

⁶⁸Ga-DOTATATE PET/CT Imaging for Evaluation of Neuroendocrine Tumors (NET): The Vanderbilt Experience

Ronald C Walker¹; Eric Liu¹; Jeff Clanton¹; Martin Sandler¹; Laurie B. Jones-Jackson¹; Vipul Lakhani¹; and Dominique Delbeke¹

¹Vanderbilt University Medical Center, Nashville, Tennessee.

Background: To determine the safety and efficacy of ⁶⁸Ga-DOTATATE PET/CT imaging for evaluation of NET

Methods: Eighty adult patients with known or suspected NET were enrolled between 5/2011 and 5/2013. The indications were diagnosis (n=9), initial staging (n=1) and restaging (n=70). For the 70 patients in need for restaging, the primaries were from small bowel in 56% (45/80) of patients, pancreas in 16% (13/80), bronchus in 9% (7/80), rectum in 3% (2/80), unknown in 4% (3/80). Approximately 185 MBq (5 mCi) were administered intravenously with PET/CT imaging after 60 min distribution time. Safety evaluation was performed according to NCI criteria: patient observation, vital signs and 12 leads EKG pre- and 3h post- injection; laboratory tests pre- and 1 week post-injection (tumor markers, CBC, electrolytes, metabolic panel). Images were interpreted visually by 3 experienced imaging physicians. For efficacy, a team including surgeons, medical oncologists and imaging physicians determined the impact of the ⁶⁸Ga-DOTATATE PET/CT on management compared to available conventional imaging (¹¹¹In-octreotide, CT and/or MRI imaging).

Results: No adverse experiences were observed excluding transient mild sinus tachycardia and headache in 1 patient each. There was an Intermodality (major) management change in 42% (33/80) of patients. Fifteen percent (12/80) were identified as surgical candidates and 4% (3/80) as not. Twenty percent (16/80) were identified as peptide receptor radionuclide therapy (PRRT) candidates and 3% (2/80) as not. There was an intramodality change in management in an additional 10% (8/80).

Conclusions: ⁶⁸Ga-DOTATATE PET/CT imaging is safe and leads to a change in management in 52% of patients.