



THYROID CANCER

Declining frequency and variability of radioactive iodine therapy for thyroid cancer suggests increasing adoption of evidence-based guidelines

BACKGROUND

Standard treatment for the most common types of thyroid cancer includes surgery to remove the thyroid (thyroidectomy) followed in some instances by radioactive iodine therapy. Early American Thyroid Association (ATA) guidelines recommended total thyroidectomy followed by radioactive iodine therapy in nearly all patients with thyroid cancer. Therefore, radioactive iodine therapy increased significantly from the 1970s to the early 2000s. The more recent ATA guidelines from 2006, updated in 2009 and then 2015, have recommended progressively a more selective use of radioactive iodine therapy, based on growing research evidence that many patients with thyroid cancer are at very low risk for complications and recurrence of the cancer. These low risk patients may not benefit from radioactive iodine therapy, which has its own risks and significantly increases health care costs. Currently, radioactive iodine therapy is not recommended for low risk thyroid cancer patients and is reserved for high risk patients after total thyroidectomy and for certain intermediate risk patients. The aim of this study was to analyze trends in radioactive iodine therapy use in the United States after the introduction of the new thyroid cancer treatment guidelines.

THE FULL ARTICLE TITLE

Jacobs D et al 2020 Changes in population-level and institutional-level prescribing habits of radioiodine therapy for papillary thyroid cancer. *Thyroid*. Epub 2020 Sep 22. PMID: 32811347.

SUMMARY OF THE STUDY

The study included 273,046 patients from the National Cancer Database who were diagnosed with papillary thyroid cancer and underwent total thyroidectomy between 2004 and 2016. The patients were divided in three groups: (i) patients for whom radioactive iodine therapy was recommended, (ii) patients for whom radioactive iodine therapy was not recommended and

(iii) patients for whom selective use of radioactive iodine therapy was recommended, based on the 2009 ATA practice guidelines. According to these guidelines, radioactive iodine therapy treatment was recommended for patients with at least 1 of the following criteria: 45 years or older with a cancer size larger than 4 cm, extensive cancer extension outside the thyroid, residual cancer after surgery, or spread of cancer outside of the neck. Radioactive iodine therapy was not recommended for patients with thyroid cancer smaller than 1 cm without spread to the lymph nodes or other tissues in the neck or spread outside of the neck. Selective radioactive iodine therapy use was recommend for other patients outside of these criteria.

The overall radioactive iodine use in papillary thyroid cancer patients decreased from 61% between 2004 and 2007 to 44% in 2016. The use rate declined by 2% per year starting in 2007. In patients for whom radioactive iodine therapy was not recommended, two significant time points were noted: a 4.7% decrease in radioactive iodine use per year starting in 2008 and then a 2% decrease per year starting in 2011. A decline in radioactive iodine use was also noted in patients for whom the treatment was recommended and selectively recommended (0.53% fewer patients per year and 2.3% fewer patients per year, respectively). In 2015, radioactive iodine was administered to 72%, 53% and 9.5% of patients for whom radioactive iodine therapy was recommended, selectively recommended, and not recommended.

When analyzing individual hospitals, there was a greater reduction in radioactive iodine use for patients for whom radioactive iodine therapy was not recommended or was selectively recommended at high-volume institutions (>75th percentile) as compared to low-volume institutions (<25th percentile). The rate of radioactive iodine therapy use was lower at institutions on the East Coast of the





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United States than other geographic areas. The variability in radioactive iodine therapy use between hospitals declined over time.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

National and individual hospital data show a progressive reduction in radioactive iodine therapy use in thyroid

cancer patients and more consistent use across hospitals in the United States in the period 2004–2016. These findings suggest acceptance and clinical application of changing evidence and evidence-based guidelines for radioactive iodine therapy administration in thyroid cancer patients during this time.

— Alina Gavrilă, MD, MMSc

ATA THYROID BROCHURE LINKS

Thyroid Cancer (Papillary and Follicular): <https://www.thyroid.org/thyroid-cancer/>

Radioactive Iodine Therapy: <https://www.thyroid.org/radioactive-iodine/>

ABBREVIATIONS & DEFINITIONS

Papillary thyroid cancer (PTC): the most common type of thyroid cancer. There are 4 variants of papillary thyroid cancer: classic, follicular, tall-cell and noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP).

Thyroidectomy: surgery to remove the thyroid gland. When the entire thyroid is removed, it is termed a total thyroidectomy. When less is removed, such as in removal of a lobe, it is termed a partial thyroidectomy.

Radioactive iodine (RAI): this plays a valuable role in diagnosing and treating thyroid problems since it is taken up only by the thyroid gland. I-131 is the destructive form used to destroy thyroid tissue in the treatment of thyroid cancer and with an overactive thyroid. I-123 is the non-destructive form that does not damage the thyroid and is used in scans to take pictures of the thyroid (Thyroid Scan) or to take pictures of the whole body to look for thyroid cancer (Whole Body Scan).

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

Lymph node: bean-shaped organ that plays a role in removing what the body considers harmful, such as infections and cancer cells. Thyroid cancer can spread in the lymph nodes located in the neck.