SERUM THYROGLOBULIN >2.5 NG/ML AFTER RECOMBINANT TSH PREDICTS RECURRENCE OF DIFFERENTIATED THYROID CARCINOMA

Kloos RT. **Thyroid cancer recurrence in patients clinically free of disease with undetectable or very low serum thyroglobulin values.** J Clin Endocrinol Metab 2010;95:5241-8. Epub September 15, 2010.

SUMMARY

BACKGROUND

The purpose of this study was to determine the utility of recombinant human thyrotropin (TSH)-stimulated thyroglobulin (rhTSH-Tg) for prediction of the recurrence of differentiated thyroid carcinoma.

METHODS

This is a follow-up study of a cohort of 107 patients with differentiated thyroid carcinoma first reported in 2002. Tumor pathology was papillary carcinoma in 80%, Hürthle-cell variant in 1%, tall-cell carcinoma in 2%, follicular carcinoma in 11%, and Hürthle-cell carcinoma in 6%. The patients were initially classified into three groups based on the rhTSH-Tg level: <0.5, 0.6 to 2.0, and >2.0 ng/ml. Patients were followed by conventional methods, including measurement of serum Tg while on thyroxine (T_4) therapy and neck ultrasonography. Patients with undetectable Tg levels underwent periodic rhTSH-Tg at a minimum of every 5 years. If Tg levels, whether stimulated or during T_4 therapy, rose above 0.5 ng/ml, various imaging studies were performed to detect recurrence.

RESULTS

Of the 60 patients with rhTSH-Tg levels <0.5 ng/ml, 2 had recurrent disease that was surgically resected, and 3 others converted to rhTSH-Tg levels of 0.6 to 2 ng/ml without detectable recurrence. Of the 19 patients in group with rhTSH-Tg levels of 0.6 to 2 ng/ml, 12 converted to rhTSH-Tg levels <0.5 ng/ml, 5 remained the same, and 2 had tumor recurrences that were treated. Of the 20 patients with rhTSH-Tg levels >2 ng/ml, 16 had tumor recurrences during follow-up.

CONCLUSIONS

An rhTSH-Tg level of >2.5 ng/ml predicts tumor recurrence with a sensitivity of 80%, but recurrent disease occurs in some patients with initial rhTSH-Tg levels <0.5 ng/ml.

COMMENTARY

This study provides additional data to emphasize the utility of measuring rhTSH-Tg levels to predict the recurrence of disease in patients with differentiated thyroid cancer. The results also show that 3% of those who would be predicted to have no recurrence based on rhTSH-Tg levels <0.5 ng/ml do indeed have recurrences of thyroid cancer. The report does not provide data on the pathology of these tumors that might also have predictive value, since follicular and Hürthle-cell and tall-cell papillary carcinomas are known to be more aggressive and recurrent (1). The report also shows that 7 additional patients in the group with rhTSH-Tg levels >2 ng/ml had recurrence after the first follow-up of this cohort in 2005 (2).

When patients with stage 1 thyroid cancer have an undetectable rhTSH-Tg levels during 9 to 12 months of follow-up after thyroidectomy, the ETA guidelines recommend that serum TSH levels should subsequently be maintained in the normal range (3). However, the 3% recurrence rate found in this study suggests to me that this is unwise. One advantage of allowing the serum TSH levels to be in the normal range, rather than suppressed to prevent recurrence, is that subsequent Tg measurements on replacement will be more sensitive for the detection of recurrence.

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References

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