

## The Diagnostic Utility of Gallium-68 DOTATOC PET-CT in Patients with Suspected Neuroendocrine Tumors

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**Background:** Somatostatin receptor PET imaging with Gallium-68 DOTA-D-Phe<sup>1</sup>-Try<sup>3</sup>-Octreotide (Ga-68 DOTATOC) is highly accurate in staging/restaging of neuroendocrine tumors (NET).

**Objective:** To evaluate the utility of PET-CT with Gallium-68 DOTA-D-Phe<sup>1</sup>-Try<sup>3</sup>-Octreotide (Ga-68 DOTATOC), an investigational PET radiopharmaceutical targeting somatostatin receptors, in diagnosis of NET in patients with suspicious symptoms and/or elevated neuroendocrine markers.

**Methods:** Patients with known or suspected NET underwent whole-body Ga-68 DOTATOC PET-CT in a prospective study. Ga-68 DOTATOC was produced at the University of Iowa under a physician-sponsored investigational new drug (IND) using an automated 68Ge/68Ga generator coupled with a ModularLab PharmTracer fluid handling system (Eckert-Ziegler). PET-CT scans were obtained 60 min after the IV administration of 148 MBq of Ga-68 DOTATOC with a low-dose non-contrast CT. Images were interpreted qualitatively with focal uptake above normal background considered positive for NET.

**Results:** 22 patients without a prior diagnosis of NET underwent Ga-68 DOTATOC PET-CT to evaluate clinical symptoms and elevated neuroendocrine markers suggestive of NET. The most common symptoms were loose stools/diarrhea (n=22) and flushing (n=21). 13 patients showed elevated neuroendocrine markers, most commonly serotonin (n=10). Ga-68 DOTATOC PET was negative in 21/22 patients. Ga-68 DOTATOC PET was falsely positive in the pancreas in one patient.

**Conclusion:** Our findings suggest that Ga-68 DOTATOC PET-CT has a low yield in evaluation of patients with suspicious symptoms for neuroendocrine tumors and elevated neuroendocrine markers.