american thyroid association

Clinical Thyroidology for the Public

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CLINICAL **THYROIDOLOGY** FOR THE **PUBLIC**
A publication of the American Thyroid Association
VOLUME 10 • ISSUE 1 • JANUARY 2017

EDITOR'S COMMENTS

Happy New Year and welcome to another year and 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 will be providing summaries of research studies that were discussed in a recent issue of *Clinical Thyroidology*, a publication of the American Thyroid Association for physicians. These summaries are present in lay language to allow the rapid dissemination of thyroid research to the widest possible audience. This means that you are getting the latest information on thyroid research and treatment almost as soon as your physicians. As always, we are happy to entertain any suggestions to improve *Clinical Thyroidology for the Public* so let us know what you want to see.

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*, *ThyCa: Thyroid Cancer Survivors Association*, *Thyroid Cancer Canada and Thyroid Federation International*.

January is Thyroid Awareness Month.

In this issue, the studies ask the following questions:

1. Does a normal TSH mean that patients are on the right levothyroxine dose?
2. Is there an association between thyroid problems and gestational diabetes?
3. Can less aggressive thyroid cancers be diagnosed by thyroid biopsy cytology?
4. How well does molecular marker analysis identify benign indeterminate nodules?
5. Does dividing small thyroid cancers into two separate groups affect prognosis?
6. Does the timing of radioactive iodine therapy after thyroidectomy affect prognosis?

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

— Alan P. Farwell, MD, FACE

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HYPOTHYROIDISM

Does a normal TSH mean that patients are on the right levothyroxine dose?

BACKGROUND

Hypothyroidism (underactive thyroid) is very common, especially in women and is diagnosed most of the time by an increased TSH level. The main thyroid hormone produced by the thyroid is thyroxine (T_4), with most of the active hormone, T_3, produced by conversion of T_4 to T_3 in peripheral tissues. Because of this, the standard treatment for hypothyroidism is synthetic T_4 known as Levothyroxine. The treatment goal is to find the best Levothyroxine dose that brings the TSH level back to the normal range, which is thought to restore normal thyroid hormone levels in the body. However, a small proportion of patients have persistent hypothyroid symptoms on Levothyroxine treatment despite of normal TSH levels, and some of these patients feel better on other treatment options including a combination both T_4 and T_3. The goal of this study was to evaluate the differences in the clinical presentation and laboratory tests between hypothyroid patients being treated with Levothyroxine and individuals without thyroid problems and normal TSH levels using data from the National Health and Nutrition Examination Survey (NHANES).

THE FULL ARTICLE TITLE

Peterson SJ et al. Is a normal TSH synonymous with "euthyroidism" in levothyroxine monotherapy? J Clin Endocrinol Metab. October 4, 2016 [Epub ahead of print].

SUMMARY OF THE STUDY

A total of 9981 NHANES participants had a normal TSH level (0.24–5.40 mIU/L) and met other inclusion criteria for this study. Among these individuals, 469 reported taking Levothyroxine and formed the L-T_4 group. The rest of 9512 individuals not taking L-T_4 formed the healthy control group. A total of 469 healthy controls were matched to the L-T_4 group by TSH level, age, gender, and ethnicity and formed the matched control group.

The L-T_4 group had 5-10% lower serum T_3 levels and 10-15% higher serum T_4 levels resulting in 15-20% lower T_3:T_4 ratio as compared with the matched control group, despite of having similar TSH levels. Serum T_3:T_4 ratio did not correlate strongly with any of the 52 clinical parameters and laboratory tests studied.

The L-T_4 group had a 5% higher BMI and 5% less calorie intake adjusted by body weight than the matched control group, without any differences noted in type of food consumed. A higher proportion of the L-T_4 group reported participation in moderate recreational activities as compared with the matched control group, although physical activity in general was lower in the L-T_4 group. Additionally, in this group, more participants reported that their physical and mental health was not good as compared with the matched control group. Serum LDL, HDL, and total cholesterol were lower in the L-T_4 group, while blood pressure, heart rate, glucose, HbA1c and triglycerides were similar in both groups.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In this large population study, hypothyroid patients taking Levothyroxine who had a normal TSH level showed lower serum T_3 and higher T_4 levels, and consequently lower T_3:T_4 ratios than matched healthy individuals without thyroid problems. In addition, there were differences noted between the Levothyroxine–treated and healthy matched subjects in BMI, cholesterol levels, medications used as well as reported caloric intake, physical activity, and the feeling of poor health. These findings suggest that a normal TSH level may not be sufficient as a single criterion used to find the right levothyroxine dose for each patient.

— Alina Gavrila, MD, MMSC

ATA THYROID BROCHURE LINKS

Thyroid Function Tests: http://www.thyroid.org/thyroid-function-tests/

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

Thyroid Hormone Treatment: http://www.thyroid.org/thyroid-hormone-treatment/

HYPOTHYROIDISM, continued

ABBREVIATIONS & DEFINITIONS

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

Thyroxine (T4): the major hormone produced by the thyroid gland. T_4 gets converted to the active hormone T_3 in various tissues in the body.

Levothyroxine (T4): synthetic T_4, the standard treatment for hypothyroidism.

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

Hypothyroidism: a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills in order to return their thyroid hormone levels to normal.

National Health and Nutrition Examination Survey (NHANES): research program that assesses the health and nutritional status of Americans; the program evaluates a nationally representative sample of about 5000 persons each year through interview, physical examination and collection of lifestyle, clinical and laboratory data.

Body Mass Index (BMI): a person's weight in kilograms (kg) divided by his or her height in meters squared; used to define normal weight, overweight and obesity.

Triglycerides, LDL, HDL, total cholesterol: different types of fat measured in the blood.

Glycated hemoglobin (HbA1c): test for diabetes that measures the three-month average blood glucose concentration.

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THYROID DISEASE DURING PREGNANCY

High TSH and TPO Ab positivity are associated with a higher risk of gestational diabetes mellitus

BACKGROUND

Gestational diabetes mellitus (GDM) is diabetes diagnosed in the mother during pregnancy, around 24 to 28 weeks, and occurs in roughly 10% of women. GDM is associated with adverse pregnancy outcomes and a higher risk diabetes in the baby. The association of maternal thyroid function with GDM is quite controversial. Interestingly, both hypothyroidism and hyperthyroidism may alter how the body handles glucose. Hyperthyroidism has been shown to increase both insulin secretion and glucose intolerance, while hypothyroidism has been shown to decrease insulin sensitivity. A recent study showed that subclinical hypothyroidism is associated with a higher risk of GDM.

Both hypothyroidism and hyperthyroidism may be caused by autoimmune processes and a marker for autoimmune thyroid disease is antibodies to thyroid peroxidase (TPO AB). This study examined the relationship between TPO AB and the risk of developing GDM.

THE FULL ARTICLE TITLE

Ying H et al. Maternal TSH level and TPOAb status in early pregnancy and their relationship to the risk of gestational diabetes mellitus. Endocrine. July 16, 2016. Epub ahead of print.

SUMMARY OF THE STUDY

This study was done in Shanghai, China. Approximately 9000 pregnant women participated in the study. Thyroid tests including TSH and TPO AB were measured. Patients who had preexisting thyroid disease were not included in this study. Testing for GDM was done between 24 to 28 weeks.

Overall 359 women had an increased TSH, 648 women had positive TPO AB and 78 women had both an increased TSH and positive TPO AB. Women with an increased TSH but negative TPO AB had a 1.44-fold increased risk of developing GDM; those with a positive TPO AB but normal TSH had a 1.65-fold increased risk and those with both an increased TSH and positive TPO AB had a 3.38-fold increase in developing GDM. Overall, the risk was higher if the thyroid tests were found to be abnormal in the first trimester of the pregnancy.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that women with high TSH or positive TPO AB were at a higher risk for developing GDM and that this risk was >3-fold higher when both tests were abnormal. Although this is an important finding, it does not yet prove a direct cause and effect relationship between these two common diseases during pregnancy. Further studies may help us to understand the link better. However, these results could make a case for more widespread screening for thyroid disease during pregnancy.

—Vibhavasu Sharma, MD

ATA THYROID BROCHURE LINKS

Thyroid Disease and Pregnancy: http://www.thyroid.org/thyroid-disease-pregnancy/

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

ABBREVIATIONS & DEFINITIONS

Gestational diabetes mellitus (GDM): diabetes diagnosed in the mother during pregnancy, around 24 to 28 weeks. GDM occurs in roughly 10% of women.

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).

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

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THYROID DISEASE DURING PREGNANCY, continued

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.

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.

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.

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THYROID NODULES

Evaluation of thyroid nodule biopsies may identify less aggressive noninvasive follicular thyroid cancers

BACKGROUND

The most common type of thyroid cancer is papillary cancer, which can be divided into classical and follicular types. When a thyroid nodule biopsy is read as either papillary cancer or suspicious for papillary cancer, surgery with a total thyroidectomy is usually recommended. Recently, a new term has been used to describe a type of papillary thyroid cancer which was non-invasive and of the follicular type. This term is noninvasive follicular thyroid neoplasm with papillary-like nuclear features or NIFTP. These cancers behave less aggressively than typical papillary thyroid cancer. They have been shown to have low risk for recurrence and low risk for spread outside of the thyroid. At present, the diagnosis of NIFTP can only made after the thyroid is examined after surgery.

It would be helpful to know whether a biopsy positive or suspicious for papillary cancer is a NIFTP prior to surgery, since a lobectomy could be performed instead of a total thyroidectomy. If predictive features on fine needle aspiration were found, then the surgery could be directed toward that particular patient's need. This study aims to determine whether NIFTP can be diagnosed on thyroid biopsy cytology and can be distinguished from classical papillary thyroid cancer.

THE FULL ARTICLE TITLE

Strickland KC et al. Preoperative cytologic diagnosis of noninvasive follicular thyroid neoplasm with papillary-like nuclear features: a prospective analysis. Thyroid 2016;26:1466-71. Epub September 8, 2016.

SUMMARY OF THE STUDY

A total of 29 nodules with "suspicious for malignancy" results and 69 nodules with "malignant" results on thyroid biopsy from June 2015 through January 2016 were reviewed at Brigham and Women's Hospital, Boston, MA, by 1 of 10 cytopathologists. The cytopathology was reviewed for characteristics of classical papillary thyroid cancer, follicular papillary thyroid cancer or NIFTP. These results were compared with final surgical pathology. Surgical follow-up was present for 56 of the nodules (13 suspicious for malignancy results, 43 malignant results). These surgeries were performed on 52 patients, 38 women, 14 men, average age 47 years. Most of the surgeries were total thyroidectomy (49 total, 3 initial lobectomies). The final diagnoses were 42 classical papillary thyroid cancer, 8 NIFTP, 3 follicular variant of papillary thyroid cancer with invasion, 2 follicular adenomas, and 1 poorly-differentiated carcinoma.

A total of 91% (38 of 42) of nodules that were classified as classical papillary at time of thyroid biopsy turned out to be classical papillary thyroid cancer after surgery, with only 1 of these NIFTP. A total of 8 nodules were classified as NIFTP or follicular variant on biopsy, with final pathology showing that 5 were NIFTP, 2 were benign follicular adenomas, 1 follicular variant of papillary cancer with invasion. This suggests that if the biopsy favored classical papillary thyroid cancer, the pathology was indeed a classical papillary thyroid cancer in 95% of the cases (38 of 40). If the biopsy favored NIFTP or a follicular variant, pathology agreed in 89% of the cases (8 of 9).

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that thyroid biopsy cytology in positive or suspicious for papillary cancer specimens of can be used to determine if the likely cancer is low risk for aggressive behavior, which would be treated by a lobectomy. If the nodule biopsy had classical features of papillary thyroid cancer, then the risk is high enough to perform a total thyroidectomy. These numbers are low, so these findings need to be confirmed in a larger study. However, this data suggests that the majority of NIFTP may be predicted by the fine needle aspiration and be treated sufficiently by thyroid lobectomy.

— Julie Hallanger Johnson

ATA THYROID BROCHURE LINKS

Thyroid Nodules: http://www.thyroid.org/thyroid-nodules/

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

THYROID NODULES, continued

ABBREVIATIONS & DEFINITIONS

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 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.

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).

Noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP): a new term has been used to describe a type of papillary thyroid cancer which is non-invasive. These cancers behave less aggressively than typical papillary thyroid cancer and have been shown to have low risk for recurrence and low risk for spread outside of the thyroid.

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

Thyroid Awareness Monthly Campaigns

The ATA will be highlighting a distinct thyroid disorder each month and a portion of the sales for Bravelets™ will be donated to the ATA. The month of January is **Thyroid Awareness Month** and a bracelet is available through the ATA Marketplace to support thyroid cancer awareness and education related to thyroid disease.

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THYROID NODULES

Mutational testing is helpful in identifying indeterminate thyroid nodules as benign

BACKGROUND

Thyroid nodules are very common, affecting up to 50% of people. Thyroid biopsy is an important test that is used to determine whether or not a thyroid nodule is cancerous. Patients whose biopsy result falls into a high risk category usually need surgery; whereas those in low risk categories are often followed clinically. However, a significant proportion of biopsy specimens fall into categories that are indeterminate – in other words a diagnosis of cancer cannot be made on examining the cells alone. Indeterminate nodules are further divided into atypia of undetermined significance/follicular lesion of undetermined significance (AUS/FLUS) and suspicious for follicular neoplasm (SFN). Indeterminate thyroid nodules have a 15-30% risk of being cancerous and some guidelines recommend surgery for these nodules in order to confirm the diagnosis.

Molecular markers are mutations in genes associated with cancer. Analysis of molecular markers in biopsy specimens can be used to determine the risk of cancer. The Thyroseq™ Next Generation panel developed by Nikiforov and colleagues at the University of Pittsburgh is a panel of molecular markers that has been available for a while to determine the risk of cancer in indeterminate nodules. Nodules with a negative Thyroseq™ panel are considered benign and surgery can be avoided. The purpose of the current study was to determine how accurate the Thyroseq™ Next Generation panel is in predicting the risk of cancer in indeterminate thyroid nodules.

THE FULL ARTICLE TITLE

Shrestha RT et al. Correlation between histological diagnosis and mutational panel testing of thyroid nodules: a two year institutional experience. Thyroid 2016;26:1068-76. Epub July 12, 2016.

SUMMARY OF THE STUDY

The authors examined biopsy specimens from 261 nodules that were operated on at the University of Minnesota Medical Centre between Jan 2013 and Dec 2014. A total of 125 nodules (48%) were found to be malignant. A total of 102 surgeries (39%) were performed on indeterminate thyroid nodules (73 ASUS/FLUS, 29 SFN). The cancer rate of ASUS/FLUS nodules was 30% and the cancer rate of SFN nodules was 28%.

The Thyroseq™ Next Generation panel testing was performed on 44 of the 73 nodules in the ASUS/FLUS category and was found to have a sensitivity of 85%, specificity of 65%, positive predictive value of 50% and negative predictive value of 91%. Mutational testing was performed on 12 of the 29 nodules in the SFN category and was found to have a sensitivity of 100%, specificity of 57%, positive predictive value of 63% and negative predictive value of 100%. Overall, Thyroseq™ Next Generation panel testing of biopsy specimens was more likely to be positive in nodules that were proven to be cancerous compared with those that were benign.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The results from this study indicate that mutational testing using the Thyroseq™ Next Generation panel may be helpful in managing indeterminate thyroid nodules. A negative test is very accurate in identifying a nodule as benign and, thus, avoiding surgery. The use of mutational testing on indeterminate thyroid nodules should be done on a regular basis to help determine the need for surgery in these nodules.

— Phillip Segal, MD

ATA THYROID BROCHURE LINKS

Thyroid Nodules: http://www.thyroid.org/thyroid-nodules/

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

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

THYROID NODULES, continued

ABBREVIATIONS & DEFINITIONS

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.

Indeterminate thyroid biopsy: this happens a few atypical cells are seen but not enough to be abnormal (atypia of unknown significance (AUS) or follicular lesion of unknown significance (FLUS)) or when the diagnosis is a follicular or hurthle cell lesion. Follicular and hurthle cells are normal cells found in the thyroid. Current analysis of thyroid biopsy results cannot differentiate between follicular or hurthle cell cancer from noncancerous adenomas. This occurs in 15-20% of biopsies and often results in the need for surgery to remove the nodule.

Genes: a molecular unit of heredity of a living organism. Living beings depend on genes, as they code for all proteins and RNA chains that have functions in a cell. Genes hold the information to build and maintain an organism's cells and pass genetic traits to offspring.

Mutation: A permanent change in one of the genes.

Molecular markers: genes and microRNAs that are expressed in benign or cancerous cells. Molecular markers can be used in thyroid biopsy specimens to either to diagnose cancer or to determine that the nodule is benign. The two most common molecular marker tests are the Afirma™ Gene Expression Classifier and Thyroseq™.

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

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

Test sensitivity: the proportion of patients with a certain disease in whom the test used to diagnose that disease is positive.

Test specificity: the proportion of patients without a certain disease in whom the test used to diagnose that disease is negative

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THYROID CANCER

Patients with thyroid cancers 1 to 2 cm are treated differently from those with cancers smaller than 1 cm.

BACKGROUND

Thyroid cancer is the most common cancer of the endocrine system with an estimated number of 62,000 new cases a year, leading to approximately 1950 deaths. The classical approach to the treatment of thyroid cancers was to advise that a patient remove the entire thyroid gland and that then they proceed to receive radioactive iodine treatment.

There has been an increased interest in both the medical field and the lay medical press about possible overtreatment of thyroid cancer. It is already known that most types of thyroid cancer carry an excellent prognosis: 5-year survival is approximately 98% and 10-year survival of >90%.

Most doctors who treat thyroid cancer base their recommendations regarding extent of surgery and the administration of radioactive iodine on guidelines that are developed by the American Thyroid Association. The most recent ATA thyroid cancer guidelines has made lobectomy an acceptable surgical treatment option for many patients. However, the American Joint Committee on Cancer (AJCC), a pathology committee, advises that the smaller thyroid cancers (up to 2 cm) be divided into two groups according to size (T1a <1 cm, T1b 1-2 cm). This would imply that these groups would have different prognosis and type of treatment. Given the importance that is given to cancer size in patient management, it is critical to understand whether this division in the staging system of the AJCC in the category of small tumors (<2cm) is necessary alter treatment options. The aim of this study was to determine whether separating thyroid cancers <2 cm into T1a and T1b is associated with different treatment strategies and patterns of patient survival.

THE FULL ARTICLE TITLE

Anderson KL Jr et al T1a versus T1b differentiated thyroid cancers: do we need to make the distinction? Thyroid 2016;26:1046-52. Epub July 6, 2016.

SUMMARY OF THE STUDY

This study was carried on by doing a analysis of two large databases: The National Cancer Data Base (NCDB) and the Surveillance, Epidemiology, and End Results (SEER) program.

The NCDB is thought to capture approximately 85% of all new cancer cases in the US, and this study reviewed files from 1998 to 2012 to identify all thyroid cancer patients who had thyroid surgery. Data obtained included cancer size, age, sex, race/ethnicity and insurance status amongst others. The main outcome evaluated with this data base was overall survival.

The SEER program database is representative of approximately 28% of the American population and was used to find out the survival specific to thyroid cancer. Registries from 2004 to 2012 were used to identify all thyroid cancer patients who underwent thyroid surgery. Patients with cancers smaller than 2 cm were analyzed, and they were divided into two groups based on tumor size: T1a (< 1 cm) and T1b (1-2 cm). The databases were not combined at any point for the analysis.

A total of 149,912 patients met study criteria and were included in the study. Of these, 65% had T1a tumors and 35% had T1b tumors. The analysis revealed that patients with T1b tumors were more likely to undergo a total thyroidectomy (88 % vs 74%), have positive surgical margins (8% vs 4%), have spread of the cancer to the neck lymph nodes (36% vs 24%) and receive RAI treatment (60% vs 28%) than patients with T1a tumors.

However, there was no difference in the two groups with respect to overall survival (95% for both groups at 10 years) , or survival specific to thyroid cancer (99.2% vs 98.7%) for the T1a and T1b groups respectively.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that patients who have thyroid cancers with a size 1-2 cm tend to receive different treatment (more involved) than people who have cancers smaller than 1 cm but there is no significant difference in survival rates. This means that, moving forward, the

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THYROID CANCER, continued

current subdivision in the staging system by the AJCC within the T1 tumors may not be necessary. This study is important because it shows that many more patients may be able to choose and receive more conservative treatments for their tumors without compromising their survival from the disease.

— Jessie Block-Galarza

ATA THYROID BROCHURE LINKS

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

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

Radioactive Iodine: http://www.thyroid.org/radioactive-iodine/

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

ABBREVIATIONS & DEFINITIONS

Papillary thyroid cancer: the most common type of thyroid cancer.

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

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).

SEER: Surveillance, Epidemiology and End Results program, a nation-wide anonymous cancer registry generated by the National Cancer Institute that contains information on 26% of the United States population. Website: http://seer.cancer.gov/

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THYROID CANCER

Radioactive iodine therapy timing in thyroid cancer treatment.

BACKGROUND

The first treatment option for thyroid cancer is surgical removal of the thyroid (thyroidectomy). Radioactive iodine therapy is recommended to many patients with thyroid cancer, especially those at increased risk for cancer recurrence after surgery. Radioactive iodine initially is given to destroy any residual thyroid cancer cells left behind after surgery. Once routine in all thyroid cancer patients, newer guidelines by the American Thyroid Association have recommended more limited use of radioactive iodine therapy. The timing of this treatment following thyroidectomy has been debated and this study sought to determine whether the timing of radioactive iodine therapy following thyroid surgery affected thyroid cancer outcomes.

THE FULL ARTICLE TITLE

Scheffel RS et al. Timing of radioactive iodine administration does not influence outcomes in patients with differentiated thyroid cancer. Thyroid. 26(11): 1623-1629. 2016.

SUMMARY OF THE STUDY

These investigators conducted a study of 545 patients with thyroid cancer who had radioactive iodine therapy after thyroidectomy. Patients were analyzed in two groups depending on whether their radioactive iodine therapy was less than 6 months after thyroidectomy (Group A) or more than 6 months after thyroidectomy (Group B). Patients were assessed for whether they were considered "disease-free" from thyroid cancer at 1 and 6 years following thyroidectomy. Patients were considered "disease-free" if all biochemical and imaging evaluations were negative for evidence of thyroid cancer. The average time from surgery to radioactive iodine therapy was 3 months in Group A and 10.5 months in Group B. Patients in Group B tended to be older and have lower risk cancer than patients in Group A. Despite these differences in patient group characteristics, results demonstrated no differences in thyroid cancer recurrences between the groups. Similarly, the proportion of "disease-free" patients in each group was not significantly different. This shorter interval (<6 months) between surgery and radioiodine treatment was not associated with improved thyroid cancer outcomes compared with a longer interval (>6 months).

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that the timing of radioactive iodine therapy relative to thyroidectomy did not alter disease outcomes in thyroid cancer. This finding allows for more flexibility in timing when scheduling radioactive iodine therapy following thyroidectomy and, thus, patients can have more input on this timing relative to their life schedule.

— Whitney W. Woodmansee MD

ATA THYROID BROCHURE LINKS

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

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

Radioactive Iodine: http://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).

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.

WHO WE ARE (in alphabetical order)

AMERICAN THYROID ASSOCIATION
www.thyroid.org
ATA Patient Resources:
http://www.thyroid.org/thyroid-information/
Find a Thyroid Specialist: www.thyroid.org
(Toll-free): 1-800-THYROID
thyroid@thyroid.org

BITE ME CANCER
http://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

THYCA: THYROID CANCER SURVIVORS' ASSOCIATION, INC.
www.thyca.org
(Toll-free): 877-588-7904
thyca@thyca.org

THYROID CANCER CANADA
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THYROID FEDERATION INTERNATIONAL
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Light of Life Foundation checkyourneck.com

GRAVES' DISEASE & THYROID FOUNDATION

Thyroid Federation International

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ThyCa: Thyroid Cancer Survivors' Association, Inc.
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