

Clinical Thyroidology® for the Public

THYROID CANCER

Controversies, consensus, and collaboration in the use of radioactive iodine therapy in thyroid cancer

BACKGROUND

The management of thyroid cancer has undergone a lot of changes over the last 10+ years. The 2015 American Thyroid Association (ATA) management guidelines for thyroid nodules and thyroid cancer recommend a patient-centered approach to evaluating the risk of thyroid cancer recurrence and overall prognosis for each individual patient. This has led to a decrease in total thyroidectomies (removal of the entire thyroid) and an increase in the removal only of the lobe containing the cancer (lobectomy), keeping the other lobe intact. Partially due to this change in surgical approach, there has been a marked decrease in the use of radioactive iodine therapy after surgery for thyroid cancer.

There has been discussion in the greater nuclear medicine community regarding some of these recommendations and two prominent nuclear medicine organizations, the European Association of Nuclear Medicine (EANM) and the Society of Nuclear Medicine and Molecular Imaging (SNMMI), declined to endorse the guidelines.

In order to promote better understanding of differences in perspective and to reach a more collaborative and consistent, evidence-based set of recommendations, or at least of guiding principles, representatives from the ATA and the European Thyroid Association (ETA) met with representatives from the EANM and the SNMMI to draft a consensus paper. This paper aims to support cooperation among medical societies, to define the goals radioactive iodine therapy, to acknowledge that the published literature is lacking with regard to the best dose of radioactive iodine therapy to use and to better improve the definition of thyroid cancer that is no longer responding to radioactive iodine therapy.

THE FULL ARTICLE TITLE

Tuttle RM, et al 2019 Controversies, consensus, and collaboration in the use of ^{131}I therapy in differentiated thyroid cancer: a joint statement from the American Thyroid Association, the European Association of Nuclear

Medicine, the Society of Nuclear Medicine and Molecular Imaging, and the European Thyroid Association. *Thyroid* **29**:461–470. PMID: 30900516.

SUMMARY OF THE STUDY

A 2-day meeting was held in Martinique in January 2018. A panel of 18 senior leaders and subject-matter experts from 8 countries and 4 organizations (the ATA, EANM, SNMMI, and ETA) convened to consider, debate, and exchange ideas regarding the use of ^{131}I in the management of thyroid cancer. After much discussion and a review of 60 publications, in addition to expert opinion, the conference participants agreed on a set of principles, which are summarized as follows:

1. The best thyroid cancer management requires cooperation between endocrinologists, surgeons and nuclear medicine physicians.
2. The goal of radioactive iodine therapy should be specifically defined as (a) destroying remaining normal thyroid tissue, (b) treatment of suspected microscopic cancer remaining after surgery or (c) treatment of known visible cancer.
3. Proper patient selection for radioactive iodine therapy requires assessment of postoperative cancer status and not simply preoperative staging.
4. Evaluation of postoperative cancer status should be standardized in terms of blood tests and imaging tests.
5. Proper patient selection for radioactive iodine therapy also requires evaluation of multiple factors, including patient preference, potential side effects, and availability and quality of medical resources.
6. The best administered radioactive iodine therapy cannot be determined from the available literature, favoring more individualized dosing decisions.

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7. Identification of cancers that are unlikely to respond to radioactive iodine therapy should not exclude them from consideration of radioactive iodine therapy.
8. Criteria used to identify cancers that are unlikely to respond to radioactive iodine therapy will continue to evolve, especially with progress in evidence-based studies and better imaging.
9. Prospective studies are needed to address knowledge and evidence gaps with regard to radioactive iodine therapy.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Defining the best use of radioactive iodine therapy in thyroid cancer remains controversial, is subject to interpretation of evidence, and is influenced by many patient and health care delivery variables. Collaboration between endocrinologists, surgeons and nuclear medicine physicians will help refine the use of radioactive iodine therapy in the patient-centered care of thyroid cancer.

— Alan P. Farwell, MD

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

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*).

Papillary thyroid cancer: 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).

Follicular thyroid cancer: the second most common type of thyroid cancer.