The Value of Postoperative Baseline Serum Thyroglobulin in Prediction of the Outcome of Radioactive Iodine-131 Thyroid Ablation in differentiated thyroid carcinoma

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Abstract:

Background: Thyroglobulin is commonly used to monitor patients with differentiated cancer thyroid. It has also become an excellent biological marker for tumor persistence or recurrence. Aim of study: To study the relation between the level of baseline serum thyroglobulin (TG) and thyroid remnant ablation outcome using radioactive iodine-131 (RAI-131) in patients with differentiated thyroid cancer after surgical treatment. Methods: A prospective study involved 64 patients (age 20-77 years) with differentiated thyroid cancer, referred for post-surgical 131I ablation. All patients performed baseline serum TG, anti-TG-Ab's under TSH stimulation as well as neck ultrasonography, before receiving RAI-131ablation dose 1110 - 3700 MBq (30 -100 mCi). Follow-up was performed 6-8 months later. Successful ablation was determined by negative whole body 131I scan, negative neck ultrasonography and stimulated serum thyroglobulin level less than 2 ng/mL. Results: Successful ablation was reported in 38 out of 64 cases (59.4 %). Baseline serum thyroglobulin level was significantly predictive of ablation outcome. ROC analysis showed AUC (area under curve) of 0.66 (CI: 0.53 - 0.78; P = 0.03). A cutoff value of 4.4 ng/ml showed sensitivity of 79 % and specificity of 68% in predicting ablation outcome. Patients were divided into high (n = 32) and low (n = 32) baseline TG groups using this cut-off point. Successful ablation significantly higher in low TG group (25/32 vs. 13/32; P = 0.002). There was no significant difference between the two groups regarding their clinical and pathological data. Conclusion: Baseline serum thyroglobulin is associated with ablation outcome. Serum TG> 4.4 is linked to significantly higher rates of unsuccessful ablation.

Keywords:

Differentiated thyroid cancer, radioactive iodine-131, ablation, Serum Thyroglobulin.

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