CLINICAL **THYROIDOLOGY** FOR THE **PUBLIC**

A publication of the American Thyroid Association

AMERICAN THYROID ASSOCIATION
FOUNDED 1923
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THYROID CANCER

Detecting recurrence of papillary thyroid cancer costs much more in those with low-risk than high risk cancer.

BACKGROUND

In the United States the incidence of thyroid cancer has nearly tripled in the last 30 years, mainly due to increase in the diagnosis of papillary thyroid cancers. While the overall survival rate of papillary thyroid cancer is excellent (over 90%), patients must be monitored for recurrence of the cancer for several years after initial treatment. This cancer surveillance involves periodic physician visits, blood samples to measure thyroid stimulating hormone (TSH) and thyroglobulin levels, periodic neck ultrasounds and, depending upon the case, even CT, MRI or PET scans.

The American Thyroid Association (ATA) has developed a three tiered risk stratification system which uses the cellular features and extent of spread of each cancer to classify patients as being at low, intermediate, or high risk of having a recurrence after their initial treatment. The type and frequency of tests required to effectively monitor for recurrence depends upon one's risk category. Patients in a high risk category often receive more frequent and extensive investigations then those in a low risk category and this has important financial implications both for patients and the overall health system. However, at a time of growing national interest in providing cost-effective health care, there have been no studies examining the financial cost for surveillance of patients with papillary thyroid cancer to detect recurrences. The aim of the current study was to analyze the financial cost of monitoring for recurrence of papillary thyroid cancer in the first 3 years after surgery for low risk patients versus intermediate- and high- risk patients.

THE FULL ARTICLE TITLE

Wang LY1 et al. Cost-effectiveness analysis of papillary thyroid cancer surveillance. Cancer 2015;121(23):4132-40.

SUMMARY OF THE STUDY

The authors studied the records of 1,087 patients who had surgery for thyroid cancer at Memorial Sloan-Kettering Cancer Centre between January 2000 and December 2010. Only patients who had a) papillary thyroid cancer treated with a total thyroidectomy, and b) had not had surgery for another type of cancer and c) had been followed for 36 months or more after surgery were included in the analysis. Patients were divided into each of the three ATA risk categories of low risk (362 patients, 33%), intermediate risk (561 patients, 52%) and high risk (164 patients,15%) and then the total cost for all the surveillance tests and procedures (i.e. blood tests, neck ultrasounds, radioiodine scans, doctors' visits etc) within each group was calculated.

During the study period there were only 3 recurrences in the low risk group (0.8%), 44 in the intermediate risk group (7.8%) and 22 in the high risk group (13.4%). The cost per patient in the low, intermediate and high risk groups were $1,225, $1,760 and $2,774 respectively. However, it cost $149,619 to detect one recurrence in the low risk group compared to $22,434 in the intermediate risk group and $20,680 in the high risk group.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that the cost per patient to monitor for recurrence is higher in those with high risk papillary thyroid cancer vs low risk cases. This is to be expected because this group of patients has a much higher risk of cancer recurrence and so they require more frequent (and costly) laboratory testing, imaging and physician appointments following their initial cancer treatment. However, because very few patients in the low risk group actually had a recurrence of their cancer, the cost to detect each one was more than 6 times higher than the cost for intermediate and high-risk patients. Consequently, the authors suggest that current surveillance of low risk papillary thyroid cancer is not cost-effective and that hopefully these finding will promote more discussion and research into the appropriate way to monitor low risk papillary thyroid cancer patients for recurrences.

It should be noted however that this study was from a single, high volume thyroid cancer center and may not reflect the cost of thyroid cancer surveillance nationally. As well, the authors did not consider the

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patient experience in their calculations and the need to balance the costs of thyroid cancer surveillance with the profound value to the patient that comes with knowing that he/she is free from cancer.

— Philip Segal, MD

ATA THYROID BROCHURE LINKS

Thyroid cancer: http://www.thyroid.org/thyroid-cancer/

ABBREVIATIONS & DEFINITIONS

Papillary Thyroid Cancer: the most common type of thyroid cancer.

Cancer Recurrence: this occurs when the cancer comes back after an initial treatment that was successful in destroying all detectable cancer at some point.

Thyroglobulin: a protein made only by thyroid cells, both normal and cancerous. When all normal thyroid tissue is destroyed after radioactive iodine therapy in patients with thyroid cancer, thyroglobulin can be used as a thyroid cancer marker in patients that do not have thyroglobulin antibodies.