

SNMMI Efforts Supporting Nuclear Medicine Therapy

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From the origin of nuclear medicine therapy in the 1940s through the recent surge in theranostic agents, SNMMI has supported the development of nuclear medicine as a powerful therapeutic tool for personalized treatment. It is both a strength and an opportunity.

Imaging and oncologic professionals are increasingly aware of our unique value. In 2015 SNMMI established the Therapy Center of Excellence, which brings together a multi-disciplinary interest group involving physicians, scientists, technologists, nurses, industry, regulatory agencies, and other stakeholders to share ideas, develop educational offerings, and advance utilization of radionuclide therapy for patient care.

In January 2018 the Therapy Center held the Multilateral Conference on Differentiated Thyroid Cancer, at which representatives of SNMMI, the European Association of Nuclear Medicine, the European Thyroid Association, and the American Thyroid Association (ATA) discussed issues related to the care of patients with thyroid cancer, with a specific focus on radioactive iodine (RAI) therapy. The group synthesized discussions from the conference into what are being called the “Martinique Principles,” comprising agreements on indications and optimal prescribed activity for RAI adjuvant therapy, definition and classification of radioiodine refractory thyroid cancer, and goals for future study. A white paper summarizing these principles (“Controversies, Consensus, and Collaboration in the Use of I-131 Therapy in Differentiated Thyroid Cancer: A Joint Statement from the American Thyroid Association, the European Association of Nuclear Medicine, the Society of Nuclear Medicine and Molecular Imaging, and the European Thyroid Association”) has been submitted to ATA’s journal, *Thyroid*, with possible editorials published in *The Journal of Nuclear Medicine*, the *European Journal of Nuclear Medicine*, and the *European Thyroid Journal*. The next meeting of the group will be held in March 2019.

The Therapy Center has led efforts to develop a body of educational offerings, including 7 sessions on therapy for the 2018 SNMMI Midwinter Meeting, 6 sessions at the 2018 SNMMI Annual Meeting, and 3 sessions at the 2019 Midwinter Meeting. It has also worked with the Education and Research Foundation for Nuclear Medicine and Molecular Imaging to offer Young Investigator Awards recognizing the best abstracts presented during the Therapy Center’s Young Investigators Session at the SNMMI Annual Meeting.

Theranostic agents are a relatively new class of technologies that combine highly targeted diagnostic imaging agents with nearly identical therapeutic molecules designed to effectively treat cancer. In November the Therapy Center and SNMMI’s Clinical Trials Network cosponsored a productive conference on theranostics, hosted by the National Cancer Institute (NCI) and sponsored by Progenics Pharmaceuticals. The goal of the 2-day meeting was to gather representatives from major stakeholders in the theranostics space—including the U.S. Food and Drug Administration (FDA), NCI, academicians, clinical physicians, and pharmaceutical company executives—to develop guidelines for efficient clinical trial design targeting the collection of necessary data for both successful regulatory filings and timely and reasonable reimbursement of theranostic agents. Specific discussion topics included, among others, strategies for studying 2 investigational agents, diagnostic and therapeutic, in a single trial; utilization of novel therapies earlier in the disease process; study endpoints beyond overall and progression-free survival; identifying the data needed by government and private payers to support reimbursement; and training needed to administer radiotherapeutics. The FDA and NCI will continue this important discussion during a categorical course at the SNMMI 2019 Annual Meeting in Anaheim, CA, in June.

Physicians are taking the lead in establishing standards for theranostics practice. A few groups have been working on establishing international standards on therapy. I had a chance to explain the value of theranostics at the Society of Chairs of Academic Radiology Departments meeting in Santa Fe, NM, which was received well. Cancer centers are seeing theranostics as a “shining star.” SNMMI is collaborating with the American Society for Radiation Oncology to develop training requirements and care pathway implementation of theranostics; this is moving forward rapidly, illustrating how quickly this field is evolving.

According to a report from the International Commission on Radiological Protection Task Group on Radiation Safety in Radionuclide Therapy, “the full capability and



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Reviews

Review articles provide an important way to stay up to date on the latest topics and approaches through valuable summaries of pertinent literature. The Newsline editor recommends several general reviews accessioned into the PubMed database in November and December. In an article in *Lancet Oncology* (2018;19[12]:e696–e708) Fanti, from the University of Bologna (Italy), and coauthors from a large consortium of university and clinical centers in Italy, the UK, Spain, Germany, France, Switzerland, Australia, Belgium, and The Netherlands reported on a

“Consensus on molecular imaging and theranostics in prostate cancer.” Dos Santos and colleagues from the Universidade Federal do Rio de Janeiro and the D’Or Institute for Research and Education (both in Rio de Janeiro, Brazil) summarized “The contribution of endogenous modulatory systems to TMS- and tDCS-induced analgesia: Evidence from PET studies” in the November 13 issue of *Pain Research and Management* (2018; 2368386). In an article e-published on November 22 ahead of print in the *International Journal of Molecular Sciences*, Femminella and colleagues from Imperial College London

(UK), the University of Molise (Campobasso, Italy), Federico II University of Naples (Italy), and the Istituti Clinici Scientifici Maugeri SPA–Società Benefit (Telesse Terme, Italy) presented “Imaging and molecular mechanisms of Alzheimer’s disease: A review.” Press and colleagues from Emory University and the Georgia Institute of Technology (both in Atlanta, GA) reviewed “The role of standard and advanced imaging for the management of brain malignancies from a radiation oncology standpoint,” which was e-published on December 11 ahead of print in *Neurosurgery*.

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expertise in quantitative imaging to measure radionuclide uptake, retention, and clearance for dosimetry and treatment planning does not exist or may not be functional at an expert level at many medical institutions.” To support development of this expertise, SNMMI and the Intersocietal Accreditation Commission (IAC) are discussing strengthening the IAC nuclear medicine/PET accreditation program for radionuclide therapy by increasing clinical expertise on the existing IAC Nuclear Medicine/PET Board and by delineating standards for nuclear therapy. The groups’ overall goal is to increase

positive outcomes by standardizing therapy approaches across medical centers. SNMMI is also exploring collaborations with other organizations on quality and standards for therapy practice. All these efforts will ensure the highest quality and value of nuclear medicine therapy for patients who suffer from cancer and related medical conditions.

At the 2019 Annual Meeting, SNMMI will for the first time recognize the “Therapy of the Year.” SNMMI will continue to widen its efforts to support nuclear medicine therapy and theranostics in upcoming years.