LOW BASAL SERUM THYROGLOBULIN IN A SENSITIVE ASSAY IS AN EXCELLENT PREDICTOR OF LOW RECURRENCE OF DIFFERENTIATED THYROID CANCER

Malandrino P, Latina A, Marescalco S, Spadaro A, Regalbuto C, Fulco RA, Scollo C, Vigneri R, Pellegriti G. **Risk-adapted management of differentiated thyroid cancer assessed by a sensitive measurement of basal serum thyroglobulin.** J Clin Endocrinol Metab. March 30, 2011 [Epub ahead of print].

SUMMARY

BACKGROUND

The two aims of the present study were: (1) to apply basal serum thyroglobulin (Tg) levels measured with a second-generation assay to discriminate between patients with and those without thyroid malignant disease after a total thyroidectomy and 131I remnant ablation and (2) to evaluate the role of the Tg assay in the treatment of these patients.

METHODS

This is a retrospective study of 545 patients with differentiated thyroid cancer; 95% had papillary cancer and 5% had follicular cancer. The investigators used a Tg assay with a sensitivity of 0.1 ng/ml and measured Tg before (basal) and after the administration of recombinant thyrotropin (TSH). Excluded from further analysis were the 18% of these patients who had positive tests for Tg antibody and the 3.9% who had basal Tg levels >1 ng/ml, leaving 425 study participants. The patients were divided into low (52 patients), intermediate (235) and high (138) risk categories based on histopathologic criteria.

RESULTS

The 425 patients were divided into three groups based on the Tg assay: 331 with a basal Tg <0.1 ng/ml (group 1), 80 with a basal Tg of 0.11 to 0.50 ng/ml (group 2), and 14 with a basal Tg of 0.51 to 1.0 ng/ml (group 3). A stimulated serum Tg higher than 2.0 ng/ml was found in three patients (0.9%) in group 1, in 23 patients (29%) in group 2, and in 10 patients (71%) in group 3. When the basal Tg was <0.15 ng/ml, only 1.4% had recurrent disease during a 4-year follow-up; with this low basal Tg, recurrence was found in none of the patients in the low-risk group, 1% in the intermediate–risk groups, and 2.7% in the high-risk groups. Only 5 (1.4%) of the 356 patients with basal Tg levels no higher than 0.15 ng/ml had stimulated Tg values higher than 2.0 ng/ml, and none of them had recurrences. In contrast, 33 of 69 with a basal Tg >0.15 ng/ml had recurrences.

CONCLUSIONS

With the use of a sensitive Tg assay, basal serum Tg may be sufficient to assess the risk-adapted treatment of patients with differentiated thyroid cancer. When the Tg was <0.15 ng/ml, the negative predicted value for recurrence was 98.6%.

COMMENTARY

The improved sensitivity of commercial Tg assays makes them an excellent tool for following patients with differentiated thyroid carcinoma. The data from this report are similar to those of Smallridge et al., who also showed that a basal Tg <0.1 ng/ml was highly predictive of a stimulated Tg <2 ng/ml, thus eliminating the necessity for use of recombinant TSH in a large proportion of patients (1). Recently Spencer et al., using a sensitive Tg assay, reported that only 0.3% of a group of 655 patients with basal Tg <0.1 had a stimulated Tg >2 ng/ml (2). The other point of the current paper is that the basal Tg data must be placed in the context of the risk of the patient based on response to therapy and follow-up, a concept similar to that elaborated by Tuttle and colleagues summarized in the February 2011 issue of Clinical Thyroidology (3).

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References

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