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The Correlation of Post-Operative Radioiodine Uptake and Tc-99m Pertechnetate Thyroid Scintigraphy and the Result of Thyroid Remnant Ablation

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Abstract

Objective: Determine the relationship between postoperative thyroid remnant using 24 h radioiodine uptake and Tc-99m pertechnetate scintigraphy, and the success of high dose radioiodine ablation.

Material and Method: Retrospectively enrolled 250 patients with DTC who underwent thyroidectomy and radioiodine ablation. Postoperative Tc-99m pertechnetate and 24 h I-131 uptake were reviewed to evaluate thyroid remnant and the directly compared with ablation outcome. The successful ablation was defined using negative WBS and stimulated Tg <10 ng/ml in the absence of TgAb at six to 12 months after treatment. The relationship between success of ablation and other variables were evaluated.

Results: One hundred twenty four patients (49.6%) were successfully ablated after single high dose radioiodine ablation. The authors found no association with age, sex, extent of surgery, tumor histology, tumor size, multifocal, extrathyroidal invasion, I-131 administered dose, interval from surgery to radioiodine ablation, Tc-99m pertechnetate scan, or 24 h I-131 uptake, and successful ablation. The initial Tg level was the only variable found to be associated with success ($p < 0.001$).

Conclusion: Neither Tc-99m pertechnetate thyroid scintigraphy nor 24 h I-131 uptake percentage in the evaluation of postsurgical thyroid remnant can predict radioiodine ablation outcome in patients with DTC. Serum Tg level at the time of ablation could be a reasonable predictor of the success of ablation.

Keywords: Radioiodine, I-131 uptake, Tc-99m pertechnetate, Thyroid scintigraphy, Thyroid ablation

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