

Progress in Prostate Cancer Theranostics

Richard L. Wahl, MD, SNMMI President

The past few months have been very exciting for the field of nuclear medicine and molecular imaging, specifically the advances made in the diagnosis and treatment of prostate cancer. New agents are changing the course of treatment for prostate cancer patients and will ultimately help to improve outcomes.

According to the Surveillance, Epidemiology, and End Results (SEER) program, an estimated 248,500 new prostate cancer cases will be diagnosed in 2021, and more than 34,000 men will die from the disease. About 30% of prostate cancer patients will have a recurrence, including those who will develop castration-resistant prostate cancer. With the latest advances in imaging and theranostics, nuclear medicine and molecular imaging professionals hope to help many of these men.

In May, the U.S. Food and Drug Administration (FDA) approved a new imaging agent for detection of prostate cancer, providing a more effective imaging approach to detect metastases. ^{18}F -piflufolastat injection is the first fluorinated prostate-specific membrane antigen (PSMA) agent approved by the FDA and also the first widely commercially available PSMA PET imaging agent in the United States.

Recently published results from the phase III VISION trial are also promising for patients with metastatic castration-resistant prostate cancer. The study reported a 38% reduced risk of death and a 60% reduced risk of progression for those treated with the targeted radiopharmaceutical ^{177}Lu -PSMA-617 vs. standard of care controls.

Given the number of patients who would benefit from these diagnostic and therapeutic radiopharmaceuticals, prostate cancer is an area of high interest and growth for SNMMI. SNMMI's Value Initiative—the society's strategic vision and roadmap for advancing the field—includes many programs that support the progress being made in nuclear theranostics for prostate cancer.

To gather research on targeted radiopharmaceutical therapies (RPT), the SNMMI Board of Directors approved the development of the Radiopharmaceutical Therapy Registry. This registry will monitor anonymized data from patients who received radiopharmaceutical therapies. Work will soon begin to identify pilot sites and partners to collect these important data.

A Coding and Reimbursement Workgroup has been created to evaluate existing radiation oncology codes that could be used for nuclear medicine, identify common therapy pathways with applicable codes for RPT, and develop standardized billing criteria for medical physicists. The workgroup will also provide education for members on coding and reimbursement for RPT through webinars and educational articles.

SNMMI has also launched a Radiopharmaceutical Therapy Centers of Excellence (RPTCOE) program. Sites utilizing radiopharmaceutical therapies can apply to earn

designation as a clinical or comprehensive RPTCOE, which confirms that the site meets strict regulatory, training, qualification, experience, and performance criteria.

The RPTCOE is also working to standardize how and when dosimetry should be implemented when treating patients with RPT. A ^{177}Lu Dosimetry Challenge was launched in early 2021 to assess variability in methodology, equipment, personnel, time requirements, and results in calculating personalized dosimetry. The response to the challenge has been overwhelmingly positive and will result in a valuable dataset to identify areas for standardization. Early results from the challenge are expected to be published in a supplement to *The Journal of Nuclear Medicine (JNM)* in December.

SNMMI's RPTCOE and R&D Domain have developed a Cancer Cooperative Group Junior Faculty Mentorship Program to enhance the presence of nuclear medicine and molecular imaging professionals in the NCI National Clinical Trial Network cooperative groups. Six awards will be granted in 2021 to individuals in an effort to help influence, design, and lead these trials.

To ensure that these new radiopharmaceuticals are accessible to patients, SNMMI is collaborating with regulatory agencies. The society is working with the FDA to streamline approval processes and with the Centers for Medicare and Medicaid Services to approve and streamline reimbursement. Appropriate use criteria for PET PSMA are near completion.

SNMMI is also focused on promoting innovative and impactful research as it relates to prostate cancer. *JNM* articles are now available online immediately following acceptance, and articles are published online up to a month ahead of print release. A targeted public relations campaign has also been launched to share this research on a broader level.

With all of these great advances, the nuclear medicine and molecular imaging workforce pipeline must be strong. SNMMI's Workforce Pipeline Domain has formed a subgroup to focus on outreach to medical, undergraduate, and high school students in an effort to expose them to nuclear medicine. The SNMMI Diversity, Equity, and Inclusion Task Force, Women in Nuclear Medicine Committee, Early Career Professionals Committee, and Resident/In-Training Committee are collaborating on this effort as well.

The field of nuclear medicine and molecular imaging is being transformed, as shown by advances in the treatment of prostate cancer. SNMMI is committed to being there every step of the way to ensure success.



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