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Session: **Clinical Oncology: Thyroid & CMT**

Title: 68Ga-DOTATATE PET-CT for recurrent medullary thyroid carcinoma: Comparison with 111In-DTPA-octreotide SPECT-CT.

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OBJECTIVE: To prospectively evaluate the role of 68Ga-DOTATATE PET-CT for recurrent medullary thyroid carcinoma (MTC) and compare its findings with 111In-DTPA-octreotide SPECT-CT. METHODS: Fourteen consecutive patients (six men, 8 women; age 21 to 66 y.o., mean age: 42,4 y.o.) with histologically proven MTC and raised serum calcitonin were referred to undergo 68Ga-DOTATATE PET-CT and 111In-DTPA-octreotide SPECT-CT for restaging. Histopathology (when available), correlation with conventional imaging modalities (ultrasonography/CT/MRI) and biochemical/clinical/imaging follow-up were used as reference standard. RESULTS: There were 12 positive and 2 negative PET-CT results for recurrent MTC. One of the positive PET cases was excluded from this casuistic because of the further diagnosis of lymphoma. In the positive PET-CT studies, the lesion sites were thyroid bed, neck, and mediastinal lymph nodes, liver, adrenal, lung and bone. 111In-DTPA-octreotide SPECT-CT was positive in 8 patients. PET-CT and SPECT-CT had concordant findings in 5 patients (38,4%): two cases with negative result in both PET-CT and SPECT-CT exams , and 3 patients with the same number of 68Ga-DOTATATE and 111In-DTPA-octreotide uptake areas. Discrepancies among PET-CT and SPET-CT results were found in 8 patients (61,6%). In this patient group, 4 patients with 68Ga-DOTATATE uptake in lymph nodes, bone and liver metastasis had negative SPECT-CT while 4 other patients had additional lymph node, liver, lung and bone lesions detected by PET but missed by SPECT-CT. PET-CT detected more bone lesions and mediastinal lymph nodes metastasis than was suspected by clinical and conventional imaging evaluation. On the other hand, false negative PET-CT findings occurred with no 68Ga-DOTATATE uptake in some of the small pulmonary nodules detected by chest CT. The 2 patients with negative PET and SPECT-CT had also negative conventional imaging results . According to these results, the sensitivity of PET/CT and SPECT-CT were calculated as 84,6% and 53,8%, respectively. CONCLUSION: In this small series we found that 68Ga-DOTATATE PET-CT was more sensitive than 111In-DTPA-octreotide SPECT-CT in the evaluation of MTC recurrence. PET/CT gives additional information to conventional imaging by detecting additional bone and mediastinal lymph node lesions.