Volume 18 | Issue 3 | March 2025

Clinical Thyroidology® for the Public

AMERICAN THYROID ASSOCIATION
Optimal Thyroid Health for All

AMERICAN THYROID ASSOCIATION
Optimal Thyroid Health for All

Volume 18 | Issue 3 | March 2025

Clinical Thyroidology® for the Public

Editor's Comments

Welcome to another issue of *Clinical Thyroidology for the Public* and Happy New Year!!! 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 X (previously known as 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 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.

March is Medullary Thyroid Cancer Awareness Month.

In this issue, the studies ask the following questions:

- Is there a link between diabetes and weight loss drugs and thyroid cancer?
- What is the risk for recurrence of Medullary thyroid carcinoma?
- Is lobectomy an option for patients with Medullary thyroid cancer?
- Is treatment of hyperthyroidism associated with heart problems?
- How effective is RFA for treatment of thyroid nodules?
- Does treatment with iodine before thyroid surgery for Graves' disease make this surgery safer?

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

AMERICAN THYROID ASSOCIATION
Optimal Thyroid Health for All

Volume 18 | Issue 3 | March 2025

Clinical Thyroidology® for the Public

THYROID CANCER

Is there a link between diabetes and weight loss drugs and thyroid cancer?

BACKGROUND

GLP1 is a hormone naturally made in the body that helps to control blood sugar. GLP1 receptor agonists (GLP1-RAs) are medications that act like GLP1 and are used to treat diabetes and obesity. These medications lower blood sugar and help people lose weight, protect the heart and the kidneys, and may even benefit the brain, making them increasingly popular among patients and doctors. As more and more people use GLP1-RAs, concerns about a possible link to thyroid cancer were raised. GLP1 receptors were found in thyroid cancer cells, suggesting these medications could potentially affect them. In animal studies with GLP1-RAs, an increase in C-cell tumors was seen, which are associated with medullary thyroid cancer, which is a rare form of thyroid cancer. However, it's unclear if this risk applies to humans. Studies in humans showed mixed results, some found increased risk for thyroid cancer and some did not.

Given the increasing number of people using these medications and the conflicting study results, the researchers designed a large, international study to clarify whether GLP1-RAs increase the risk of thyroid cancer and whether higher doses overtime make the risk bigger.

THE FULL ARTICLE TITLE

Baxter SM, et al. Glucagon-like peptide 1 receptor agonists and risk of thyroid cancer: an international multisite cohort study. Thyroid 2024; in press.

SUMMARY OF THE STUDY

Researchers studied medical records from 2007 to 2023 of people with type 2 diabetes from six countries: Canada, Denmark, Norway, South Korea, Sweden, and Taiwan. They compared 92,497 people who took GLP1-RAs with 2,484,408 people who took DPP-4 inhibitors. DPP4 inhibitors are also commonly used diabetes medications that help the body keep more of its natural GLP1 hormone. This makes them a good comparison to GLP1-RAs since both drugs treat the blood sugar similarly but work differently. They followed these patients for up to 10 years to see if there was a difference in thyroid cancer cases. They used statistical methods to account for factors like age and other conditions to make sure the results were fair and accurate. However, they could not account for obesity because there was not enough data, even though obesity is a known risk factor for cancer, including thyroid cancer.

The results show that GLP1-RAs did not increase the risk of thyroid cancer compared to DPP-4 inhibitors. Taking higher doses of GLP1-RAs also did not raise the risk. The results were the same in all six countries, which means the findings were strong and trustworthy. The study could not assess the risk specifically for medullary thyroid cancer because there were too few cases.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This large international study shows that the popular diabetes and weight loss drugs known as GLP1-RAs do not increase the risk of thyroid cancer in people with type 2 diabetes compared to DPP-4 inhibitors over up to 10 years. The findings are reassuring and confirm short-term safety, but more research is needed to understand any long-term risks, especially for medullary thyroid cancer. This is one of the largest studies on GLP1-RAs and thyroid cancer. The inclusion of many people from different countries makes the findings more reliable and relevant to more people. Patients were followed longer than in most previous research and were compared to a similar medication. These stronger methods make the results more trustworthy and give better answers about the safety of these medications. Patients and doctors can feel more confident using GLP1-RAs, especially given their benefits on blood sugar, weight and heart protection, while longer term effects continue to be studied.

— Ebru Sulanc, MD

THYROID CANCER, continued

ATA RESOURCES

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

Thyroid Cancer (Medullary): https://www.thyroid.org/medullary-thyroid-cancer/

ABBREVIATIONS & DEFINITIONS

Medullary thyroid cancer: a relatively rare type of thyroid cancer that often runs in families. Medullary cancer arises from the C-cells in the thyroid

GLP1 receptor agonist (GLP1-RA): medications that act like the hormone GLP1 and are used to treat diabetes and obesity. These medications lower blood sugar and help people lose weight, protect the heart and the kidneys, and may even benefit the brain, making them increasingly popular among patients and doctors.

AMERICAN THYROID ASSOCIATION
Optimal Thyroid Health for All

MARCH

Medullary Thyroid Cancer *Awareness Month*

AMERICAN THYROID ASSOCIATION
Optimal Thyroid Health for All

Volume 18 | Issue 3 | March 2025

Clinical Thyroidology® for the Public

THYROID CANCER

What is the risk for recurrence of Medullary thyroid carcinoma?

BACKGROUND

Medullary thyroid carcinoma (MTC) is a rare thyroid cancer that originates from cells called parafollicular cells in the thyroid that produce a hormone called calcitonin. Calcitonin plays a minor role in the regulation of the body's calcium levels. In the setting of MTC, calcitonin serves as a cancer marker, since the cancer cells continue to secrete calcitonin. After surgery for MTC, calcitonin levels that fall to undetectable indicate a complete response to the surgery while persistent measurable calcitonin levels likely indicate persistent cancer cells. Further, increasing calcitonin levels after initial treatment usually indicates progression and growth of remaining cancer cells. Calcitonin levels can also help guide surgery in patients initially diagnosed with MTC. The American Thyroid Association guidelines for management of MTC indicate that when a calcitonin level is more than 500 pg/ml prior to thyroid surgery it is recommended to perform more imaging to rule out spread of the cancer outside of the neck. That said, there is controversy regarding the best cutoff calcitonin level to identify cancer that has spread outside of the neck as opposed to cancer limited to the thyroid and local lymph nodes. In addition, there is debate about the extent of surgery in the neck in patients who do not have known spread of the cancer outside of the thyroid prior to surgery.

This study was done to determine the which factors are associated with MTC response after surgery, cancer recurrence and effective treatment without the cancer progressing (progression-free survival, PFS).

THE FULL ARTICLE TITLE

Abou Azar S et al. Medullary thyroid cancer: single institute experience over 3 decades and risk factors for recurrence. J Clin Endocrinol Metab 2024;109(11):2729-2734; doi: 10.1210/clinem/dgae279. PMID: 38651609.

SUMMARY OF THE STUDY

This study looked at patients with MTC treated at the University of Chicago between 1990 and 2023. A total of 68 patients with MTC were included. The average age at diagnosis was 54.9 years, 44 (65%) were female. During the preoperative workup, 16 patients (24%) were found to have cancer spread to the lateral neck and 3 (4%) patients had spread outside of the neck. Preoperative calcitonin levels were documented in 56 patients, and the average calcitonin level was 504.4 pg/ml. Of these patients, 10 had their thyroid removed (total thyroidectomy), 28 had their thyroids removed along with lymph nodes in the central part of the neck (total thyroidectomy + central neck dissection), 17 had their thyroids, central lymph nodes removed and lymph nodes either the right or left side of their neck removed (unilateral lateral neck dissection), and 8 patients had a total thyroidectomy, central neck dissection and bilateral neck dissection.

Beyond 1 year after initial surgery, 4% died and 22% had recurrence, with an average age of 4.7 years. Overall 9 patients (13.2%) had a recurrence in the neck, and 6 (8.8%) had a recurrence outside the neck. Reoperation was performed in 10 patients (15%) and 11 (16%) underwent systemic treatment and/or palliative radiation therapy. Patients with cancer recurrence were more likely to be men, have had more lateral neck lymph nodes involved on the initial surgery and had more high-risk mutations within the cancer cells. Further, a calcitonin level >2175 pg/ml prior to surgery was a strong predictor for spread of the cancer outside of the neck and a good predictor of spread of the cancer to the lateral neck.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study showed that the extent of surgery is not associated with the risk of recurrence and that the

THYROID CANCER, continued

calcitonin level may be quite high even in patients who do not have spread of the cancer outside of the neck. This study is limited by the small number of patients. This study is important because clinical practice and guidelines will change over time if there is no benefit to more aggressive surgery for patients. It is also important for patients to know that even though they may need a workup to rule out spread of the cancer outside of the neck due to a high calcitonin level, it is possible that the cancer may still only be localized in the neck.

— Maria Brito, MD, ECNU

ATA RESOURCES

Thyroid Cancer (Medullary): https://www.thyroid.org/medullary-thyroid-cancer/

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

ABBREVIATIONS & DEFINITIONS

Medullary thyroid cancer: a relatively rare type of thyroid cancer that often runs in families. Medullary cancer arises from the parafollicular C-cells in the thyroid.

Total thyroidectomy: surgery to remove the entire thyroid gland.

Prophylactic central neck dissection: careful removal of all lymphoid tissue in the central compartment of the neck, even if no obvious cancer is apparent in these lymph nodes.

Calcitonin: a hormone that is secreted by cells in the thyroid (C-cells) that has a minor effect on blood calcium levels. Calcitonin levels are increased in patients with medullary thyroid cancer.

AMERICAN THYROID ASSOCIATION
Optimal Thyroid Health for All

Volume 18 | Issue 3 | March 2025

Clinical Thyroidology® for the Public

THYROID CANCER

Is lobectomy an option for patients with Medullary thyroid cancer?

BACKGROUND

Medullary thyroid carcinoma (MTC) is a rare thyroid cancer that originates from cells called parafollicular C-cells in the thyroid that produce a hormone called calcitonin.

Calcitonin plays a minor role in the regulation of the body's calcium levels. In the setting of MTC, calcitonin serves as a cancer marker, since the cancer cells continue to secrete calcitonin. MTC can frequently run in families (familial MTC) as well as occurring in patients without a family history (sporadic MTC).

Once MTC is diagnosed, a total thyroidectomy is generally recommended for patients, but the extent of surgery regarding lymph node dissection remains uncertain. Further, there is debate about the extent of surgery in the neck in patients who do not have known spread of the cancer outside of the thyroid prior to surgery. Finally, a total thyroidectomy is associated with a higher rate of surgical complications, and thyroid lobectomy has become increasingly advocated for other types of thyroid cancer if there is no evidence of spread of the cancer to the opposite lobe. It is unclear whether this approach would be appropriate for treatment of MTC.

This study investigated frequency of finding small foci of MTC in the lobe opposite to the lobe containing the primary cancer that was not identified on ultrasound before surgery (occult foci). The authors also compared the finding of occult foci between patients with sporadic MTC and those with familial MTC.

THE FULL ARTICLE TITLE

Mao YV et al. Extent of surgery for medullary thyroid cancer and prevalence of occult contralateral foci. JAMA Otolaryngol Head Neck Surg 2024;150(9):838; doi: 10.1001/jamaoto.2023.4376. PMID: 38270925.

SUMMARY OF THE STUDY

This study included a group of patients who underwent thyroidectomy for MTC in academic medical centers from September 1998 to April 2022. The study group was composed of 176 patients with an average age at diagnosis of 55 years (range, 2–87; 57.6% female). In the whole group, 46 (26.0%) had MTC in the opposite lobe and in 9 of these patients (5.1%), the MTC was not identified on preoperative ultrasound. Among 109 patients who underwent genetic testing, 38 (34.9%) had MTC in the opposite lobe and in 8 (7.3%), the MTC was not seen on ultrasound. Occult foci were found in 4 of 30 (13.3%) patients with familial MTC as compared to 4 of 79 (5.0%) patients with sporadic MTC. The risk of having occult foci in familial MTC was 4.3% while the risk in patient with sporadic MTC was 3.4%. There were 12 of 176 (6.8%) patients who underwent initial lobectomy, 5 of whom had undetectable calcitonin concentration. Of these, 4 patients underwent completion thyroidectomy, none of whom were found to have occult of MTC in the remaining lobe.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that thyroid lobectomy could be considered in patients with sporadic MTC and no ultrasonography findings in the opposite lobe. While there continues to be a slightly higher risk of occult MTC in the opposite lobe in patients with familial MTC, the risk continues to be low and lobectomy could be considered in this group as well. Finally, an undetectable calcitonin level post-op continues to be an excellent indicator of no significant remaining MTC even in the setting of a lobectomy.

— Alan P. Farwell MD

THYROID CANCER, continued

ATA RESOURCES

Thyroid Cancer (Medullary): https://www.thyroid.org/medullary-thyroid-cancer/

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

ABBREVIATIONS & DEFINITIONS

Medullary thyroid cancer: a relatively rare type of thyroid cancer that often runs in families. Medullary cancer arises from the parafollicular C-cells in the thyroid.

Calcitonin: a hormone that is secreted by cells in the thyroid (C-cells) that has a minor effect on blood calcium levels. Calcitonin levels are increased in patients with medullary thyroid cancer.

Thyroid Ultrasound: a common imaging test used to evaluate the structure of the thyroid gland. Ultrasound uses soundwaves to create a picture of the structure of the thyroid gland and accurately identify and characterize nodules within the thyroid. Ultrasound is also frequently used to guide the needle into a nodule during a thyroid nodule biopsy.

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*.

Lobectomy: surgery to remove one lobe of the thyroid.

Completion thyroidectomy: surgery to remove the remaining thyroid lobe in thyroid cancer patients who initially had a lobectomy.

AMERICAN THYROID ASSOCIATION
Optimal Thyroid Health for All

Volume 18 | Issue 3 | March 2025

Clinical Thyroidology® for the Public

HYPERTHYROIDISM

Hyperthyroidism treatment and risk for heart problems

BACKGROUND

Hyperthyroidism is a condition whereby the thyroid gland becomes overactive and makes too much thyroid hormone. The most common causes of hyperthyroidism in the United States are Graves' disease and toxic nodules. There are several options available for treating hyperthyroidism including antithyroid medications (ATD), such as methimazole and propylthiouracil (PTU), thyroid surgery, and radioactive iodine therapy (RAI) to destroy the thyroid. Antithyroid medications are becoming the most common treatment option, at least initially, but depending on the cause of hyperthyroidism and patient and physician preferences, the other treatment options may be recommended.

Heart racing/palpitations are common symptoms of hyperthyroidism. Indeed, hyperthyroidism has been associated with increased risk of atrial fibrillation, heart attacks and death. This study sought to determine if treatment choice impacts major adverse cardiac events (MACE) and death rates (all-cause mortality). These investigators examined long term MACE and all-cause mortality in newly diagnosed hyperthyroid subjects in Taiwan based on treatment choice.

THE FULL ARTICLE TITLE

Peng CC-H, et al. MACE and hyperthyroidism treated with medication, radioactive iodine, or thyroidectomy. JAMA Netw Open 2024;7:e240904. PMID: 38436957. doi: 10.1001/jamanetworkopen.2024.0904.

SUMMARY OF THE STUDY

The study was a nationwide study using the Taiwan National Health Insurance Database. Subjects aged 20 years or older with new hyperthyroidism diagnosed between 2011 and 2020 were examined according to the treatment they received (ATD, surgery, or RAI) for their hyperthyroidism. Subjects in the ATD group only received ATD treatment while those in the surgical or RAI groups could have received ATD's before their definitive treatment. Subjects were followed until the development of MACE, death or the database analysis was performed (October 2022 through December 2023). A MACE outcome was defined as any combination of acute heart attack, stroke, heart failure or cardiovascular death. Included in the analysis were 114,062 patients with hyperthyroidism (73.2% female, 26.8% male). Most patients were treated solely with ATD's (93.9%). Only 1.1% (1,238 patients) received RAI and 5.1% (5,772 patients) underwent surgical removal. Over the time of follow up in the study, patients that received surgical thyroid removal (thyroidectomy) as a treatment for hyperthyroidism demonstrated a lower risk of MACE, heart failure and both cardiovascular and all-cause mortality compared to patients who received ATD's alone. Patients who received RAI had lower risk for developing MACE in comparison to ATD-treated hyperthyroid patients. There were no differences overall in terms of risk of stroke or acute heart attack between the patient groups.

WHAT ARE THE IMPLICATIONS OF THE STUDY?

Hyperthyroidism is associated with increased risk of cardiovascular events and overall mortality. Treatment type appears to impact this risk. Thyroidectomy was associated with lower risk of MACE and overall mortality and RAI was associated with lower risk of MACE compared to ATD's. These findings require further confirmation but may ultimately alter the recommended treatment, particularly in patients with higher baseline risk of cardiovascular disease. Surgery or RAI may eventually be determined to be a better treatment choice for hyperthyroidism in patients with increased risk of cardiovascular disease.

— Whitney W. Woodmansee MD

HYPERTHYROIDISM, continued

ATA RESOURCES

Hyperthyroidism (Overactive): https://www.thyroid.org/hyperthyroidism/
Radioactive Iodine Therapy: https://www.thyroid.org/radioactive-iodine/
Thyroid Surgery: https://www.thyroid.org/thyroid-surgery/

ABBREVIATIONS & DEFINITIONS

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.

Goiter: a thyroid gland that is enlarged for any reason is called a goiter. A goiter can be seen when the thyroid is overactive, underactive or functioning normally. If there are nodules in the goiter it is called a *nodular goiter*; if there is more than one nodule it is called a *multinodular goiter.*

Toxic Nodular Goiter: hyperthyroidism caused by one or more overactive nodules in the thyroid

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*).

Methimazole: an antithyroid medication that blocks the thyroid from making thyroid hormone. Methimazole is used to treat hyperthyroidism, especially when it is caused by Graves' disease.

Propylthiouracil (PTU): an antithyroid medication that blocks the thyroid from making thyroid hormone. Propylthiouracil is used to treat hyperthyroidism, especially in women during pregnancy.

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.*

AMERICAN THYROID ASSOCIATION
Optimal Thyroid Health for All

Volume 18 | Issue 3 | March 2025

Clinical Thyroidology® for the Public

THYROID NODULES

Long-term data show that RFA remains effective and is low risk

BACKGROUND

Thyroid nodules are common and can be seen in 30-50% of individuals who have imaging studies that include the thyroid. The concern for a thyroid nodules is whether the nodule is a cancer. Fortunately, on 5-6% of nodules are cancerous, so the vast majority of nodules are benign (not cancerous). Benign nodules are usually followed by ultrasound to monitor growth. Nodules that are either big to begin with, grow during the period of following by ultrasound or are causing symptoms are usually referred for surgery.

Radiofrequency ablation (RFA) is a relatively new and non-surgical option that has gained popularity for the management of benign thyroid nodules. RFA uses radio-wave-based heat delivered by a needle to destroy abnormal tissue or lymph nodes containing cancer. This study focuses on the long-term results of RFA use in benign thyroid nodules, including response, regrowth rates, delay in surgery, and complications.

THE FULL ARTICLE

Park SI et al. Radiofrequency ablation for treatment of benign thyroid nodules: 10-year experience. Thyroid 2024;34(8):990-998; doi: 10.1089/thy.2024.0082. PMID: 39041607.

SUMMARY OF THE STUDY

This was a study looking at data between March 2007 and December 2010 conducted at the University of Ulsan in Seoul, Korea. They followed patients treated with RFA for symptomatic benign thyroid nodules. The study only included those who had two separate thyroid biopsies showing benign results. The nodules were functioning normally (not overactive) and patients had either cosmetic or compressive symptoms related to the nodule. Patients were followed at intervals of 1, 6, 12 months and then yearly until August 2022. Outcomes included calculated volume reduction ratio (VRR) at each visit, incidence of regrowth, surgical interventions, and complications. Criteria used for cure were the lesion measuring <0.5 ml, VRR ≥90%, no vascularity inside the treated nodule, and no symptoms or cosmetic problems related to the nodule.

The study included 421 patients with 456 nodules and 759 total RFA treatments. The average VRR was 63% at 6 months, >80% at 2 years, 90% at 5 years, and 94% at ≥10 years. Cure was noted in 83 of those nodules (18%), with improvement for both cosmetic and symptomatic at ≥10 year follow-up. Regrowth occurred in 12% of the nodules over 4 years. The total complication rate was 2.4%, related mainly to vocal changes and none were severe. Thyroid surgery ended up being performed in 26 of the 421 patients (6.2%) and the average time from RFA to surgery was 7.5 years. Those who underwent surgery did so because of persistent symptoms or nodule regrowth. Surgical pathology results of the 23 RFA-ablated nodules showed 13 nodules were benign and 10 were thyroid cancers.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that RFA can be considered a safe approach to the treatment of benign thyroid nodules. Complication rates are low, and RFA is effective in decreasing the volume of the nodule, especially smaller nodules. However, imaging follow-up is required due to the risk of regrowth or surgical intervention in the future. As more data like this comes out, it is expected that more thyroid specialists will be offering RFA as an option for management of benign thyroid nodules.

— Joanna Miragaya, MD

THYROID NODULES, continued

ATA RESOURCES

Fine Needle Aspiration Biopsy of Thyroid Nodules: https://www.thyroid.org/fna-thyroid-nodules/
Thyroid Surgery: https://www.thyroid.org/thyroid-surgery/

ABBREVIATIONS & DEFINITIONS

Radiofrequency ablation (RFA): using radiowave-based heat delivered by a needle to destroy abnormal tissue or lymph nodes containing cancer.

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.

Thyroid Ultrasound: a common imaging test used to evaluate the structure of the thyroid gland. Ultrasound uses soundwaves to create a picture of the structure of the thyroid gland and accurately identify and characterize nodules within the thyroid. Ultrasound is also frequently used to guide the needle into a nodule during a thyroid nodule biopsy.

Thyroid biopsy: a simple procedure that is done in the doctor's office to determine if a thyroid nodule is benign (non-cancerous) or cancer. The doctor uses a very thin needle to withdraw cells from the thyroid nodule. Patients usually return home or to work after the biopsy without any ill effects.

AMERICAN THYROID ASSOCIATION
Optimal Thyroid Health for All

Volume 18 | Issue 3 | March 2025

Clinical Thyroidology® for the Public

THYROID SURGERY

Does treatment with iodine before thyroid surgery for Graves' disease make this surgery safer?

BACKGROUND

Graves' disease is the most common cause of hyperthyroidism. Graves' disease is an autoimmune disorder where the immune system attacks the thyroid and turns it on, causing it to make too much thyroid hormone. This can cause significant health problems, including anxiety, shaking or tremors, increased body temperature (feeling inappropriately hot), a racing heart and atrial fibrillation (abnormal heartbeat). There are several options available for treating hyperthyroidism including antithyroid medications (ATD), such as methimazole and propylthiouracil (PTU), thyroid surgery, and radioactive iodine therapy (RAI) to destroy the thyroid. ATDs are usually the first line of treatment to get thyroid levels back to normal.

Thyroid surgery is a very effective treatment for Graves' disease, especially with patients with very large thyroid glands. Removing the thyroid resolves the hyperthyroidism but also results in hypothyroidism, because once the thyroid has been removed, the body can no longer make thyroid hormone. This then needs to be treated with thyroid hormone (levothyroxine), which is often easier to control.

In preparing patients for surgery for Graves' disease, iodine in the form of Lugol's solution/LS or saturated solution of potassium iodide/SSKI is often used for several days before surgery. This treatment may help lower body thyroid hormone levels and reduce blood flow to the thyroid gland, which can limit blood loss during thyroid surgery. Despite these possible advantages, there is no clear proof showing that iodine treatment before thyroid surgery for Graves' disease is truly beneficial. This study compares the outcomes of thyroid surgery in people diagnosed with Graves' disease with or without pre-surgery iodine treatment.

FULL ARTICLE TITLE

Schiavone D et al. Role of Lugol solution before total thyroidectomy for Graves' disease: randomized clinical trial. Br J Surg 2024;111(8):znae196; doi: 10.1093/bjs/znae196. PMID: 39129619.

SUMMARY OF THE STUDY

Researchers studied 56 adults (ages 18-70) undergoing total thyroidectomy for Graves' disease at their institution. A total of 29 participants took iodine (Lugol's solution) for eight days before surgery while 27 participants did not. The care team, including the surgeon, radiologists and pathologists, did not know which patients received iodine before surgery. Only a member of the research team was aware of this information. Researchers collected data on thyroid hormone levels, ultrasound imaging and pathology results to look at the blood supply to the thyroid, blood loss from surgery, length of surgery, and complications after surgery.

The results showed that treatment with iodine before thyroid surgery for Graves' disease resulted in lower body thyroid hormone levels on the day of surgery. However, this finding did not improve surgery outcomes. There was no significant effect on blood supply to the thyroid gland, the amount of blood loss during or after surgery, the length of surgery or the risk of complications after surgery.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study adds to our understanding of pre-surgery iodine treatment to improve outcomes related to thyroid surgery for treatment of Graves' disease. Although the authors did learn that iodine treatment can decrease body thyroid hormone levels before surgery, this did not improve outcomes during or after total thyroidectomy. This suggests treatment with iodine may not be necessary before total thyroidectomy for Graves' disease. This study did have some limitations. The small number of participants may have made it difficult to identify subtle benefits of iodine treatment prior to thyroid surgery for Graves' disease. Also, the only surgeon involved in this study was highly experienced in thyroid surgery. A larger study with more surgeons having diverse thyroid surgery experience levels might reveal advantages to pre-surgery iodine treatment not identified by this study.

— Stacy Sebastian, MD and Jason D. Prescott, MD PhD

THYROID SURGERY, continued

ATA RESOURCES

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

ABBREVIATIONS & DEFINITIONS

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.

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™, Tirosint™ and generic preparations.

AMERICAN THYROID ASSOCIATION
Optimal Thyroid Health for All

Volume 18 | Issue 3 | March 2025

Clinical Thyroidology® for the Public

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.

ATA®
Optimal Thyroid Health for All

GRAVES' DISEASE & THYROID FOUNDATION

ThyCa: Thyroid Cancer Survivors' Association, Inc.
www.thyca.org

Light of Life Foundation
checkyourneck.com

MCT8 - AHDS Foundation

BITE ME CANCER!

Thyroid Federation International

American Thyroid Association®
www.thyroid.org
ATA® Patient Resources:
www.thyroid.org/thyroid-information/
Find a Thyroid Specialist: www.thyroid.org
(Toll-free): 1-800-THYROID
thyroid@thyroid.org

Bite Me Cancer
www.bitemecancer.org
info@bitemecancer.org

Graves' Disease and Thyroid Foundation
www.gdatf.org
(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 Federation International
www.thyroid-fed.org
tfi@thyroid-fed.org

AMERICAN THYROID ASSOCIATION
ATA | *Founded 1923*

Friends of the ATA

FOUNDED 2005

Get the latest thyroid health information. You'll be among the first to know the latest cutting-edge thyroid research that is important to you and your family.

Become a Friend of the ATA!
Subscribe to *Friends of the ATA e-news*

By subscribing to *Friends of the ATA Newsletter*, you will receive:

- ✔ *Friends of the ATA e-news*, providing up-to-date information on thyroid issues, summaries of recently published articles from the medical literature that covers the broad spectrum of thyroid disorders, and invitations to upcoming patient events
- ✔ 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

We will use your email address to send you *Friends of the ATA e-news* and occasional email updates. We won't share your email address with anyone, and you can unsubscribe at any time.

www.thyroid.org