

# C-35

## The Use of $^{64}\text{Cu}$ -DOTATATE Somatostatin Receptor Imaging in Neuroendocrine Tumors: Experience from 250 Patients at Copenhagen ENETS Center of Excellence

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**BACKGROUND:** In 2012 we introduced the somatostatin receptor imaging ligand  $^{64}\text{Cu}$ -DOTATATE. A potential benefit compared to SPECT tracers and  $^{68}\text{Ga}$ -labeled PET tracers included a better spatial image resolution. In addition, when compared to  $^{68}\text{Ga}$ -labeled tracers, the longer half-life of  $^{64}\text{Cu}$  (13h) compared to  $^{68}\text{Ga}$  (1h) could potentially make logistics easier, in particular in high-throughput centers. Here we present our experience having scanned more than 250 neuroendocrine tumor patients.

**METHODS:** Description of performance and practical workflow based on first 250 patients. Data summarized both results obtained as part of our routine as well as from the clinical protocols for evaluation of diagnostic performance we have performed until now.

**RESULTS:**  $^{64}\text{Cu}$ -DOTATATE is produced in batches for up to ten patient doses. Batches are released in the morning and the product has an approved shelf life of 24h. Accordingly, for practical purposes the patients may be scanned during the day and evening on the day of tracer production. Due to the long half-life, patients showing up late are no longer a major concern with regard to PET tracer use. Compared to  $^{68}\text{Ga}$ -labeled tracers, which we used previously and that typically are produced for 1-2 patients at a time, we have freed up radiochemist time at our department. Imaging is typically performed 1h after injection of

200 MBq of  $^{64}\text{Cu}$ -DOTATATE but based on our first-in-human study, we have documented that image acquisition may be performed any time between 1 and 3h post injection. With regard to diagnostic performance, we have undertaken two head-to-head comparison studies with  $^{111}\text{In}$ -DTPA-octreotide and  $^{68}\text{Ga}$ -DOTATOC, respectively. On a lesion basis,  $^{64}\text{Cu}$ -DOTATATE was superior both to  $^{111}\text{In}$ -DTPA-octreotide and  $^{68}\text{Ga}$ -DOTATOC . No major side-effects have been observed in the first 250 patients at our Center.

**CONCLUSION:**  $^{64}\text{Cu}$ -DOTATATE is a sensitive and convenient SRI tracer for routine use in a NET center.