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Subclinical hypothyroidism without thyroid peroxidase antibodies during pregnancy may affect the brain development of the baby

The effect of treating subclinical hypothyroidism in the mother on the child's brain development is not clear. TPO antibodies are a marker of autoimmune thyroid disease, which is the most common cause of hypothyroidism in the United States. This study was designed to evaluate the brain development of children whose mothers had subclinical hypothyroidism without TPO antibodies and the impact of treatment with thyroid hormone in early pregnancy.

Chen J et al 2022 Subclinical hypothyroidism with negative for thyroid peroxidase antibodies in pregnancy: Intellectual development of offspring. *Thyroid*. Epub 2022 Jan 11. PMID: 34915770.

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No benefit of levothyroxine in women with recurrent pregnancy loss with normal thyroid function despite positive thyroid antibodies

TPO antibodies are a marker for autoimmune thyroid disease and are one of the factors associated with pregnancy loss, even when the thyroid levels are normal. It is not clear that treatment with thyroid hormone prevents miscarriage in women with thyroid autoimmunity alone. This study was done to find out if treatment with thyroid hormone in women with history of previous pregnancy losses and TPO antibodies but normal thyroid function helps prevent miscarriage.

Van Dijk MM et al 2022 Levothyroxine in euthyroid thyroid peroxidase antibody positive women with recurrent pregnancy loss (T4LIFE trial): A multicentre, randomized, double-blind, placebo-controlled, phase 3 trial. *Lancet Diabetes Endocrinol*. Epub 2022 Mar 14. PMID: 35298917.

HYPOTHYROIDISM7

Treatment of mild hypothyroidism in older adults does not affect anemia

Both subclinical hypothyroidism and anemia are common in the elderly. In addition, prior studies have shown that patients with subclinical hypothyroidism may have lower hemoglobin levels compared to persons with normal thyroid function. The aim of this study was to assess whether hemoglobin levels improved after treating subclinical hypothyroidism with levothyroxine in older adults.

Du Puy RS et al 2022 No effect of levothyroxine on hemoglobin in older adults with subclinical hypothyroidism: Pooled results from two RCTs. *J Clin Endocrinol Metab*. Epub 2022 Feb 26. PMID: 35218666.

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Is thyroid storm a concern when operating on hyperthyroid patients?

If surgery is needed in patients with hyperthyroidism, it usually is recommended that they be treated until thyroid hormone levels are normal first. There have been case reports of thyroid storm occurring in hyperthyroid patients after non-thyroid surgery. This study was done to determine whether there is evidence for any treatment prior to surgery to decrease the risk of thyroid storm.

de Mul N et al 2021 Risk of perioperative thyroid storm in hyperthyroid patients: A systematic review. *Br J Anaesth* 127:879–889. PMID: 34389171.

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Radiofrequency ablation for thyroid papillary microcarcinoma

RFA is a nonsurgical, minimally invasive technique that has been shown to shrink thyroid nodules. It is less invasive than surgery yet may be a suitable treatment option for those who do not wish to pursue active surveillance alone. Currently, the literature lacks large-scale studies examining the effectiveness of RFA in treating mPTCs. The primary goal of this article was to analyze the efficacy and safety of RFA for low-risk mPTC.

van Dijk SPJ et al Assessment of radiofrequency ablation for papillary microcarcinoma of the thyroid: A systematic review and meta-analysis *JAMA Otolaryngol Head Neck Surg*. Epub 2022 Feb 10

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Adrenal insufficiency in patients being treated with Lenvatinib for thyroid cancer

Lenvatinib is a chemotherapy drug that is effective against advanced thyroid cancer that is not responsive to other treatments. Side effects of the drug are similar to the symptoms of adrenal insufficiency. This study describes a patient with adrenal insufficiency while taking lenvatinib and discusses the natural history of adrenal insufficiency in patients undergoing this treatment.

Monti S et al 2022 Cortisol deficiency in lenvatinib treatment of thyroid cancer: An underestimated common adverse event. *Thyroid* 32:46–53. PMID: 34663079



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Clinical Thyroidology for the Public

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Editor's Comments

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 COVID-19 pandemic has caused an unprecedented upheaval in our daily lives and presented extremely difficult challenges to our healthcare system. We at the American Thyroid Association would like to make sure that you all have access to most accurate, reliable, fact-based and updated information. (<https://www.thyroid.org/covid-19/>)

July is [Graves' Disease Awareness Month](#).

In this issue, the studies ask the following questions:

- Should subclinical hypothyroidism in pregnant women with negative TPO antibodies be treated?
- Should pregnant women with positive TPO antibodies but normal thyroid hormone levels be treated?
- Does treatment of subclinical hypothyroidism in the elderly improve anemia?
- What is the risk of thyroid storm in hyperthyroid patients undergoing surgery?
- Is RFA an effective treatment for thyroid microcarcinoma?
- Is there an association between treatment of advanced thyroid cancer with levatinib and adrenal insufficiency?

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



THYROID AND PREGNANCY

Subclinical hypothyroidism without thyroid peroxidase antibodies during pregnancy may affect the brain development of the baby

BACKGROUND

Thyroid hormone is essential for the development of the brain. In early pregnancy, the only source of thyroid hormone from the mother. If the mother has untreated hypothyroidism with an elevated TSH and low thyroid hormone (free T4) level, children may have lower IQ and developmental problems. Subclinical hypothyroidism is a milder form of hypothyroidism with an elevated TSH and normal thyroid hormone levels. The effect of this milder form of hypothyroidism on the child's brain development is not as clear. There are other important unanswered questions about subclinical hypothyroidism, such as if treatment of the mother with thyroid hormone (levothyroxine) would make a difference, or how early in the pregnancy and at what TSH level should treatment start to make a difference. But the questions do not end there, as some mothers with hypothyroidism have antibodies against their thyroid while others do not. Thyroid peroxidase (TPO) antibodies are a marker of autoimmune thyroid disease, where the body makes antibodies that attack the thyroid. If the antibodies block or destroy the thyroid, the result is hypothyroidism. Indeed, autoimmune thyroid disease is the most common cause of hypothyroidism in the United States.

We do not have consistent information about whether having hypothyroidism or getting treatment with thyroid hormone during pregnancy would have the same effect if the TPO antibodies are absent. This study was designed to evaluate the brain development of children whose mothers had subclinical hypothyroidism without TPO antibodies (TPOAb-negative) and the impact of treatment with thyroid hormone (levothyroxine) in early pregnancy.

THE FULL ARTICLE TITLE

Chen J et al 2022 Subclinical hypothyroidism with negative for thyroid peroxidase antibodies in pregnancy: Intellectual development of offspring. *Thyroid*. Epub

2022 Jan 11. PMID: 34915770.

SUMMARY OF THE STUDY

The study was done at a university hospital in China. Researchers reviewed information from 2016 to 2019 retrospectively. They included information from women who were pregnant with a single baby and presented before the eighth week of pregnancy who had thyroid function tests and TPO antibodies measured. Mothers who had heart, liver, kidney disease or blood disorders were excluded.

Children were assigned to five different groups based on the mothers' TSH levels and whether their mothers were treated with thyroid hormone. TPO antibodies were negative in all groups. Group A had TSH levels between 2.5 and 4 mIU/L, Group B had TSH levels 4 - 10 mIU/L. Groups A and B were treated with thyroid hormone (levothyroxine). Group C had TSH 2.5 - 4 mIU/L and Group D had TSH 4-10 mIU/L. Group C and D were not treated with levothyroxine. Group E had TSH levels less than 2.5 mIU/L (normal) and not treated with levothyroxine. This was the normal/control group. When the children reached 2 years of age, their development was evaluated by expert psychiatrists. Motor skills, language, adaptability and social skills were assessed and reported as a development quotient (DQ)

Ultimately, 139 children were included in the final analysis. A total of 112 had mothers with TPOAb-negative subclinical hypothyroidism and 27 mothers had normal thyroid tests. Group A (n=31), Group B (n=26), Group C (n=27), Group D (n=28), and Group E (n=27). Only Group D had a lower DQ compared to group E and the difference was similar in all areas of development. While there was no difference between groups A and C, the difference between groups B and D was significant. Another significant association was between the mother's baseline TSH level and the DQ, when the TSH was



THYROID AND PREGNANCY, continued

higher the DQ was lower. The mother's education and TSH levels were risk factors that affected the child's intellectual development.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The authors concluded that the brain development of children whose mothers had subclinical hypothyroidism without TPO antibodies during early pregnancy was related to the level of TSH. Children whose mothers had TSH levels above 4 mIU/L with negative TPO

antibodies who were not treated, had problems with brain development. Thyroid hormone treatment before the eighth week of pregnancy significantly improved brain development.

The findings of this study support treating mild hypothyroidism in early pregnancy, but further research is needed. The screening and treatment approaches for mild hypothyroidism in early pregnancy would significantly change if these benefits are confirmed in larger studies.

— Ebru Sulanc, MD

ATA THYROID BROCHURE LINKS

Thyroid Disease in Pregnancy: <https://www.thyroid.org/thyroid-disease-pregnancy/>

Thyroid Function Tests: <https://www.thyroid.org/thyroid-function-tests/>

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

ABBREVIATIONS & DEFINITIONS

Subclinical Hypothyroidism: a mild form of hypothyroidism where the only abnormal hormone level is an increased TSH. There is controversy as to whether this should be treated or not.

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

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.

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.

TPO antibodies: these are antibodies that attack the thyroid instead of bacteria and viruses, they are a marker for autoimmune thyroid disease, which is the main underlying cause for hypothyroidism and hyperthyroidism in the United States.



HYPOTHYROIDISM

No benefit of levothyroxine in women with recurrent pregnancy loss with normal thyroid function despite positive thyroid antibodies

BACKGROUND

Miscarriage or pregnancy loss is unfortunately relatively common and can occur in about 2 to 3% of pregnancies. Untreated hypothyroidism is a risk factor for miscarriage and this increased risk is reduced by treatment with levothyroxine. The presence of thyroid antibodies, specifically thyroid peroxidase antibody (TPO) is also one of the factors associated with pregnancy loss, even when the thyroid levels are normal. TPO antibodies are a marker for autoimmune thyroid disease and is the antibody found in patients with Hashimoto's thyroiditis. It is not clear that treatment with thyroid hormone prevents miscarriage in women with thyroid autoimmunity alone. This study was done to find out if treatment with thyroid hormone in women with history of previous pregnancy losses and TPO antibodies but normal thyroid function helps prevent miscarriage.

THE FULL ARTICLE

Van Dijk MM et 2022 Levothyroxine in euthyroid thyroid peroxidase antibody positive women with recurrent pregnancy loss (T4LIFE trial): A multicentre, randomized, double-blind, placebo-controlled, phase 3 trial. *Lancet Diabetes Endocrinol*. Epub 2022 Mar 14. PMID: 35298917.

SUMMARY OF THE STUDY

A total of 187 women between 18 and 42 years old, from 15 different hospitals in Denmark, Netherlands

and Belgium participated in the study. All women had a history of pregnancy loss (two or more pregnancy losses). They had normal levels of thyrotropin hormone (TSH) indicative of normal thyroid function and positive TPO antibodies. The participants were divided in two groups. One group received levothyroxine at a dose according to their weight and level of TSH. The other group received placebo (no medication). The average age in both groups was similar: 34.9 years old for the treated group and 33.7 years old for the placebo group. TSH levels were also similar in both groups. At the end of the study there was no difference in live birth rates (babies born after 24 weeks of gestation), pregnancy loss, or preterm birth (birth before 37 weeks' gestation) between the two groups of patients.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study confirms previous studies showing that treatment with thyroid hormone in women with history of pregnancy loss and TPO antibodies but normal thyroid function does not prevent miscarriage. Based on the current scientific evidence, thyroid hormone treatment should not be routinely offered to pregnant women with normal thyroid function.

— Susana Ebner MD

ATA THYROID BROCHURE LINKS

Thyroid Disease in Pregnancy: <https://www.thyroid.org/thyroid-disease-pregnancy/>

Thyroid Hormone Treatment: <https://www.thyroid.org/thyroid-hormone-treatment/>

Hashimoto's Thyroiditis: <https://www.thyroid.org/hashimotos-thyroiditis/>



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.

Hashimoto's thyroiditis: the most common cause of hypothyroidism in the United States. It is caused by antibodies that attack the thyroid and destroy it.

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

TPO antibodies: these are antibodies that attack the thyroid instead of bacteria and viruses, they are a marker for autoimmune thyroid disease, which is the main underlying cause for hypothyroidism and hyperthyroidism in the United States.



HYPOTHYROIDISM

Treatment of mild hypothyroidism in older adults does not affect anemia

BACKGROUND

Subclinical, or mild, hypothyroidism is a common condition where the TSH level is increased but the thyroid hormone levels are normal. Patients with subclinical hypothyroidism often have multiple symptoms, including fatigue and decreased energy. It is unclear whether there are any benefits to treating patients with subclinical hypothyroidism, as often symptoms are not changed with thyroid hormone treatment. This is especially true in the elderly, where some studies have shown that a mildly increased TSH may be beneficial. Further, symptoms attributed to subclinical hypothyroidism can also be caused by other medical problems. One such medical problem is anemia, a condition where red blood cells and/or hemoglobin are low. Symptoms of anemia often include fatigue, weakness, and decreased energy.

Both subclinical hypothyroidism and anemia are common in the elderly. In addition, prior studies have shown that patients with subclinical hypothyroidism may have lower hemoglobin levels compared to persons with normal thyroid function. It is unclear whether the lower hemoglobin levels are caused by the subclinical hypothyroidism. The aim of this study was to assess whether hemoglobin levels improved after treating subclinical hypothyroidism with levothyroxine in older adults.

THE FULL ARTICLE TITLE

Du Puy RS et al 2022 No effect of levothyroxine on hemoglobin in older adults with subclinical hypothyroidism: Pooled results from two RCTs. *J Clin Endocrinol Metab*. Epub 2022 Feb 26. PMID: 35218666.

SUMMARY OF THE STUDY

Data for this study were collected from two previously completed clinical trials that were done to explore the

effects of treating subclinical hypothyroidism in older adults; the Thyroid hormone Replacement for Untreated older adults with Subclinical hypothyroidism Trial (TRUST) and the Institute for Evidence-Based Medicine in Old Age (IEMO) 80-plus Thyroid Trial. The study included 669 patients with subclinical hypothyroidism divided into 332 patients that were treated with levothyroxine and 337 patients that received a placebo (a dummy pill with no hormone/medication). All participants were ≥ 65 years of age and the average hemoglobin level was 13.8 g/dl. Only 69 participants had anemia at baseline, which was defined as hemoglobin <12 g/dl for women and <13 g/dl for men. As expected, the patients that received levothyroxine had a TSH in the normal range while the placebo group continued to have an increased TSH. The study found that the change in the hemoglobin level was no different between the levothyroxine and placebo groups after 12 months of follow-up. This was true even for patients who had anemia at baseline.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study showed that treatment of subclinical hypothyroidism with levothyroxine in those ≥ 65 years of age did not lead to an increase in hemoglobin levels, regardless of the presence of anemia. These findings have implications for clinical practice as oftentimes patients present with nonspecific symptoms and may incidentally be found to have subclinical hypothyroidism and/or anemia. These results suggest that anemia is not an indication to treat subclinical hypothyroidism. This is particularly important for the older adult population for whom risks of treating mild (subclinical) hypothyroidism can often outweigh the benefits.

— Abdul Karim Arida, MD,
and Maria Papaleontiou, MD



HYPOTHYROIDISM, continued

ATA THYROID BROCHURE LINKS

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

Older Patients and Thyroid Disease: <https://www.thyroid.org/thyroid-disease-older-patient/>

Thyroid Hormone Treatment: <https://www.thyroid.org/thyroid-hormone-treatment/>

Thyroid Function Tests: <https://www.thyroid.org/thyroid-function-tests/>

ABBREVIATIONS & DEFINITIONS

Subclinical Hypothyroidism: a mild form of hypothyroidism where the only abnormal hormone level is an increased TSH. There is controversy as to whether this should be treated or not.

Anemia: low blood count, specifically low levels of red blood cells which carry oxygen around to all of the cells in the body. Fatigue is a common symptom of anemia..

Hemoglobin: the protein in red blood cells that binds oxygen to carry around to all the cells in the body. Hemoglobin levels are low with anemia.

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.



HYPERTHYROIDISM

Is thyroid storm a concern when operating on hyperthyroid patients?

BACKGROUND

Hyperthyroidism is a condition where the thyroid gland is overactive and produces too much thyroid hormone. The body's metabolism is speeded up and many organ symptoms are affected, including the heart, muscles, liver and brain. The most extreme and severe result of hyperthyroidism is known as thyroid storm. It is rare and usually associated with some other medical problem. Thyroid storm can result in heart failure and liver failure and can cause death in 25% of patients. Hyperthyroidism can be effectively treated with antithyroid drugs, thyroid surgery or radioactive iodine.

Patients with hyperthyroidism may need to have surgery for non-thyroid reasons. If surgery is needed, it usually is recommended that the hyperthyroidism be treated until thyroid hormone levels are normal (euthyroidism) first. However, the data to support this recommendation is not strong and occasionally urgent surgery is needed in a hyperthyroid patient while their hyperthyroidism is not yet controlled. There have been case reports of thyroid storm occurring in hyperthyroid patients after non-thyroid surgery. This study was done to review the literature regarding adult patients with hyperthyroidism who have surgery and determine whether there is evidence for any treatment prior to surgery to decrease the risk of thyroid storm.

THE FULL ARTICLE TITLE

de Mul N et al 2021 Risk of perioperative thyroid storm in hyperthyroid patients: A systematic review. *Br J Anaesth* 127:879–889. PMID: 34389171.

SUMMARY OF THE STUDY

This study was a review of the medical literature. A total of 7692 studies were reviewed, but only 57 studies were felt adequate to include in analysis. Most of the studies were of patients undergoing thyroid surgery. The analysis was separated into 5 groups:

Group 1 included untreated hyperthyroid patients, all were single case reports and 5 of 8 patients described developed thyroid storm.

Group 2 included patients treated with antithyroid medications, included 1 series of 272 patients, 1 of whom was switched to iodine and developed thyroid storm.

Group 3 included a total of 290 patients treated only with beta-blockers, none of whom developed thyroid storm.

Group 4 included 25 studies of patients treated with a combination of medications, overall, with 3 patients developing thyroid storm

Group 5 consisted of multiple studies that compared different treatments, none of the patients developed thyroid storm.

They also remarked on two studies of 288 and 266 patients, respectively, who were treated in variable ways, and found no difference in outcome whether patients achieved normal thyroid levels or not prior to surgery.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Overall, this study does not identify a specific treatment to recommend before surgery to avoid the complication of thyroid storm. Even when normal thyroid hormone levels are not attained before surgery, the risk of thyroid storm is low. However, it is still recommended that patients be treated and their hyperthyroidism controlled before considering elective surgery, particularly in patients in whom the complications of hyperthyroidism are severe. Patients need to be evaluated individually and discuss with their care team the risks and benefits of surgery when they are hyperthyroid.

— Marjorie Safran, MD



HYPERTHYROIDISM, continued

ATA THYROID BROCHURE LINKS

Hyperthyroidism (Overactive): <https://www.thyroid.org/hyperthyroidism/>

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.

Euthyroid: a condition where the thyroid gland is working normally and producing normal levels of thyroid hormone.

Thyroid storm: the most extreme and severe result of hyperthyroidism. It is rare and usually associated with some other medical problem. Thyroid storm can result in heart failure and liver failure and can cause death in 25% of patients.





THYROID CANCER

Radiofrequency ablation for thyroid papillary microcarcinoma

BACKGROUND

By 2030, thyroid cancer will be the fourth-leading cancer diagnosis. Most of these new cases will be small (<1 cm), early-stage papillary thyroid microcarcinomas (mPTCs). Most cases of mPTCs are very slow-growing and rarely spread, raising the question as to how these cancers should be treated. While surgery is almost always curative, it is unclear if surgery is always needed. Surgery does have a small risk of complications such as hypoparathyroidism and damage to the recurrent laryngeal nerve, which can lead to loss of one's voice and breathing difficulty. Because of this, many experts feel that surgery is not always required for mPTCs. In fact, in 2015, the American Thyroid Association thyroid cancer guidelines recommended that close monitoring of mPTCs without surgery, called active surveillance, could be used as an alternative to surgery.

Radiofrequency ablation (RFA) is a nonsurgical, minimally invasive technique that has been shown to shrink thyroid nodules. RFA uses a needle inserted into the nodule that uses alternating electromagnetic current to generate heat to destroy thyroid cells. RFA lies in between surgery and active surveillance. It is less invasive than surgery yet may be a suitable treatment option for those who do not wish to pursue active surveillance alone. Currently, the literature lacks large-scale studies examining the effectiveness of RFA in treating mPTCs. The primary goal of this article was to analyze the efficacy and safety of RFA for low-risk mPTC.

THE FULL ARTICLE TITLE

van Dijk SPJ et al Assessment of radiofrequency ablation for papillary microcarcinoma of the thyroid: A systematic

review and meta-analysis JAMA Otolaryngol Head Neck Surg. Epub 2022 Feb 10

SUMMARY OF THE STUDY

The authors performed a meta-analysis, which is a statistical method combining results of multiple similar studies, of adult patients treated with RFA for mPTC that had not spread beyond the thyroid gland. A total of 1770 patients from 15 different studies (11 from China and 4 from South Korea) were included in the meta-analysis.

The average follow-up time was 33 months. The cancer completely disappeared in 79% of patients with mPTC after RFA. Only 26 (1.5%) patients showed growth of the cancer after RFA — of those 7 (0.4%) had growth in the area of the original cancer, 15 (0.9%) developed new cancers in the thyroid and 4 (0.2%) developed cancer in the lymph nodes of the neck. No patients treated with RFA developed distant spread of their thyroid cancer, and only 0.17% of patients suffered complications from the RFA procedure itself, all of which resolved on their own after 3 months.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study supports RFA as a safe, effective and minimally invasive treatment for low-risk papillary microcarcinoma. RFA, when used along with active surveillance, has the potential to reshape current treatment for mPTC.

— Philip Segal, MD

ATA THYROID BROCHURE LINKS

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



THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

Radiofrequency ablation: A procedure that uses radio waves to heat and destroy abnormal cells. The radio waves travel through electrodes (small devices that carry electricity). Radiofrequency ablation may be used to treat cancer and other conditions.

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.



THYROID CANCER

Adrenal insufficiency in patients being treated with Lenvatinib for thyroid cancer

BACKGROUND

Most patients with thyroid cancer do well as we have very effective treatments. Surgery often is the only treatment needed. If the patient has persistent cancer or is at high risk of the cancer returning, radioactive iodine therapy is effective at killing thyroid cancer cells left behind after surgery or when the cancer moves outside of the neck. However, in some patients, the thyroid cancer is resistant to these 2 highly effective treatments and chemotherapy drugs are needed.

Lenvatinib is a chemotherapy drug that is effective against advanced thyroid cancer that is not responsive to other treatments. It has been shown to improve survival in these patients with advanced thyroid cancer. Patients receiving this medication often develop side effects including fatigue (59%), loss of appetite (50%) and weight loss (46%). These symptoms can also be seen in patients with another endocrine disorder known as adrenal insufficiency. Adrenal insufficiency is a steroid deficiency resulting from reduced adrenal steroid synthesis. The diagnosis of adrenal insufficiency is commonly delayed because of the nonspecific nature of its associated symptoms. Early identification and treatment are of high importance, since untreated adrenal insufficiency can be deadly. A prior study described adrenal insufficiency in 4 of 7 patients treated with lenvatinib. This study describes a patient with adrenal insufficiency while taking lenvatinib and discusses the natural history of adrenal insufficiency in patients undergoing this treatment.

THE FULL ARTICLE TITLE

Monti S et al 2022 Cortisol deficiency in lenvatinib treatment of thyroid cancer: An underestimated common adverse event. *Thyroid* 32:46–53. PMID: 34663079

SUMMARY OF THE STUDY

Patients with advanced thyroid cancer were studied. The study was conducted in Italy and involved a review of the medical records. The patients in the study had received lenvatinib for at least a period of 6 months between June 2017 and November 2019. Adrenal gland function was assessed before starting therapy and every 3 months with a test called the ACTH stimulation test. Patients who were diagnosed with an insufficiency of the adrenal gland were started on treatment with steroids.

It was shown based on laboratory testing that about half the patients receiving the medication Lenvatinib were diagnosed with adrenal insufficiency. All patients who developed this side effect were above the age of 60 years. The patients who were diagnosed with this condition were started on steroid therapy. A majority of them reported improvement in symptoms of fatigue.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows us that it would be important to look at the diagnosis of adrenal insufficiency in patients who are experiencing symptoms such as fatigue who are being treated with chemotherapy. If diagnosed with adrenal insufficiency, treatment with steroids may help reduce symptoms from this condition.

—Vibhavasu Sharma, MD, FACE

ATA THYROID BROCHURE LINKS

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



THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

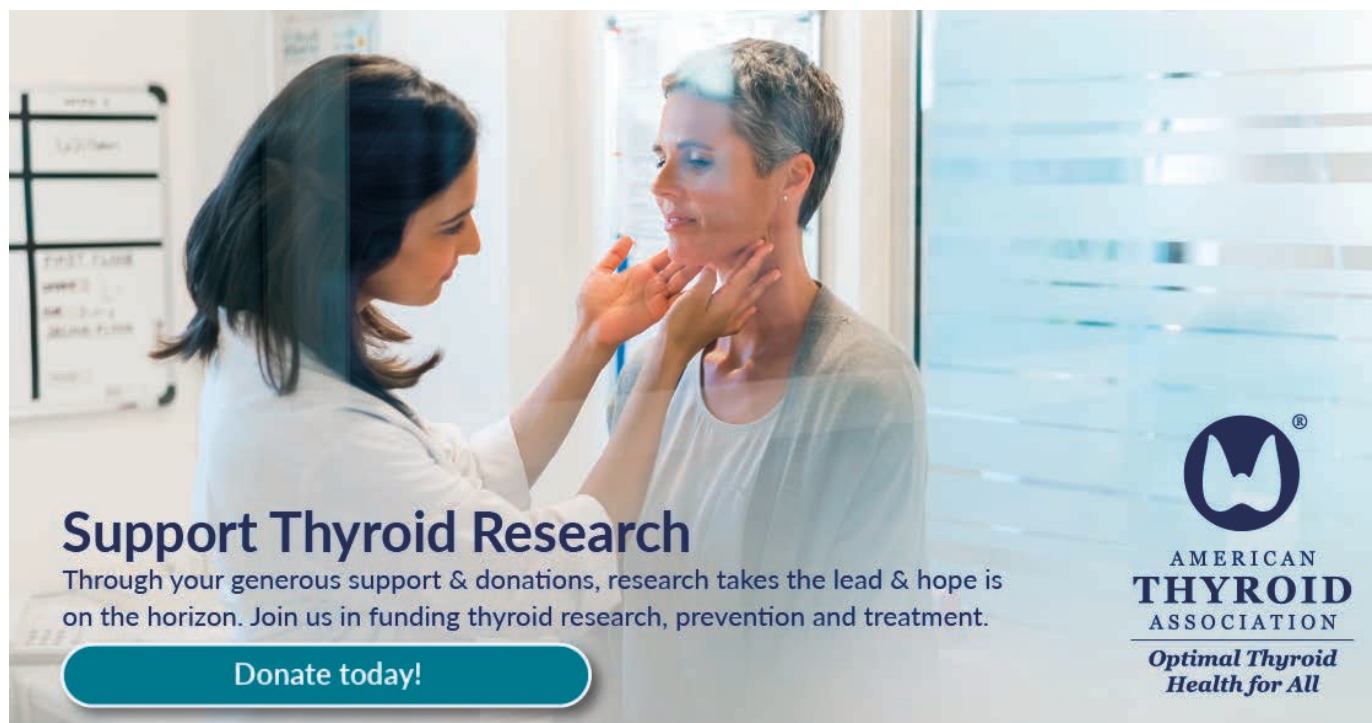
Thyroidectomy: surgery to remove the entire thyroid gland. When the entire thyroid is removed it is termed a *total thyroidectomy*. When less is removed, such as in removal of a lobe, it is termed a *partial thyroidectomy*.

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*).

Lervatinib: an anticancer drug that has been shown to be effective in thyroid cancer.


Adrenal insufficiency: a steroid deficiency resulting from reduced adrenal steroid synthesis. It is often caused by an autoimmune process (Addison's disease) but also may be caused by medications.



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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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ThyCa: Thyroid Cancer
Survivors' Association, Inc.™
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Cancer de la thyroïde Canada



Thyroid
Federation
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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 Cancer Alliance

www.thyroidcanceralliance.org

www.thyroidcancerpatientinfo.org

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Thyroid Cancer Canada

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416-487-8267

info@thyroidcancer canada.org

Thyroid Federation International

www.thyroid-fed.org

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