

THE VALUE OF TC-99M PERTECHNETATE SCINTIGRAPHY IN POST-THYROIDECTOMY IMAGING

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Background/Purpose: Radioiodine Remnant Ablation (RRA) is well established in the management of patients with differentiated thyroid cancer postthyroidectomy. Although the majority of patients will have some remnant thyroid tissue postsurgery. Technetium-99m pertechnetate (pertechnetate), which is widely available, inexpensive and its use for remnant scintigraphy post-thyroidectomy. The aim of this study is to determine the value of pertechnetate scintigraphy in postoperative imaging prior to RRA in patients with differentiated thyroid cancer.

Methods: All post-total-thyroidectomy patients with histologically proven differentiated thyroid cancer who underwent both postoperative scintigraphy using pertechnetate and subsequent RRA with I-131 were included in this retrospective study. The postablation I-131 scan was regarded as the gold standard against which the pertechnetate scan was compared. Preablative pertechnetate scans of the thyroid bed were viewed blindly then directly compared with postablative I-131 scans.

Results: A total of 560 patients with differentiated thyroid cancer who underwent both postoperative pertechnetate scintigraphy followed by RRA with I-131 were included in this study. Patients ranged in age from 17 to 81, and there were 104 males and 456 females. Results were analyzed on both a per-patient and per-site basis. For patients with unequivocally positive pertechnetate uptake, the sensitivity was 81% (patients), 61% (sites), and the PPV was high (100% patients, 95% sites). In patients with either definite or equivocal pertechnetate uptake, the sensitivity was 90% (patients), 68% (sites), and the PPV was also high (100% patients, 81% sites).

Discussion & Conclusion: Pertechnetate had reasonable correlation with postablative I-131 scans with a moderately high sensitivity and a very high PPV. The very high PPV also suggests that positive pertechnetate scintigraphy is therefore sufficient to guide progression to ablative therapy in patients.