Identify the clinical indications for radionuclide therapy
- Understand the protocols and specificities of a radionuclide therapy procedure
- Understand the basic principles of radiation therapy for prostate cancer treatment
- Describe the role of nuclear medicine to aid radiotherapy planning

### **Key Words**

Prostate, Imaging, Radionuclide Therapy, radiopharmaceuticals, Choline, PSMA, Radium-223, Radiation Therapy

### **Take Home Message**

Nuclear Medicine is a competitive methodology for dealing with Prostate Cancer thanks to its specific diagnostic value, possibility of radionuclide therapy and the ability to guide accurately other treatment like radiation therapy.