



FIGURE 10. Comparison of ^{68}Ga -PSMA-11 (top) and ^{68}Ga -DOTA^{ZOL} (bottom) imaging in a patient with bone metastases. SUV_{max} in bone lesions was higher for ^{68}Ga -DOTA^{ZOL} than for ^{68}Ga -PSMA-11.

Germany), and the University of Pretoria & Steve Biko Academic Hospital (Pretoria, South Africa) reported on “DOTA^{ZOL} as a novel bone seeking compound for ^{68}Ga PET diagnosis and ^{177}Lu endoradiotherapy of bone metastases: from preclinical to first human results” [472]. These investigators studied DOTA^{ZOL}, a ^{177}Lu - or ^{68}Ga -labeled theranostic compound with chelated DOTA, in a preliminary imaging analysis of bone metastases in 10 patients and then treated 1 patient. Their first-in-human PET results showed excellent contrast and target-to-background ratio in bone metastases, superior to those of radiolabeled PSMA (for example, SUV_{max} for DOTA^{ZOL} in L2 vertebra lesions was 68.9 compared to 8.8 for PSMA) (Fig. 10). Based on these encouraging data, they treated 1 patient with a single dose of 5.5 GBq of ^{177}Lu -DOTA^{ZOL}. The patient’s PSA decreased from 1,217.8 to 88.0 ng/mL over the 8-week period after treatment. This again shows that although PSMA is quite promising, we have other promising compounds that may be useful in this setting, and perhaps we can combine them to achieve even better responses in the treatment of prostate cancer.

SNMMI, ASNC, IAC and Nuclear Cardiology Dose

The American Society of Nuclear Cardiology (ASNC), the Intersocietal Accreditation Commission (IAC)’s Nuclear/PET accreditation division, and SNMMI in November reviewed recent efforts to encourage optimization of radiation doses used in nuclear cardiology studies. These efforts come in response to recently published research indicating that adherence to clinical nuclear imaging guidelines for reduced patient radiation exposure is variably implemented, resulting in administration of higher doses than necessary for some patients undergoing myocardial perfusion studies.

In February 2016, ASNC published guidelines for myocardial perfusion SPECT imaging, titled *ASNC Imaging Guidelines for SPECT Nuclear Cardiology Procedures: Stress Protocols and Tracers*, which included a chart on current SPECT myocardial perfusion imaging (MPI) protocols, with recommended radiopharmaceutical activities and corresponding radiation effective doses. The ASNC noted that dose reduction strategies based on weight-based radiotracer dosing, thoughtful selection of radiotracers, stress-only imaging when appropriate, software innovations, state-of-the-art SPECT systems, and utilization of PET for MPI are all recommended methods to achieve quality cardiac imaging at the lowest radiation exposure. “ASNC is committed to supporting nuclear cardiac imaging labs’ use of the lowest radiotracer dose that maintains diagnostic image quality, in conjunction with application of appropriate use criteria and the use of count

recovery software for general SPECT cameras, new solid-state SPECT cameras, and PET to provide the right test for the right patient,” said Brian G. Abbott, MD, ASNC president.

To ensure that facilities seeking nuclear cardiology accreditation focus their awareness on patient radiation doses, a September 2016 revision to the *IAC Standards and Guidelines for Nuclear/PET Accreditation* included required administered dose ranges as recommended by the 2016 ASNC guidelines. The IAC Nuclear/PET Board of Directors also mandated specific dose ranges for MPI studies to decrease radiation exposure while maintaining image quality. Scott D. Jerome, DO, IAC Nuclear/PET president, said, “Our ultimate goal is to ensure that nuclear cardiology facilities are guided to administer the lowest dose possible that provides optimal imaging results for patients referred for MPI studies.”

SNMMI President Sally W. Schwarz, MS, RPh, BCNP, said, “Working together, we can more effectively ensure that health care providers meet accreditation requirements and follow dose guidelines for nuclear cardiology. The goal is to keep radiation exposure as low as is reasonable.” Frederic H. Fahey, DSc, who serves on SNMMI’s Dose Optimization Task Force, added, “Accreditation requirements and dosing guidelines emphasize both patient safety and quality images. Our focus must always be on providing the highest quality care in the safest manner possible.”