

# Incidental extra-cardiac findings on $^{13}\text{NH}_3$ myocardial perfusion PET/CT

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Myocardial perfusion imaging (MPI) using standard-of-care Nuclear Medicine techniques is based on an assessment of the relative tracer activity between coronary blood flow regions of the heart compared to normally perfused tissue. Positron emission tomography (PET) MPI is an important diagnostic and prognostic technique in the assessment of patients with known or suspected coronary artery disease. One of the frequently used PET radiopharmaceuticals is  $^{13}\text{N}$  ammonia ( $^{13}\text{NH}_3$ ).  $^{13}\text{NH}_3$  is a myocardial perfusion tracer with good myocardial extraction that has been used extensively for more than three decades. It can be used for visual analysis of myocardial perfusion, as well as for quantitation of relative and absolute coronary blood flow. Comprehensive procedure standards from various professional organizations are available to guide practitioners who want to conduct  $^{13}\text{NH}_3$  PET MPI.<sup>1,2</sup>

Kan and colleagues report in this issue of the *Journal of Nuclear Cardiology* their experience with  $^{13}\text{NH}_3$  PET/CT MPI with a focus on the detection of incidental extra-cardiac findings. Approximately half of the patients in their large cohort (1397 patients) had such findings, and they were clinically relevant in 18% of participants. The introduction of hybrid imaging such as SPECT/CT,<sup>3</sup> PET/CT<sup>4</sup> and more recently PET/MRI<sup>5</sup> lead to more complex image interpretation workflows. CT or MRI datasets used for attenuation correction and anatomic localization may provide important diagnostic

information. This has been reported for cardiac SPECT/CT MPI,<sup>6</sup> FDG PET/CT,<sup>7</sup> NaF PET/CT<sup>8</sup> and now is highlighted for  $^{13}\text{NH}_3$  PET/CT MPI. The imaging community must be aware of the potentially very important extra-cardiac findings. The implications are forthcoming not only for the qualifications of the physicians interpreting the MPI and for the structure of the reports, but also for the training of future physicians. Future training should include exposure to interpretation of anatomical imaging conducted at the time of MPI and strong collaborations between the specialties and subspecialties involved in MPI. One pathway is residency training leading to dual certification.<sup>9,10</sup>

Guidelines already exist for the reporting of MPI. They include recommended terminology for MPI, image display, and preliminary reports.<sup>11</sup> Future recommendations should include physicians' qualifications for interpretation of hybrid imaging, as well as guidance regarding identification and reporting of extra-cardiac incidental findings. Such work may lead to well-crafted and standardized MPI reports that will contribute to advances in the field. As the availability of hybrid imaging systems and new PET radiopharmaceuticals<sup>12</sup> for MPI will continue to grow, the number of MPI PET examinations will expand, leading to increased scrutiny to the reporting of incidental extra-cardiac findings. Therefore, the findings published in the current issue of the journal are very timely and an important contribution to the field.

## Disclosure

*Dr. Iagaru has nothing to declare related to this work.*

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