

### **OP106**

#### **Comparison of 131Iodine SPECT/CT and planar imaging in the follow-up of patients with differentiated thyroid cancer**

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**Objective:** Aim of this retrospective study was to investigate the superiority of 131Iodine SPECT/CT compared to planar imaging in patients with differentiated thyroid carcinoma, and to prove the potential impact of this added information on therapy management. **Background:** Interpretation of 131Iodine images might be impaired because of the absence of anatomical landmarks, overlying unspecific activities or low sensitivity. SPECT in combination with CT offers a direct fusion of anatomical and functional information. Therefore, this method could offer higher specificity as well as sensitivity with a reduction of uncertain findings. This should have impact on therapeutic management. **Patients and Methods:** From 09/07 to 06/09, 324 patients with

differentiated thyroid carcinoma presented to our department for remnant ablation, additional radioiodine therapy (in cases of metastatic disease) or diagnostic follow-up including <sup>131</sup>Iodine. Inclusion criteria for additional SPECT/CT were elevated sTg levels, known or suspected metastatic disease and/or suspicious planar <sup>131</sup>I imaging: 101 consecutive patients could be included. Images were read by two experienced physicians (1 nuclear medicine physician, 1 radiologist). Results were compared to clinical outcome in further follow-up. Sensitivity, specificity and therapeutic impact (e.g. on radioiodine therapy or surgery) were calculated. Statistical analysis was performed using McNemar's test. **Results:** Overall, use of SPECT/CT resulted in higher sensitivity (83% vs 63%) as well as specificity (100% vs 84%) because of enhanced anatomic correlation of indeterminate findings at planar imaging and differentiation of physiologic and specific uptake ( $p < 0.001$ ). When divided into subgroups, patients receiving diagnostic work-up ( $n=66$ ) had the highest benefit. In that subgroup, sensitivity could be enhanced by SPECT/CT from 33% to 67%; specificity rose from 85% to 100%. Therapeutic management was influenced in 21% of the cases ( $p < 0.001$ ). **Conclusion:** <sup>131</sup>Iodine SPECT/CT adds value to the management of patients with differentiated thyroid cancer because of higher sensitivity and specificity, especially in patients presenting for diagnostic follow-up. In this group, therapy management was significantly changed compared to the strategy based just on planar scintigraphy.