AMERICAN THYROID ASSOCIATION
Optimal Thyroid Health for All

Clinical Thyroidology® for the Public

VOLUME 13 | ISSUE 1 | JANUARY 2020

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VOLUME 13 | ISSUE 12 | JANUARY 2020

EDITOR'S COMMENTS

Happy New Year and welcome to another issue of *Clinical Thyroidology for the Public*. In this journal, we will bring to you the most up-to-date, cutting edge thyroid research. We also provide even faster updates of late-breaking thyroid news through Twitter at @thyroidfriends and on Facebook. Our goal is to provide patients with the tools to be the most informed thyroid patient in the waiting room. Also check out our friends in the **Alliance for Thyroid Patient Education**. The **Alliance** member groups consist of: the *American Thyroid Association, Bite Me Cancer, the Graves' Disease and Thyroid Foundation, the Light of Life Foundation, MCT8 – AHDS Foundation, ThyCa: Thyroid Cancer Survivors' Association, Thyroid Cancer Canada, Thyroid Cancer Alliance* and *Thyroid Federation International*.

We invite all of you to join our **Friends of the ATA** community. It is for you that the American Thyroid Association (ATA) is dedicated to carrying out our mission of providing reliable thyroid information and resources, clinical practice guidelines for thyroid detection and treatments, resources for connecting you with other patients affected by thyroid conditions, and cutting edge thyroid research as we search for better diagnoses and treatment outcomes for thyroid disease and thyroid cancer. We thank all of the *Friends of the ATA* who support our mission and work throughout the year to support us. We invite you to help keep the ATA mission strong by choosing to make a donation that suits you — it takes just one moment to give online at: www.thyroid.org/donate and all donations are put to good work. The ATA is a 501(c)3 nonprofit organization and your gift is tax deductible.

The editorial board of CTFP, the ATA Board of Directors, Members, and ATA Headquarters Staff wish you the best this season and look forward to being part of your thyroid network in 2020.

January is Thyroid Awareness Month.

In this issue, the studies ask the following questions:

- What is the best dose of levothyroxine after thyroidectomy?
- Are there any negative health outcomes when the TSH is maintained in the normal range?
- Does treatment of Graves' disease affect levels of TSH receptor antibodies?
- Is there an association between Graves' disease and thyroid cancer?
- Are there markers to predict the spread of thyroid cancer to lymph nodes?
- Does the size of lymph nodes involved with cancer predict risk of recurrence of thyroid cancer?

We welcome your feedback and suggestions. Let us know what you want to see in this publication. I hope you find these summaries interesting and informative.

— Alan P. Farwell, MD, FACE

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HYPOTHYROIDISM

Thyroid hormone replacement dosing is variable in overweight and obese patients after a thyroidectomy

BACKGROUND

Patients undergoing a total thyroidectomy become hypothyroid and require lifelong therapy with thyroid hormone. The American Thyroid Association guidelines for treatment of hypothyroidism recommend levothyroxine on a daily basis as the treatment of choice to replace the thyroid hormones that the thyroid gland provided. An appropriate dose of levothyroxine should result in normal levels of thyroid stimulating hormone (TSH) and thyroid hormones in the blood and varies from patient to patient.

After surgery, the initial levothyroxine dose is often prescribed based on the patient's body weight (1.6 mcg/kg body weight). The dose is then be adjusted 6 to 8 weeks later, based on the blood test result. Although, the above dose may be suitable for many patients, prior studies have suggested that obese individuals may need a relatively lower dose relative to their body weight. This study was conducted to identify a better method for picking the initial dose of levothyroxine for obese patients.

THE FULL ARTICLE TITLE

Papoian V et al. Evaluation of thyroid hormone replacement dosing in overweight and obese patients after a thyroidectomy. Thyroid. Epub 2019 Oct 1. PMID: 31573413.

SUMMARY OF THE STUDY

This study was performed in a large teaching hospital and referral center. Patients who had a total thyroidectomy from 2012 to 2015 were identified and their records were reviewed. Patients who were pregnant or breast feeding at the time of surgery and those with thyroid cancer were not included in the study. A total of 114 patients who had follow up visits after surgery were recruited. Their weight and Body Mass Index (BMI) before surgery were obtained by chart reviews.

The average age of patients was 55 year old and 84% were women. Almost half of them were obese. In average, they had two consecutive normal TSH test results in about 50 weeks after surgery. The dose of levothyroxine for each case was recorded at that time and patients were divided to five groups based on their BMI. The dose of Levothyroxine resulted in a normal and stable TSH level was 1.76 microgram per kilogram of weight for individuals with BMI less than 25, 1.47 for those with BMI 25 to 29, 1.42 for those with BMI 30 to 34, 1.27 for those with BMI 35 to 39 and 1.28 for those with BMI more than 40.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that the use of a standardized dose for prescribing the initial dose of levothyroxine after surgery based on the actual body weight frequently will result in either too high or too low thyroid levels. In overweight and obese patients, a much lower mcg/kg body weight dose should be used, while a higher dose should be used in patients with a normal BMI. These results will benefit patients after thyroid surgery as they may start taking a more appropriate dose of levothyroxine as soon as possible after thyroid surgery, and require fewer blood tests for dose adjustments.

— Shirin Haddady, MD

ATA THYROID BROCHURE LINKS

Hypothyroidism (Underactive): https://www.thyroid.org/hypothyroidism/
Thyroid Hormone Treatment: https://www.thyroid.org/thyroid-hormone-treatment/
Thyroid Surgery: https://www.thyroid.org/thyroid-surgery/
Thyroid Function Tests: https://www.thyroid.org/thyroid-function-tests/

HYPOTHYROIDISM, continued

ABBREVIATIONS & DEFINITIONS

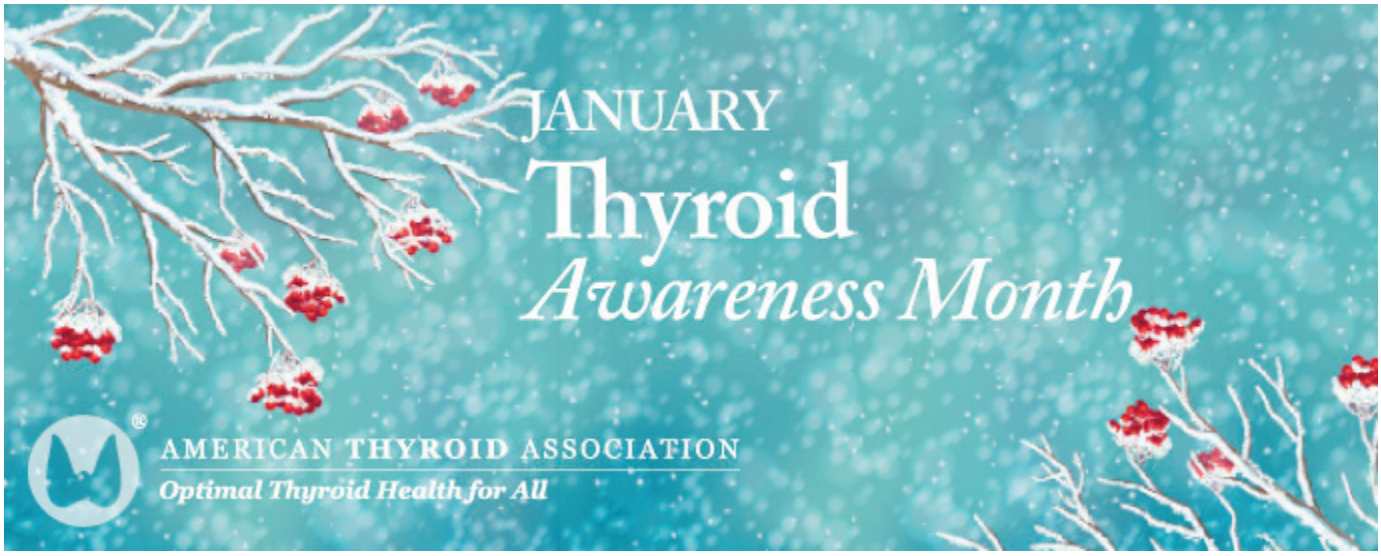
Hypothyroidism: a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.

Thyroidectomy: surgery to remove the entire 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.

Levothyroxine (T4): the major hormone produced by the thyroid gland and available in pill form as Synthroid™, Levoxyl™, Tyrosint™ and generic preparations.

TSH: thyroid stimulating hormone — produced by the pituitary gland that regulates thyroid function; also the best screening test to determine if the thyroid is functioning normally.

Body-mass index (BMI): a standardized measure of obesity calculated by dividing the weight in kilograms by the square of the height. A normal BMI is 18.5-24.9, overweight is 25-30 and obese is >30.



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HYPOTHYROIDISM

TSH reference ranges should be used to safely guide thyroid hormone treatment in hypothyroid patients

BACKGROUND

Hypothyroidism is a very common condition, also called an underactive thyroid. It can happen due to damage to the thyroid gland from inflammation or after certain treatments like surgery. If it is not treated it can lead to other illnesses such as heart disease and may even be life threatening. It also causes symptoms like fatigue and weight gain. Patients with hypothyroidism need to take thyroid hormone which is often a lifelong treatment. Current guidelines recommend that the dose of the thyroid hormone should be adjusted to resolve the symptoms and to keep the TSH level within the range of 0.4 – 4 mIU/L. Although this range is considered normal, we do not know for sure whether variations within this range result in different health outcomes.

The aim of this study was to explore whether risk of death or illnesses like heart disease and broken bones were more common at certain TSH levels in patients who were treated for hypothyroidism.

THE FULL ARTICLE TITLE

Thayakaran R et al 2019 Thyroid replacement therapy, thyroid stimulating hormone concentrations, and long term health outcomes in patients with hypothyroidism: longitudinal study. BMJ 366:l4892. PMID: 31481394.

SUMMARY OF THE STUDY

The study was done in United Kingdom using a database called The Health Improvement Network. Adult patients who were diagnosed with hypothyroidism between January 1, 1995 and December 31, 2017 were included in the study. The main outcomes were heart disease involving the blood vessels, heart failure, and stroke. Secondary outcomes were risk of death, irregular heart rhythm, and broken bones.

There were 162,369 patients in the 22-year study period. A total of 863,072 TSH measurements were analyzed. Risk of heart disease related to damage to blood vessels was higher when TSH level increased over 10 mIU/L. The risk of stroke was slightly less when TSH level was between 3-3.5 mIU/L and 4-10 mIU/L. Risk of death was higher when TSH level was lower than 0.1 mIU/L or especially above 10 mIU/L. Broken bones were more common at TSH levels above 10mIU/L, especially in women older than 65 years old.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that there was no evidence of negative outcomes when TSH levels were maintained in the recommended reference ranges in the guidelines (0.4 – 4 mIU/L). Conversely, the risk of heart disease, stroke, broken bones and death was higher in hypothyroid patients with TSH levels outside the recommended reference range. Importantly, this range offers flexibility in treatment since patients may feel better at different TSH levels and the findings of this study support that this is a safe range.

— Ebru Sulanc, MD

ATA THYROID BROCHURE LINKS

Hypothyroidism (Underactive): https://www.thyroid.org/hypothyroidism/

HYPOTHYROIDISM, continued

ABBREVIATIONS & DEFINITIONS

TSH: thyroid stimulating hormone — produced by the pituitary gland that regulates thyroid function; also, the best screening test to determine if the thyroid is functioning normally.

Thyroid hormone therapy: patients with hypothyroidism are most often treated with Levothyroxine in order to return their thyroid hormone levels to normal. Replacement therapy means the goal is a TSH in the normal range and is the usual therapy. Suppressive therapy means that the goal is a TSH below the normal range and is used in thyroid cancer patients to prevent growth of any remaining cancer cells.

Hypothyroidism: a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.

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GRAVES' DISEASE

Serum TSH receptor antibodies fall gradually and only rarely switch functional activity in treated Graves' disease

BACKGROUND

Graves' disease is the most common cause of hyperthyroidism in the United States. It can be treated with either antithyroid drugs, surgery or radioactive iodine. Graves' disease happens when the immune system of an individual makes specialized proteins called antibodies, which circulate in the blood then attach to the thyroid gland at a place called the TSH receptor. These TSH receptor antibodies then stimulate the thyroid to make excess amounts of thyroid hormone. Testing for these antibodies in patients with Graves' disease is very helpful to make a diagnosis.

A decrease in the level of TSH receptor antibodies during treatment with antithyroid medications can help determine the chances of the Graves' disease going into remission. Interestingly, the level TSH receptor antibodies present in an individual falls over time regardless of the type of treatment used. In addition, some of the TSH receptor antibodies may switch function and will either stop stimulating the thyroid or even inhibiting the thyroid.

The purpose of this study was to gain information regarding the trend of the levels of the TSH receptor antibodies over time and also understand whether the function of those antibodies changes contributing to remission after treatments with antithyroid medications.

THE FULL ARTICLE TITLE

Nalla P et al 2019 Thyrotropin receptor antibody concentration and activity several years after treatment for Graves' disease. Clin Endocrinol (Oxf) 90:369–374.

Summary of the study

This study was done recruiting 66 patients with Graves disease who had elevated serum TSH receptor antibodies at diagnosis. They were recruited at least one year after any treatment. The average age was 59 years (range 29-85) and 85% were women. A total of 6 patients were still taking antithyroid medictions long term; 20 patients were in remission after stopping the medication; 27 had received radioactive iodine and 13 patients had thyroid surgery. All patients had blood work showing stable thyroid hormone levels. The average follow up duration was 6-7 years for all patients. The researchers used tests that measure not just the presence and amount of antibodies, but also the effect of those antibodies on thyroid cells (stimulation, inhibition or neutral).

One year after diagnosis, TSH receptor antibody levels were detectable in 30 patients (45%) and 5 years after diagnosis, 15 (23%) still had detectable antibody levels. In all groups, the overall levels were lower on follow up than at diagnosis. However, the patients who had surgery had the greatest decreases and the patients who had radioactive iodine had the least decreases.

When looking at the functional activity of the antibodies in patients who still had detectable levels, the majority was of a stimulating type with only one patient had antibodies of the inhibitory type.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The results of this study suggest that a change in the function of the thyroid antibodies from stimulating to inhibiting is not likely to be contributing to remission in patients who elect to take antithyroid medications to treat Graves' disease. Although surgery seems to be the type of treatment that leads to the furthest reduction in antibody levels, the choice of treatment for patients should be individualized, taking into account patients preference, desire for future pregnancies, availability of experienced surgeons and clinical factors such as the presence of Graves' eye disease.

This study is limited because it included a small amount of patients, and does not provide answers for example to the question whether the patients who still had stimulating antibodies present after years are more likely to recur. Thus, additional studies are needed to confirm these findings.

— Jessie Block-Galarza, MD

GRAVES' DISEASE, continued

ATA THYROID BROCHURE LINKS

Hyperthyroidism (Overactive): https://www.thyroid.org/hyperthyroidism/
Graves' Disease: https://www.thyroid.org/graves-disease/

ABBREVIATIONS & DEFINITIONS

Graves' Disease: the most common cause of hyperthyroidism in the United States. It is caused by antibodies that attack the thyroid and turn it on. Graves' disease may be treated with antithyroid meds, radioactive iodine or surgery

Antibodies: proteins that are produced by the body's immune cells that attack and destroy bacteria and viruses that cause infections. Occasionally the antibodies get confused and attack the body's own tissues, causing autoimmune disease.

TSH receptor antibodies (TRAB): antibodies often present in the serum of patients with Graves' disease that are directed against the TSH receptor, often causing stimulation of this receptor with resulting hyperthyroidism.

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.

Thyroidectomy: surgery to remove the entire 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*.

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GRAVES' DISEASE

Association of Graves' disease with thyroid cancer

BACKGROUND

Graves' disease is the most common cause of hyperthyroidism. There are 3 options to treat Graves' disease – antithyroid medications, surgery and radioactive iodine therapy. The choice of therapy depends on a variety of factors, including patient and physician preference. One factor that may affect the treatment decision is that some patients with Graves' disease also have thyroid nodules and a few will be diagnosed with thyroid cancers. In general, thyroid nodules are noted in more than 50% of the population, with only about 5% of these nodules being cancers. Some studies have suggested that thyroid cancer is uncommon in patients with Graves' disease, while others suggest that thyroid cancers are more common in this population. This study examines the data from many previous studies to do what is called a meta-review to try to clarify whether the presence of thyroid nodules in the patient with Graves' disease was a risk factor for thyroid cancer.

THE FULL ARTICLE TITLE

Papanastasiou A et al 2019 Thyroid nodules as a risk factor for thyroid cancer in patients with Graves' disease: a systematic review and meta-analysis of observational studies in surgically treated patients Clin Endocrinol (Oxf) 91:571–577. PMID: 31369161.

SUMMARY OF THE STUDY

The authors searched for publications regarding patients with Graves' disease who had surgery (either near total or total thyroidectomy) for their hyperthyroidism and where pathology results were noted. After starting with 1240 observational studies identified, only 7 met the criteria set for the meta-review and included 2582 patients. They compared the prevalence of thyroid cancer in patients with nodules vs patients without nodules. Overall, the finding of thyroid cancer varied significantly in the studies from 3.8 to 29.2%, with an average of 11.5%. When nodules were noted prior to surgery, 22.2% ultimately had thyroid cancer, compared to only 5% in patients who did not have nodules noted before surgery. The risk for thyroid cancer was similar if patients had more than one nodule compared to only one nodule.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that thyroid cancer is often found in patients with Graves' disease who also have thyroid nodules and who are treated with surgery. However, there are some limitations to the study that need to be taken into consideration. All the studies looked back at the results of patients who had surgery and the presence of a concerning nodule may have played in the decision which patients ultimately went to surgery as treatment for their Graves' disease. In addition, there is no information on how many of these cancers were what is called "microcarcinomas", which are very common and are likely not to be clinically significant, or how many cancers were in glands that did not have a clinically apparent nodule. Still, this study suggests that if a nodule is present, surgery may be the best option for definitive treatment of Graves' disease. Also, this does point out the need to evaluate nodules in patients with Graves' disease and to biopsy nodules that have suspicious characteristics on ultrasound.

— Marjorie Safran, MD

ATA THYROID BROCHURE LINKS

Graves' Disease: https://www.thyroid.org/graves-disease/
Thyroid Nodules: https://www.thyroid.org/thyroid-nodules/
Thyroid Surgery: https://www.thyroid.org/thyroid-surgery/

GRAVES' DISEASE, continued

ABBREVIATIONS & DEFINITIONS

Meta-review: a study that combines and analyzes the data from several other studies addressing the same research questions.

Thyroid nodule: an abnormal growth of thyroid cells that forms a lump within the thyroid. While most thyroid nodules are non-cancerous (Benign), ~5% are cancerous.

Hyperthyroidism: a condition where the thyroid gland is overactive and produces too much thyroid hormone. Hyperthyroidism may be treated with antithyroid meds (Methimazole, Propylthiouracil), radioactive iodine or surgery.

Graves' Disease: the most common cause of hyperthyroidism in the United States. It is caused by antibodies that attack the thyroid and turn it on.

Papillary Microcarcinoma: a papillary thyroid cancer smaller than 1 cm in diameter.

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THYROID CANCER

Development of new testing to determine which small thyroid cancers should be treated surgically

BACKGROUND

Papillary cancer is, by far, the most common type of thyroid cancer and, overall, has a very good survival rate/prognosis. Those unusual cases of papillary thyroid cancer having guarded/relatively poor prognosis generally have spread to other body sites, such as the neck lymph nodes, the lungs and/or the bones. In general, appropriate management for papillary thyroid cancer requires surgery, followed in some cases by treatment with radioactive iodine therapy.

Recent studies aimed at predicting the behavior of papillary thyroid cancer have found that very small cancers (< 1 cm in diameter, called papillary micro-carcinomas) are unlikely to grow and spread and probably do not need to be removed surgically. Rather, such small cancers might simply be monitored for growth, with surgery only performed if such growth occurs. Unfortunately, however, a very small number of papillary micro-carcinomas will spread to distant body sites, without actually growing themselves. Because of this, an important area of research focuses on identifying which papillary micro-carcinomas will spread to distant body sites, so that these specific cancers can be removed surgically before they spread.

Cancer cells develop because of genetic changes in the normal cells from which they arise. Additional genetic changes can then occur within these cancer cells, giving them the ability to spread to other body sites. Because of this, one strategy for identifying which papillary micro-carcinomas will spread out of the thyroid is to define which genetic changes allow this to occur and then to surgically remove only those papillary micro-carcinomas having these specific genetic changes.

The purpose of the study reviewed here was to compare the genetic changes in papillary micro-carcinomas that have spread out of the thyroid to the genetic changes in papillary micro-carcinomas that have remained within the thyroid.

THE FULL ARTICLE TITLE

Perera D et al 2019 Genomic and transcriptomic characterization of papillary microcarcinomas with lateral neck lymph node metastases J Clin Endocrinol Metab. Epub 2019 Jun 25. PMID: 31237614.

SUMMARY OF THE STUDY

To accomplish their study, the authors compared changes in genetic material (DNA and RNA) between 71 papillary micro-carcinomas having no evidence of spread out of the thyroid and 40 papillary micro-carcinomas known to have spread to neck lymph nodes. In so doing, the authors found no significant DNA differences between the two groups. However, significant RNA differences were identified in the group having known lymph node spread, when compared to the group without such spread. Moreover, the authors calculated that the absence of these RNA changes in a papillary micro-carcinomas confers a 98% probability that it will not spread out of the thyroid. Interestingly, the presence of these RNA changes did a relatively poor job of predicting which papillary micro-carcinomas will spread out of the thyroid.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

It is clear that only a small subset of papillary micro-carcinomas will spread out of the thyroid and, in theory, only this subset should be surgically removed. Ideally, such surgery should be performed prior to the spread of cancer out of the thyroid, since such spread is associated with relatively poor prognosis and requires more aggressive treatment. The research reviewed here describes the development of a test allowing identification of those papillary micro-carcinomas that will not spread out of the thyroid. The results presented are encouraging and provide justification for further studies to validate the accuracy of the described testing.

— Jason D. Prescott, MD PhD

THYROID CANCER, continued

ATA THYROID BROCHURE LINKS

Radioactive Iodine Therapy: https://www.thyroid.org/radioactive-iodine/
Thyroid Cancer (Papillary and Follicular): https://www.thyroid.org/thyroid-cancer/
Thyroid Surgery: https://www.thyroid.org/thyroid-surgery/

ABBREVIATIONS & DEFINITIONS

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).

Papillary Microcarcinoma: a papillary thyroid cancer smaller than 1 cm in diameter.

Cancer Metastasis: spread of the cancer from the initial organ where it developed to other organs, such as the lungs and bone.

Lymph Node: bean-shaped organ that plays a role in removing what the body considers harmful, such as infections and cancer cells.

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*).

Negative Predictive Value: the likelihood that a patient does not have a disease when the test used to diagnose that disease is negative.

Positive Predictive Value: the likelihood that a patient has a disease when the test used to diagnose that disease is positive.

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THYROID CANCER

What are the risk factors in cancer recurrence in patients with involvement of the neck lymph nodes at diagnosis?

BACKGROUND

Papillary thyroid carcinoma is the most common thyroid cancer. Despite the fact that at least 30% of patients with papillary thyroid cancer have spread to the neck lymph nodes at the time of the initial surgery, papillary thyroid cancer has a relatively good prognosis. Indeed, even if the papillary thyroid cancer recurs after the initial treatment, it often can be either cured or controlled for long periods of time.

The risk of recurrence of papillary thyroid cancer varies in patients with spread to the neck lymph nodes. The American Thyroid Association guidelines for management of thyroid cancer include size of abnormal lymph nodes containing papillary thyroid cancer in understanding a patient's risk of recurrence. The goal of this study is to evaluate the size of the largest area of papillary thyroid cancer in the neck lymph nodes and its relation to how these patients respond to treatment.

THE FULL ARTICLE TITLE

Deng Y et al. 2019 Size of the largest metastatic focus to the lymph node is associated with incomplete response of pN1 papillary thyroid carcinoma. Endocr Pract 25:887–898. PMID: 31170371.

SUMMARY OF THE STUDY

This study evaluated 1403 patients treated at a single center in China between January 2014 and December 2016. The study included patients with papillary thyroid cancer who had a total or near-total thyroidectomy and neck lymph node removal followed by radioactive iodine treatment with and without spread of the cancer to the central neck lymph node. Patients who had spread of the cancer outside of the neck were not included. A total of 554 patients were included in this study. Patients were separated into three groups based on the largest size of the papillary thyroid cancer noted in the lymph nodes: 1) < 2mm; 2) 2 -10 mm; 3) ≥ 10 mm. Of the 554 patients, 64% had an excellent response (follow up imaging negative with a low or undetectable thyroglobulin level), 4% had a biochemical incomplete response (imaging negative with an elevated thyroglobulin level), 18% had structural incomplete response (imaging positive for persistent cancer), and 14% had an indeterminate response (unclear finding on imaging or mildly elevated thyroglobulin level). Of these, 2.5% (4 of 161) of group 1 patients, 13.9% (37 of 267) of group 2, and 47% (59 of 126) of group 3 had a structural incomplete response. Further, patients with a larger area of papillary thyroid cancer in the neck lymph nodes were more likely to have larger thyroid cancers, more lymph nodes involved with cancer, and cancers which extended beyond the thyroid capsule. The size of the largest area of papillary thyroid cancer in the neck lymph nodes was a predictive factor for incomplete response to treatment.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that the size of the largest abnormal lymph node containing papillary thyroid cancer predicts the risk of recurrence in patients with papillary thyroid cancer spread to the lymph nodes after radioactive iodine therapy. Indeed, if the largest abnormal lymph node is >10 mm, there is an almost 50% risk of cancer recurrence. Thus, this study suggests that patients with papillary thyroid cancer and large abnormal lymph nodes should be followed more closely and treated more aggressively.

— Priya Mahajan, MD

ATA THYROID BROCHURE LINKS

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

Thyroid Surgery: https://www.thyroid.org/thyroid-surgery/

THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

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).

Cancer Metastasis: spread of the cancer from the initial organ where it developed to other organs, such as the lungs and bone.

Lymph Node: bean-shaped organ that plays a role in removing what the body considers harmful, such as infections and cancer cells.

Thyroidectomy: surgery to remove the entire 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.

Near-total Thyroidectomy: removal of nearly all of each thyroid lobe, leaving only a small portion of the thyroid gland.

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).

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.

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ATA Alliance for Thyroid Patient Education

GOAL The goal of our organizations is to provide accurate and reliable information for patients about the diagnosis, evaluation and treatment of thyroid diseases. We look forward to future collaborations and continuing to work together toward the improvement of thyroid education and resources for patients.

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Graves' Disease & Thyroid Foundation

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(Toll-free): 877-643-3123
info@ngdf.org

Light of Life Foundation
www.checkyourneck.com
info@checkyourneck.com

MCT8 – AHDS Foundation
mct8.info
Contact@mct8.info

Thyca: Thyroid Cancer Survivors' Association, Inc.
www.thyca.org
(Toll-free): 877-588-7904
thyca@thyca.org

Thyroid Cancer Alliance
www.thyroidcanceralliance.org
www.thyroidcancerpatientinfo.org
Rotterdam, The Netherlands

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- Updates on the latest patient resources through the ATA website and elsewhere on the world wide web
- Special e-mail alerts about thyroid topics of special interest to you and your family

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JOIN US

"The ATA was a valuable resource for our family when my dad was diagnosed with Anaplastic Thyroid Cancer. When you're faced with a detrimental diagnosis where even a few days can make the difference in life or death, understanding your options quickly is critical. The ATA website offers a one-stop shop for patients and caregivers to find specialists, current clinical trials, general thyroid cancer information, and links to other patient support groups and information."

Mary Catherine Petermann
- Father who was diagnosed with Anaplastic Thyroid Cancer in 2006
- He was treated at Mayo Clinic
- He has clean scans as of October 2016

PLEASE JOIN OUR JOURNEY TO ADVANCED DISCOVERIES AND TREATMENT FOR THYROID DISEASE AND THYROID CANCER

As patients with thyroid disease navigate the challenges to their quality of life and researchers and physicians look for more effective directions, we at the ATA have our own destination– **funding for critical thyroid research, prevention, and treatment.** For 94 years, the ATA has led the way in thyroidology. It's a daily obstacle course to find new drugs, better treatments, advanced surgical methods, and more rapid diagnoses for the 20 million Americans who have some form of thyroid disease.

The ATA has paved the way with management guidelines for clinicians who diagnose and treat thyroid disease. For physicians treating pregnant women diagnosed with thyroid disease, our recent publication presents 97 evidence-based recommendations making sure that best practices are implemented with the latest, most effective treatment.

Through your generous support and donations, research takes the lead and hope is on the horizon. **Will you join us** in our campaign to raise **$1.5 million** for thyroid research, prevention, and treatment? Your compassionate, tax-deductible gift will provide funds for:

- Research grants that pave the way for 1,700 ATA physicians and scientists who have devoted their careers to understanding the biology of and caring for patients affected by thyroid disease.
- Patient education for individuals and families looking for life-changing clinical trials, the best thyroid specialists, and cutting edge treatment and drugs.
- Professional education that offers a wealth of knowledge and leading-edge research for trainees and practitioners.
- A website that is the go-to resource for thyroid information for patients and practitioners alike. In 2016 alone, there were more than 3,700,000 website views of ATA's library of online thyroid information patient brochures.

Donations **of all sizes** will change the future for thyroid patients. You will make a direct impact on patients like Mary Catherine's father as he deals with Anaplastic Thyroid Cancer. You will help scientists like ATA Associate Member Julia Rodiger, Ph.D., a scientist at the National Institutes of Health, as she analyzes thyroid hormones for intestinal stem cell development.