

Insulin Resistance Predicts of Overt Clinical Hypothyroidism in Thyroid Cancer Patients after Thyroid Hormone Withdrawal

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Abstract

Objective: Thyroid hormone withdrawal (THW) to stimulate thyrotropin (TSH) secretion usually induces overt clinical hypothyroidism in differentiated thyroid cancer patients. Patients may suffer from severe cardiovascular disease, psychiatric disability, or even myxedema coma. However, it has not yet been possible to predict which patients are prone to overt clinical hypothyroidism after THW.

Methods: Thirty-two thyroid cancer patients after total thyroidectomy under thyroid hormone suppressive therapy (THST) were prospectively analyzed and evaluated for clinical overt hypothyroidism. A series of thyroid function profiles, metabolic factors, anthropometric parameters and Zulewski score for clinical hypothyroidism were assessed before and 4-6 weeks after THW in 32 patients (27 women, 51.1±12.3 years). Overt clinical hypothyroidism was defined with Zulewski Score (≥ 3) after THW.

Results: Fifteen patients (46.9 %) were clarified as having overt clinical hypothyroidism after THW. Patients with overt clinical hypothyroidism were older ($p=0.005$), had lower baseline serum free thyroxine (fT4) ($p=0.040$), free triiodothyronine (fT3) ($p=0.006$), higher body mass index (BMI) ($p=0.038$), fasting plasma glucose (FPG) ($p=0.005$), and insulin resistance index (HOMA-IR) ($p=0.043$) than those with clinical euthyroidism. The independent predictors for overt clinical hypothyroidism after THW were higher HOMA-IR (OR, 1.098, CI, 1.007-1.198, $p=0.034$), lower fT3 (OR, 0.069, CI, 0.006-0.733, $p=0.027$) and higher Zulewski score (OR, 3.633, CI, 1.144-11.536, $p=0.029$) before THW.