

# Clinical Thyroidology<sup>®</sup> for the Public



AMERICAN THYROID ASSOCIATION  
Optimal Thyroid Health for All



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Constantinescu SM et al Significance of thyroperoxidase and thyroglobulin antibodies in medically treated Graves' disease. *Eur Thyroid J* 2023;12(6):e230193; doi: 10.1530/ETJ-23-0193. PMID: 37930957.

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Hashimoto's thyroiditis is a chronic autoimmune inflammatory process which means that the body makes antibodies that attack and destroy the thyroid. Selenium is a mineral found naturally in various foods that is important for making thyroid hormones and for normal thyroid function. Some studies have suggested that selenium supplementation may help stop the progression of Hashimoto's thyroiditis and slow the onset of hypothyroidism. This study is an analysis of prior studies that have been done to evaluate the effect of selenium supplementation on markers of thyroid function in patients with Hashimoto's thyroiditis.

Huwiler VV et al. Selenium supplementation in patients with Hashimoto thyroiditis: a systematic review and meta-analysis of randomized clinical trials. *Thyroid*. Epub 2024 Feb 16. doi: 10.1089/thy.2023.0556. PMID: 38243784.

### THYROID IN PREGNANCY.....7

#### Does treating subclinical hypothyroidism in pregnancy with levothyroxine improve pregnancy outcomes?

Overt hypothyroidism in pregnancy should always be treated with levothyroxine. However, despite multiple studies examining the subclinical hypothyroidism during pregnancy, it is still not clear whether subclinical hypothyroidism in pregnancy causes problems and whether treating subclinical hypothyroidism would improve these outcomes. The authors of this study evaluated findings of currently available trials to assess whether treating subclinical hypothyroidism in pregnancy with levothyroxine can improve poor pregnancy outcomes.

Sankoda A et al. Effects of levothyroxine treatment on fertility and pregnancy outcomes in subclinical hypothyroidism: a systematic review and meta-analysis of randomized

controlled trials. *Thyroid* Epub 2024 Feb 18; doi: 10.1089/thy.2023.0546. PMID: 38368537

### THYROID CANCER.....9

#### The significance of the BRAF V600E mutation in Papillary Thyroid Cancer

In the past decade, significant research has focused on the role of key genetic mutations in cancer cells that influence cancer behavior. One such mutation in papillary thyroid cancer is the BRAF V600E mutation which has been observed in 27-87% of all papillary thyroid cancers. The present study examines whether the BRAF V600E mutation is associated with more aggressive papillary thyroid cancer.

Lai HF et al BRAF V600E mutation lacks association with poorer clinical prognosis in papillary thyroid carcinoma. *Ann Surg Oncol*. Epub 2024 Feb 1; doi: 10.1245/s10434-024-14935-4. PMID: 38300401.

### THYROID CANCER.....11

#### Quality of life of patients after thyroid surgery and radioactive iodine treatment for thyroid cancer

The vast majority of patients with the most common thyroid of thyroid cancer do very well as thyroid cancer generally tends to have very good outcomes. Because patients with thyroid cancer do so well, in recent years there has been an important discussion about the impact on the quality of life of these patients after thyroid surgery and radioactive iodine treatment for thyroid cancer. This study was done to look at the standardized quality of life scores in patients with thyroid cancer.

Winter J et al. Five-year follow-up of health-related quality of life in differentiated thyroid cancer patients treated with total thyroidectomy and radioiodine in Sweden: A nationwide prospective cohort study. *Thyroid* 2024 Apr 5. Epub ahead of print; doi: 10.1089/thy.2023.0691. PMID: 38526369.

### THYROID CANCER.....13

#### Age affects cancer growth in patients with papillary thyroid microcarcinoma under active surveillance

Many of the thyroid cancers identified are small cancers (<1 cm), called papillary thyroid microcarcinoma. Recently, the option of following these small cancers with serial thyroid ultrasounds and deferring initial surgery until the cancer grows, called active surveillance, has become more common. Using periodic ultrasound studies to determine cancer volume-doubling rate, this study was performed to examine the age-related cancer volume changes of papillary thyroid microcarcinomas under an active surveillance protocol.

Yamamoto M et al. Tumor volume-doubling rate is negatively associated with patient age in papillary thyroid microcarcinomas under active surveillance. *Surgery* 2023;S0039-6060(23)00887-5; doi: 10.1016/j.surg.2023.11.022. PMID: 38142143.



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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 X (previously known as Twitter) at [@thyroidfriends](https://twitter.com/thyroidfriends) and on [Facebook](https://www.facebook.com/thyroidfriends). 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](http://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.

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

**In this issue, the studies ask the following questions:**

- Does measuring thyroid antibodies help in managing patients with Graves' disease?
- Does selenium supplementation prevent hypothyroidism in Hashimoto's Thyroiditis?
- Does treating subclinical hypothyroidism in pregnancy with levothyroxine improve pregnancy outcomes?
- Does the *BRAF V600E* mutation in papillary thyroid cancer change cancer prognosis?
- Does thyroidectomy and radioactive iodine therapy affect quality of life in patients with thyroid cancer?
- Does age affect cancer growth in thyroid cancer patients under active surveillance?

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



## GRAVES' DISEASE

### Thyroid antibody tests in the management of Graves' disease

#### BACKGROUND

Graves' disease is the most common cause of hyperthyroidism in the United States. Graves' disease is an autoimmune disease, meaning that the body makes antibodies that attack and turn on the thyroid, causing the hyperthyroidism. Graves' disease is often treated with antithyroid drugs and may go into remission if the antibodies decrease or go away. These antibodies can be measured in the blood and have become valuable in confirming the diagnosis of Graves' disease and in determining relapse risk and duration of antithyroid drug treatment. Also, despite frequently elevated levels of other thyroid-directed antibodies such as thyroperoxidase (TPOAb) and thyroglobulin (TgAb), the role of these antibodies in the diagnosis and treatment of Graves' disease is unclear.

In this study, the researchers investigate the association between TPOAb and TgAb concentrations and disease relapse in patients with newly diagnosed Graves' disease managed with antithyroid drugs.

#### THE FULL ARTICLE TITLE

Constantinescu SM et al Significance of thyroperoxidase and thyroglobulin antibodies in medically treated Graves' disease. *Eur Thyroid J* 2023;12(6):e230193; doi: 10.1530/ETJ-23-0193. PMID: 37930957.

#### SUMMARY OF THE STUDY

The study was done at a single Medical Center with a review of 136 adult patients treated for their first episode of Graves' disease. Most of these patients were on

antithyroid drugs-methimazole. Majority of the patients were white and female and their average age was 41 years. The average duration of treatment with antithyroid medications was about 18 months. The average duration of follow-up was 44 months and during this time, 54.4% of patients had a relapse. The average time to relapse was 9.0 months after stopping the antithyroid medications.

TPOAb and TgAb positivity were common at diagnosis (72% and 54%, respectively). TPOAb-positive patients were younger at diagnosis than TPOAb-negative patients and thyroid eye disease was less frequent in TgAb-positive patients than in TgAb-negative patients. TPOAb or TgAb positivity at diagnosis was not associated with average time to returning thyroid levels to normal or risk of relapse. In the total group, relapse after stopping antithyroid drugs was associated with higher TPOAb and TgAb titers at baseline and at the end of treatment, the presence of thyroid eye disease, and longer time to reach normal thyroid levels.

#### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study demonstrates the utility of thyroid antibody testing in the management of Graves' disease. It helps predict the occurrence of some complications such as thyroid eye disease and the risk of relapse of Graves' disease in a patient who has been treated with antithyroid drugs. Laboratory studies would be needed to further understand the role of these antibodies in the management of patients with this diagnosis.

—Vibhaavsu Sharma,MD,FACE

#### ATA RESOURCES

Graves' Disease: <https://www.thyroid.org/graves-disease/>

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



## GRAVES' DISEASE, continued

### 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.

**Thyroid eye disease (TED):** also known as Graves ophthalmopathy. TED is most often seen in patients with Graves' disease but also can be seen with Hashimoto's thyroiditis. TED includes inflammation of the eyes, eye muscles and the surrounding tissues. Symptoms include dry eyes, red eyes, bulging of the eyes and double vision.

**TPO antibodies (TPOAb):** 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.

**Thyroglobulin antibodies (TgAb):** 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

# Does selenium supplementation prevent hypothyroidism in Hashimoto's Thyroiditis?

### BACKGROUND

Hashimoto's thyroiditis is a chronic autoimmune inflammatory process which means that the body makes antibodies that attack and destroy the thyroid. This inflammatory process will lead to hypothyroidism over time. Indeed, Hashimoto's thyroiditis is the most common cause of hypothyroidism in the United States. Women are 10-fold more at risk of having Hashimoto's thyroiditis than men.

Selenium is a mineral found naturally in various foods that is important for making thyroid hormones and for normal thyroid function. It is needed in small amounts by the body. Selenium also carries antioxidant benefits which helps to fight inflammation. Hashimoto's thyroiditis has been associated with low selenium. Some studies have suggested that selenium supplementation may help stop the progression of Hashimoto's thyroiditis and slow the onset of hypothyroidism. This study is a systematic review and analysis of prior studies that have been done to evaluate the effect of selenium supplementation on markers of thyroid function in patients with Hashimoto's thyroiditis.

### THE FULL ARTICLE TITLE

Huwiler VV et al. Selenium supplementation in patients with Hashimoto thyroiditis: a systematic review and meta-analysis of randomized clinical trials. *Thyroid*. Epub 2024 Feb 16. doi: 10.1089/thy.2023.0556. PMID: 38243784.

### SUMMARY OF THE STUDY

The authors conducted a systematic review and analysis of trials that have evaluated the effect of selenium supplementation on markers of thyroid function, such as thyrotropin (TSH), free thyroxine (FT4), total triiodothyronine (TT3), and free triiodothyronine (FT3) and antithyroid antibody levels, either thyroid peroxidase autoantibodies (anti-TPOAb) or thyroglobulin autoantibodies

(TgAbs). A total of 687 articles were reviewed and 35 were identified and analyzed. From those, 18 studies checked blood selenium levels at baseline. Participants were severely selenium-deficient in 9 of these studies (50%), mildly deficient in 7 studies (39%), and only selenium-sufficient in 2 studies (11%). Of all the 35 studies, 30 studies (86%) diagnosed Hashimoto's thyroiditis using the presence of anti-TPOAb. The studies ranged from 2 to 12 months.

This study showed that selenium supplementation was associated with slightly lower serum TSH than in controls in participants not using thyroid hormone. The one study that showed the strongest effect of selenium supplementation used 200 µg/day of selenium for 6 months. The study showed that after supplementation with selenium, serum TSH was 2.4 mIU/L vs 3.24 mIU/L prior to selenium supplementation. There was no significant change in FT3 levels after selenium supplementation as compared to controls. Similarly, there were no significant changes in FT4, anti-TgAb, or thyroid volume on ultrasonography, and adverse events with the use of selenium supplementation. The study also noted lower anti-TPOAb in patients with and without thyroid hormone therapy.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The authors conclude that selenium supplementation in patients with Hashimoto's thyroiditis was associated with slightly reduced serum TSH levels and anti-TPOAb levels. This study raises important questions about the autoimmune process that causes Hashimoto's thyroiditis and whether selenium supplementation can delay progression or even prevent hypothyroidism in the future. Since data is still limited, further studies are needed to clearly examine the effect of selenium supplementation on slowing the onset of hypothyroidism.

— Joanna Miragaya, MD



## HYPOTHYROIDISM, continued

### ATA RESOURCES

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

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

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

### ABBREVIATIONS & DEFINITIONS

**Autoimmune thyroid disease:** a group of disorders that are caused by antibodies that get confused and attack the thyroid. These antibodies can either turn on the thyroid (Graves' disease, hyperthyroidism) or turn it off (Hashimoto's thyroiditis, hypothyroidism).

**Selenium:** a mineral found naturally in various foods that is important for making thyroid hormones and for normal thyroid function. It is needed in small amounts by the body.

**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 the gland.

**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.

**Thyroxine (T4):** the major hormone produced by the thyroid gland. T4 gets converted to the active hormone T3 in various tissues in the body.

**Triiodothyronine (T3):** the active thyroid hormone, usually produced from thyroxine.

**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.

**Thyroglobulin 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.



## THYROID IN PREGNANCY

# Does treating subclinical hypothyroidism in pregnancy with levothyroxine improve pregnancy outcomes?

### BACKGROUND

Thyroid hormone plays an important role in development and growth of the baby during pregnancy. Low thyroid hormone levels (hypothyroidism) can increase risks of poor pregnancy outcomes, such as preterm birth or pregnancy loss/miscarriage. As such, overt hypothyroidism (high blood thyroid stimulating hormone (TSH) level with low free thyroxine (FT4) level) in pregnancy should always be treated with levothyroxine. However, despite multiple studies examining the subclinical hypothyroidism during pregnancy, it is still not clear whether subclinical hypothyroidism (slightly high TSH with normal FT4 levels) in pregnancy causes similar problems and whether treating subclinical hypothyroidism would improve these outcomes. It is clear that subclinical hypothyroidism is much more common during pregnancy than overt hypothyroidism.

The authors of this study evaluated findings of currently available trials to assess whether treating subclinical hypothyroidism in pregnancy with levothyroxine can improve poor pregnancy outcomes.

### THE FULL ARTICLE TITLE

Sankoda A et al. Effects of levothyroxine treatment on fertility and pregnancy outcomes in subclinical hypothyroidism: a systematic review and meta-analysis of randomized controlled trials. *Thyroid* Epub 2024 Feb 18; doi: 10.1089/thy.2023.0546. PMID: 38368537

### SUMMARY OF THE STUDY

In this study, the authors combined data from currently available clinical trials evaluating the effect of levothyroxine treatment, either started before pregnancy or during early pregnancy (within the 1st 20 weeks of pregnancy). Subclinical hypothyroidism was defined as a TSH >2.5mIU/L (high normal) with a normal FT4. Subgroup analyses were also done separating participants with TSH between 2.5-4mIU/L and those with a TSH >4.0mIU/L

(clearly elevated). A total of 5 studies including a total of 763 patients were used for analysis of levothyroxine treatment starting before pregnancy, and 8 studies including a total of 2622 patients were used for analysis of levothyroxine treatment starting in early pregnancy.

This analysis showed that treating subclinical hypothyroidism with levothyroxine before pregnancy did not improve live birth, pregnancy, or miscarriage rates. However, the studies only included women undergoing infertility treatment. Only one of these studies had data for subgroup analysis, which showed treating with levothyroxine improved live birth rate in women with TSH >4.0mIU/L, but not in women with TSH between 2.5-4.0mIU/L.

Treating subclinical hypothyroidism with levothyroxine during early pregnancy also did not improve live birth, miscarriage, or preterm birth rates. However, subgroup analysis showed that levothyroxine may be helpful in certain situations. One study showed that treating pregnant women with history of multiple miscarriages and subclinical hypothyroidism decreased miscarriage rate by half. Treating pregnant women with TSH >4.0mIU/L decreased preterm birth rate by half, while preterm birth rate did not change in pregnant women with TSH between 2.5-4.0mIU/L.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The authors concluded that levothyroxine treatment for subclinical hypothyroidism before pregnancy or during early pregnancy before 20 weeks did not improve pregnancy rate or pregnancy outcomes. However, levothyroxine treatment did decrease miscarriage rate in women with multiple miscarriages and decreased preterm birth rate in women with TSH >4.0mIU/L. While we still do not have clear answers to a tricky question of whether to treat subclinical hypothyroidism in pregnancy, based on



## THYROID IN PREGNANCY, continued

subgroup analyses, treating subclinical hypothyroidism may be beneficial in women with multiple miscarriages or with TSH >4mIU/L, the cutoff for abnormal TSH in

pregnancy per the most recent 2017 American Thyroid Association guidelines.

— Sun Y. Lee, MD, MSc

### ATA RESOURCES

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

### ABBREVIATIONS & DEFINITIONS

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

**Overt Hypothyroidism:** clear hypothyroidism an increased TSH and a decreased T4 level. All patients with overt hypothyroidism are usually treated with thyroid hormone pills.

**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.

**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.

**Thyroxine (T4):** the major hormone produced by the thyroid gland. T4 gets converted to the active hormone T3 in various tissues in the body.

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

**Miscarriage:** this occurs when a baby dies in the first few months of a pregnancy, usually before 22 weeks of pregnancy.





## THYROID CANCER

# The significance of the *BRAF* V600E mutation in Papillary Thyroid Cancer

### BACKGROUND

Papillary thyroid cancer is the most common type of thyroid cancer, and fortunately, it has an excellent prognosis with nearly a 90-100% survival rate. However, papillary thyroid cancer can recur. It is estimated that 10-20% of patients experience a recurrence over 10 years. To identify patients with a higher risk of recurrence, risk scores have been developed and high risk patients often receive additional treatment after surgery, such as radioactive iodine therapy. These risk scores consider factors like sex, age, cancer size, and the spread of cancer to lymph nodes and distant organs.

In the past decade, significant research has focused on the role of key genetic mutations in cancer cells that influence cancer behavior. One such mutation in papillary thyroid cancer is the *BRAF* V600E mutation. This mutation has been observed in 27-87% of all papillary thyroid cancers. Some studies have found that cancers with the *BRAF* V600E mutation have a higher risk of spread and recurrence. However, the evidence is conflicting, as other studies have shown that the *BRAF* V600E mutation is not associated with more aggressive cancer.

Given these conflicting results, the present study examines whether the *BRAF* V600E mutation is truly associated with more aggressive papillary thyroid cancer.

### THE FULL ARTICLE TITLE

Lai HF et al *BRAF* V600E mutation lacks association with poorer clinical prognosis in papillary thyroid carcinoma. *Ann Surg Oncol*. Epub 2024 Feb 1; doi: 10.1245/s10434-024-14935-4. PMID: 38300401.

### SUMMARY OF THE STUDY

The authors studied patients with papillary thyroid cancer treated at a single institute in Taipei, Taiwan. They reviewed the records of 672 patients (74.3% female) treated between 2013 and 2018. Among these patients, 76.8% had cancers that were positive for the *BRAF* V600E mutation. Then they examined whether cancers with the *BRAF* V600E mutation had a higher risk of local spread within the neck near the thyroid, spread to lymph nodes, spread to distant organs, and cancer recurrence. Unexpectedly, they found that cancers without the *BRAF* V600E mutation were associated with larger primary cancer size, distant spread, and more advanced stages. Recurrence rates (disease-free survival) were similar between patients with and without the *BRAF* V600E mutation.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In this study, cancers without the *BRAF* V600E mutation were found to be more aggressive. This makes us question the importance of testing for the *BRAF* V600E mutation in papillary thyroid cancer, since having this mutation doesn't mean the cancer will be worse. More research is needed to understand this better.

— Phillip Segal, MD

### ATA RESOURCES

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



## 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).

**BRAF gene:** this is gene that codes for a protein that is involved in a signaling pathway and is important for cell growth. Mutations in the *BRAF* gene in adults appear to cause cancer.

**Prognosis:** The likely outcome or course of a disease



## THYROID CANCER

# Quality of life of patients after thyroid surgery and radioactive iodine treatment for thyroid cancer

### BACKGROUND

Thyroid cancer is a common cancer, especially among women. The vast majority of patients with the most common thyroid of thyroid cancer (papillary thyroid cancer) do very well as thyroid cancer generally tends to have very good outcomes. This is because there are very effective treatments for thyroid cancer. Initially, most patients have surgery to remove part (lobectomy) or all (total thyroidectomy) of the thyroid. Depending on the risk of thyroid cancer recurrence, some patients that had a total thyroidectomy are also treated with radioactive iodine therapy, which is a magic bullet that destroys any remaining thyroid tissue, normal or cancerous, in the body. With these treatment options, most patients live just as long as patients without this cancer.

Because patients with thyroid cancer do so well, in recent years there has been an important discussion about the impact on the quality of life of these patients after thyroid surgery and radioactive iodine treatment for thyroid cancer. This study was done to look at the standardized quality of life scores in patients with thyroid cancer.

### THE FULL ARTICLE TITLE

Winter J et al. Five-year follow-up of health-related quality of life in differentiated thyroid cancer patients treated with total thyroidectomy and radioiodine in Sweden: A nationwide prospective cohort study. *Thyroid* 2024 Apr 5. Epub ahead of print; doi: 10.1089/thy.2023.0691. PMID: 38526369.

### SUMMARY OF THE STUDY

This study was performed on patients with thyroid cancer that had their entire thyroid removed (total thyroidectomy) and also received radioactive iodine therapy in Sweden between the years of 2012 and 2017. A specific

survey looking at physical and mental well-being, called the Short Form - 36 health survey (SF-36) was answered by these patients at 1 year, 3 years and five years after treatment. In addition to the patient answers, the patient's thyroid hormone levels were measured.

A total of 351 patients completed the study, 71% were female. It was noted that at 5 years there was no difference in the physical quality of life compared to baseline, while mental well-being improved. Compared to the general population, both the physical and mental components of the quality of life survey were different at 5 years, but the effect sizes were small. The survey domains for general health, vitality, social functioning, and mental health were significantly lower in patients with thyroid cancer than the general population but there was no association of the physical or mental quality of life scores to thyroid hormone levels.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that there seems to be improvement of the mental health well-being of patients treated with thyroid cancer at 5 years compared to their first year of diagnosis. This study also shows a significant decrease in the perceived quality of life compared to the general population which is not related to thyroid hormone levels, for which screening for psychosocial health issues may be important in the follow-up of Thyroid Cancer patients. This research suggests that adjusting thyroid medication outside of the recommended guidelines is unlikely to help improve the perceived decline in quality of life, as there is no relationship between the thyroid hormone levels and the quality of life scores in this study.

— Maria Brito, MD, ECNU



## THYROID CANCER, continued

### ATA RESOURCES

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

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

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

### ABBREVIATIONS & DEFINITIONS

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

**Papillary thyroid cancer:** the most common type of thyroid cancer. There are 4 variants of papillary thyroid

cancer: classic, follicular, tall-cell and noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP).

**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.



## THYROID CANCER

### Age affects cancer growth in patients with papillary thyroid microcarcinoma under active surveillance

#### BACKGROUND

Thyroid cancer is a common cancer, especially among women. The vast majority of patients with the most common thyroid cancer (papillary thyroid cancer) do very well as thyroid cancer generally tends to have very good outcomes. Many of the thyroid cancers identified are small cancers (<1 cm), called papillary thyroid microcarcinoma. These small cancers are considered low-risk and treatment options often recommend removal of only the lobe containing the cancer (thyroid lobectomy). Recently, the option of following these small cancers with serial thyroid ultrasounds and deferring initial surgery, called active surveillance, has become more common. With active surveillance, surgery is deferred until/unless the cancer grows bigger. Several studies have examined the factors that affect cancer growth during active surveillance.

Young age has been shown to be a predictor of cancer growth. However, other features to quantify this growth, including cancer doubling time (time for the cancer to increase twice the initial size) or even a decrease in size have not been evaluated. Using periodic ultrasound studies to determine cancer volume-doubling rate, this study was performed to examine the age-related cancer volume changes of papillary thyroid microcarcinomas under an active surveillance protocol.

#### THE FULL ARTICLE TITLE

Yamamoto M et al. Tumor volume-doubling rate is negatively associated with patient age in papillary thyroid microcarcinomas under active surveillance. *Surgery* 2023;S0039-6060(23)00887-5; doi: 10.1016/j.surg.2023.11.022. PMID: 38142143.

#### SUMMARY OF THE STUDY

Subjects 20 years of age and older, who did not have spread of the cancer outside the thyroid and were not receiving levothyroxine at the time of diagnosis were evaluated.

They needed to be followed for more than 1 year and have at least 4 ultrasounds to be included in the study. There was a total of 2219 subjects and they were separated into 3 groups: young (>20 to <40 years), middle-aged (40–59 years), and elderly (>60 years) with 229, 888 and 1012 patients in each group respectively. Serum thyroglobulin antibodies and TSH were evaluated. Ultrasounds were performed once or twice a year. Surgery was recommended if the primary cancer enlarged by > 3mm or the biopsy of a suspicious lymph node was positive, indicating spread of the cancer outside the thyroid.

Cancer size at diagnosis did not differ among groups. Positive antithyroglobulin antibody levels were significantly more common in the young group, while TSH levels were significantly higher in the elderly group. Surgery was performed in 8.3% of patients for varying reasons. The cancer volume doubling rate was measured as follows:  $\geq 1.0$  (rapid growth),  $\geq 0.3$  to  $< 1.0$  (moderate growth),  $\geq 0$  to  $< 0.3$  (marginal growth),  $\geq -0.1$  to  $< 0$  (marginal regression), and  $< -0.1$  (clear regression). Rapid or moderate growth occurred in only 6.6% of subjects (140), but differed according to the patient's age, occurring in 11.3% of young, 7.1% of middle-aged, and 5.0% of elderly patients. Cancer regression occurred in 56.4% of patients (1200) and was seen in 44.5% of young, 55.3% of middle-aged and 60% of elderly patients.

On statistical analysis, being in the middle-aged or elderly group was a negative predictor of cancer enlargement, while being in these groups, having positive anti-TgAb or cancer size 5-9 mm were positive predictors of cancer regression.

#### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In adult patients undergoing active surveillance of papillary thyroid microcarcinoma, those >40 years were much less likely to have cancer growth and more likely



## THYROID CANCER, continued

to have cancer regression over time. This study expands upon previous reports showing an overall low risk of cancer growth in patients with papillary thyroid microcarcinoma undergoing active surveillance as well as showing the age effect on growth. It does help patients and their physicians decide upon treatment options when papillary thyroid microcarcinoma is identified. Particularly in older patients with a lower risk of progression and higher rate

of regression, active surveillance is an excellent choice. For younger patients, even with the low rate of cancer progression, lobectomy may be preferred to decrease the need for close follow up over the long term. Either way, this study expands upon the information we have to help patients make an informed choice for their care.

— Marjorie Safran, MD

### ATA RESOURCES

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

### 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.

**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.



# 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.



ThyCa: Thyroid Cancer Survivors' Association, Inc.<sup>SM</sup>  
[www.thyca.org](http://www.thyca.org)



MCT8 - AHDS Foundation

THYROID CANCER ALLIANCE



### American Thyroid Association®

[www.thyroid.org](http://www.thyroid.org)

ATA® Patient Resources:

[www.thyroid.org/thyroid-information/](http://www.thyroid.org/thyroid-information/)

Find a Thyroid Specialist: [www.thyroid.org](http://www.thyroid.org)

(Toll-free): 1-800-THYROID

[thyroid@thyroid.org](mailto:thyroid@thyroid.org)

### Bite Me Cancer

[www.bitemecancer.org](http://www.bitemecancer.org)

[info@bitemecancer.org](mailto:info@bitemecancer.org)

### Graves' Disease and Thyroid Foundation

[www.gdatf.org](http://www.gdatf.org)

(Toll-free): 877-643-3123

[info@ngdf.org](mailto:info@ngdf.org)

### Light of Life Foundation

[www.checkyourneck.com](http://www.checkyourneck.com)

[info@checkyourneck.com](mailto:info@checkyourneck.com)

### MCT8 – AHDS Foundation

[mct8.info](http://mct8.info)

[Contact@mct8.info](mailto:Contact@mct8.info)

### Thyca: Thyroid Cancer Survivors' Association, Inc.

[www.thyca.org](http://www.thyca.org)

(Toll-free): 877-588-7904

[thyca@thyca.org](mailto:thyca@thyca.org)

### Thyroid Cancer Alliance

[www.thyroidcanceralliance.org](http://www.thyroidcanceralliance.org)

[www.thyroidcancerpatientinfo.org](http://www.thyroidcancerpatientinfo.org)

Rotterdam, The Netherlands

### Thyroid Federation International

[www.thyroid-fed.org](http://www.thyroid-fed.org)

[tfi@thyroid-fed.org](mailto:tfi@thyroid-fed.org)

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