Clinical THYROIDOLOGY

RESPONSE TO INITIAL THERAPY REFINES THE ESTIMATED RISK OF RECURRENCE OF THYROID CANCER

Tuttle RM, Tala H, Shah J, Leboeuf R, Ghossein R, Gonen M, Brokhin M, Omry G, Fagin JA, Shaha A. **Estimating** risk of recurrence in differentiated thyroid cancer after total thyroidectomy and radioactive iodine remnant ablation: using response to therapy variables to modify the initial risk estimates predicted by the new American Thyroid Association staging system. Thyroid 2010;20:1341-9. Epub October 29, 2010.

BACKGROUND

Staging systems for thyroid cancer are aimed mainly at predicting death, which is relatively rare, fortunately, in most forms of thyroid cancer. However, recurrence of the cancer is much more common. The ATA has developed a set of criteria to predict recurrence based on the findings at surgery, pathology, and the postablative radioiodine scan. The purpose of this clinical study was to evaluate the prediction for recurrence based on evaluation of clinical data at a 2-year follow-up.

METHODS

Of 710 eligible patients at the Memorial Sloan-Kettering Cancer Center initially treated from 1994 to 2004, a total of 588 had accurate clinical and pathologic information to allow for initial and 2-year risk stratification. All patients had undergone thyroidectomy and radioiodine remnant ablation. Patients with medullary or anaplastic cancer were excluded, as were those under the age of 18 years. The ATA low-risk category has no metastases, no invasion of local structures, removal of all macroscopic tumor, absence of aggressive histology, no vascular invasion, and no radioiodine (¹³¹I) uptake outside the thyroid bed as seen on posttherapy scans. The intermediaterisk group had microscopic invasion outside the thyroid or cervical lymph-node metastases or positive uptake outside the thyroid as seen on the radioiodine scan or tumor with aggressive histology. The high-risk group had macroscopic tumor invasion or incomplete resection or distant metastases. The response at 6 to 24 months was categorized as excellent, acceptable, or incomplete based on suppressed and stimulated thyroglobulin levels <1 ng/ml, neck ultrasound, and imaging studies.

RESULTS

Initial stratification placed 23% of the patients into the ATA low-risk category, 49% into the intermediaterisk category, and 27% into the high-risk category (percentages do not sum to 100 because of rounding). Persistent or recurrent thyroid cancer was found in 3% of patients in the low-risk category, 21% in the intermediate-risk category, and 68% in the highrisk category. When patients were stratified based on the response to therapy during the first 2 years of follow-up, 34% had an excellent response, 20% had an acceptable response, and 46% had an incomplete response. The patients were then recategorized into the ATA categories. The likelihood of recurrence was then only 2% in the new low-risk category, 2% in the intermediate-risk category, and 14% in the high-risk category. An incomplete response to initial therapy increased the likelihood of recurrence to 13% in low-risk, 41% in intermediate-risk, and 79% in high-risk patients.

CONCLUSIONS

The data show that the recently proposed ATA categorization is effective for predicting the risk of recurrence. In addition, the assessment of response to the initial therapy can be used to further refine the prediction of recurrence.

There is a plethora of staging systems for thyroid cancer aimed mainly at predicting mortality (1,2). For treatment of typical patients, useful guidelines for predicting recurrence of the cancer are needed. This study makes a significant contribution to the management of thyroid cancer by showing how data that clinicians routinely obtain in follow-up can be useful for predicting the possibility of recurrence. It is likely that the patients referred to this tertiary-care center included a higher proportion of patients with aggressive disease than are seen in ordinary practice. I believe that this makes the data even more valuable because it shows the clinical course of patients with more advanced disease who are treated at a specialized center. Of the patients in the high-risk category, 14% had no evidence of disease during follow-up, but unfortunately 86% of patients in this category had persistent or recurrent disease. Although the study does not describe the efficacy of various treatments, it is clear that many patients were moved to lower risk categories. Nevertheless, current therapeutic modalities are not optimally effective. For example, neck dissection for recurrence in cervical lymph nodes cures only about one-fourth of patients when strict criteria for cure are applied (3). Cure of metastatic disease by ¹³¹I therapy is even less effective, although it is a time-honored tool (Schlumberger and colleagues [4]). Let's hope that the advances in the efficacy of therapy catch up with the advances in the prediction of recurrence.

— Jerome M. Hershman, MD

References

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