

**EVALUATION OF THYROID CANCERS WITH Tc-99m SESTAMIBI:
COMPARISON WITH RADIOIODINE.**

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An avid uptake of Tc-99m sestamibi(MIBI) with a slow release and no TSH dependency have been observed in well-differentiated thyroid cancers and lymphomas. We investigated prospectively the efficacy of MIBI as an alternate thyroid cancer imaging agent, compared with radioiodine.

We studied two groups of patients: Group A: 9 patients(age range: 17-83, mean: 44.7; 5 F and 4 M) with well-differentiated cancer referred for the 6 wks post-op. scan and Group B: 38 scans in 35 patients(age range: 19-86, mean: 40.2; 25 F and 10 M) referred for a follow-up scan after radioiodine ablation therapy. Histopathologies included 5 papillary carcinomas, 3 follicular carcinomas and 1 mixed in group A, and 27 papillary carcinomas, 4 follicular carcinomas, 2 mixed, 1 medullary carcinoma and 1 Hurthle cell tumor in group B. All patients had a total or near total thyroidectomy. MIBI imaging was obtained for 15 minutes starting 10 minutes after 740-900 MBq(20-25 mCi) of MIBI IV. For group A patients radioiodine imaging was obtained 24 hrs after 11.1 MBq(0.3 mCi) of I-123 PO, and for group B patients imaging was obtained 48 to 72 hrs after 111-370 MBq(3-10 mCi) of I-131 PO.

In group A, congruent results were found in only 4 patients out of 9(44%): one thyroid remnant and 3 with no remnant/metastasis on both scans. Incongruent results were seen in 5 patients(56%): MIBI showed a remnant in one patient not seen by iodine, whereas iodine showed very small remnants in 3 patients, and a cervical and lung metastasis in one patient, which were not seen by MIBI. In group B, congruent results were found in 30 patients(79%): 23 with no remnant/metastasis, 4 with remnants and 3 with metastasis. Incongruent results were seen in the remaining 8(21%): remnants in 4 and lymph node metastasis in 1 seen only in the I-131 scan, and remnants in 3 seen only by MIBI. If one of the scans with MIBI and iodine is positive, we defined the patient as having a thyroid remnant or functioning metastasis. The accuracy of MIBI was 56% in group A and 87% in group B. The accuracy of iodine was 89% in group A and 92% in group B.

These results suggest that the diagnostic accuracy of MIBI in comparison with iodine was not good for the 6wk-post-op. scans(group A), and similar to iodine for follow-up scans after radioiodine ablation therapy(group B).