

C-30

Detection of Bone Metastases in Neuroendocrine Tumors (NETs) with DOTA-TOC/TATE Imaging

*Hilary Chan¹; Li Zhang^{1,1}; Alan Paciorek^{1,1}; Brandon Shih¹;
Eric Nakakura^{1,1}; Emily Bergsland^{1,1}; Thomas Hope^{1,1};
Katherine Van Loon^{1,1}*

¹University of California, San Francisco

BACKGROUND: DOTA-TOC/TATE provides superior sensitivity for detection of bone metastases from neuroendocrine tumors (NETs) compared to conventional imaging. In this study, we aimed to evaluate the prevalence, detection, and complications of bone metastases among NET patients with DOTA-TOC/TATE imaging.

METHODS: We conducted a retrospective review of DOTA-TOC/TATE scans performed on NET patients between 2014-2017. Patient characteristics, clinicopathologic data, and skeletal related events (SREs) were abstracted. Wilcoxon rank sum or Pearson chi-squared tests were used to compare data between patients with and without bone metastases.

RESULTS: Between 2014-2017, 412 scans were performed. Among 269 unique patients, median age was 61 years (21-84), and most common primary sites were small bowel (54%) and pancreas (26%). Bone metastases were reported in 57 (21%) patients. Median time between DOTA-TOC/TATE and prior imaging was 92 days (28-205). Among 57 patients with bone metastases, 28 (49%) did not have bone metastases reported on conventional prior imaging. NETs with Ki-67 \geq 3% were more likely to have bone metastases than NETs with Ki-67<3% (OR 2.5; 95% CI 1.3-4.6). Patients with bone metastases were more likely to have liver (OR 3.1; 95% CI 1.6-6.2), lung (OR 12.4; 95% CI 2.4-63.0), or peritoneal (OR 15.9; 95% CI 1.7-145.4) metastases than those without bone metastases. Of 19 patients with SREs (33%), 9 (47%) presented with pain, 5 (26%) with pathologic fracture, 2

(11%) with cord compression, and 1 (5%) with hypercalcemia. Of 19 patients with SREs, 15 (79%) patients received surgery or radiation.

CONCLUSION: Bone metastases occur in a significant portion of NET patients and are associated with higher Ki-67 and with the presence of liver, lung, or peritoneal metastases. Given the substantial symptomatic burden of bone metastases in patients with NETs, further studies on bone health agents to guide clinical management are needed.