

Clinical THYROIDOLOGY FOR PATIENTS



AMERICAN
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HYPOTHYROIDISM Levothyroxine use in the elderly is associated with an increased risk of fractures

Hypothyroid women on a dose of levothyroxine that suppresses their TSH have a slightly lower bone mineral density and an increased risk of osteoporosis than women with normal thyroid function. To date, an increased risk of fractures has not been reported in women treated with TSH-suppressive doses of levothyroxine, possibly due to the fact that many women in the studies are younger with a low risk of fractures at baseline. The goal of this study was to determine if there is an increased risk of fracture in elderly women on levothyroxine.

Turner MR et al. Levothyroxine dose and risk of fractures in older adults: nested case-control study. *BMJ* 2011;342:d2238. 3

HYPOTHYROIDISM Different degrees of hypothyroidism are associated with increased risk of coronary heart disease and death.

Overt hypothyroidism, defined by TSH levels >10, is associated with increased risk factors for coronary heart disease. It is unclear if subclinical hypothyroidism (TSH 3-10) carries the same risk for heart disease, since the changes in cholesterol and blood pressure are mild, at best. This study was done to see if subclinical hypothyroidism was associated with increased risks of coronary heart disease and death.

McQuade C et al Hypothyroidism and Moderate Subclinical Hypothyroidism are associated with increased all-cause mortality, independent of coronary heart disease risk factors: a PreCIS Database Study. *Thyroid*. Vol 21, Number 8, 2011, 837-843. 5

THYROID CANCER Small thyroid bed masses found after initial treatment of thyroid cancer have a benign outcome

While few patients with thyroid cancer will die of their cancer, they do have a 15-25% risk of cancer recurrence in the neck area after the therapy. Masses found on ultrasound in the neck area where the thyroid is located can be malignant representing cancer recurrence or cancer spread to lymph nodes. The goal of this study was to determine the clinical impact and rate of growth of these small thyroid bed masses.

Rondeau G et al. Ultrasonographically detected small thyroid bed nodules identified after total thyroidectomy for differentiated thyroid cancer seldom show clinically significant structural progression. *Thyroid*. 2011 Aug;21(8):845-53. 6

THYROID CANCER Can radioactive iodine treatment be avoided in some patients with thyroid cancer?

Surgery alone is sufficient in low risk thyroid cancers while radioactive iodine is clearly beneficial in high risk patients. The purpose of this study was to evaluate the outcome of intermediate risk thyroid cancer patients treated with surgery alone without radioactive iodine.

Vaisman F et al. Initial therapy with either thyroid lobectomy or total thyroidectomy without radioactive iodine remnant ablation is associated with very low rates of structural disease recurrence in properly selected patients with differentiated thyroid cancer. *Clin Endocrinol (Oxf)*. February 8, 2011. 8

THYROID CANCER Medullary thyroid microcarcinomas have significant rates of poor prognostic features and require appropriate surgical management

Medullary thyroid cancer is a rare type of thyroid cancer. A small number of patients with medullary thyroid cancer (<1%) will have micromedullary cancer (size <1 cm). This study examined the clinical characteristics of micromedullary cancer and the prognosis of this diagnosis.

Kazaure HS et al. Medullary thyroid microcarcinoma: a population-level analysis of 310 patients. *Cancer*. June 29, 2011 [Epub ahead of print]. doi: 10.1002/cncr.26283. 10

AUTOIMMUNE THYROID DISEASE When are positive thyroid antibodies clinically useful?

Autoimmune thyroid disease is caused by the body making antibodies that attack the thyroid and either turn it on (Graves' disease, hyperthyroidism) or turn it off (Hashimoto's thyroiditis, hypothyroidism). In an attempt to find out when the antibodies first begin to appear, the present study analyzed blood samples obtained years earlier from women now aged 23 to 50 in whom Graves' disease or Hashimoto's thyroiditis recently developed.

Hutfless S et al. Significance of Prediagnostic Thyroid Antibodies in Women with Autoimmune Thyroid Disease. *J Clin Endocrinol Metab* 96: E1466-E1471, 2011. 11

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Clinical Thyroidology for Patients

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CLINICAL THYROIDOLOGY FOR PATIENTS

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EDITOR'S COMMENTS

Welcome to **Clinical Thyroidology for Patients**. This publication is a collection of summaries of the top articles from the recent medical literature that cover the broad spectrum of thyroid disorders. *Clinical Thyroidology for Patients* is published on a monthly basis and includes summaries of research studies that were discussed in the previous month's issue of *Clinical Thyroidology*, a publication of the American Thyroid Association for physicians. This means that you, the patients, are getting the latest information on thyroid research and treatment almost as soon as your physicians. The **Calendar of Events** highlights educational forums and support groups that are organized around the country by members of the **Alliance for Thyroid Patient Education**. The *Alliance* member groups consist of: the *American Thyroid Association*, the *Graves' Disease Foundation*, the *Light of Life Foundation* and *ThyCa: Thyroid Cancer Survivors Association*.

This month we have our **Spotlight On: ThyCa: Thyroid Cancer Survivors Association**. This *Alliance* organization had their annual meeting in Los Angeles in October.

In this issue, the studies ask the following questions:

- Are elderly hypothyroid patients at risk for fractures?
- Are hypothyroid patients at increased risk for heart disease?
- When are positive thyroid antibodies clinically useful?
- Can radioactive iodine treatment be avoided in some patients with thyroid cancer?
- What is the significance of small thyroid bed masses left after surgery in patients with thyroid cancer?
- Does size make a difference in Medullary thyroid cancer?

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

— Alan P. Farwell, MD

HOW TO NAVIGATE THIS DOCUMENT: The Table of Contents and the Bookmarks are linked to the articles. To navigate, move your cursor over the article title you wish to see (either in the Contents or in the Bookmarks panel) and the hand will show a pointing finger, indicating a link. Left-click the title and the article will instantly appear. To return to the Contents, move the cursor to the bottom of the page and left-click **Back to Table of Contents**.

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HYPOTHYROIDISM

Levothyroxine use in the elderly is associated with an increased risk of fractures

BACKGROUND

Thyroid hormone has direct effects on bone. Untreated hyperthyroidism is thought to increase the risk of fractures, especially in the elderly and postmenopausal women. Previous studies have shown that hyperthyroid women as well as hypothyroid women on a dose of levothyroxine that suppresses their TSH have a slightly lower bone mineral density and an increased risk of osteoporosis than women with normal thyroid function. It is largely through some of these studies that more attention is paid to adjusting the levothyroxine dose in hypothyroid women to maintain the TSH in the normal range. To date, an increased risk of fractures has not been reported in women treated with TSH-suppressive doses of levothyroxine, possibly due to the fact that many women in the studies are younger with a low risk of fractures at baseline. This report is unique in the large number of levothyroxine users (>200,000) with outcomes that can be quantified by the Canadian national health system, which recorded new fractures at every emergency room visit and hospital admission in this population. The goal of this study was to determine if there is an increased risk of fracture in elderly women on levothyroxine.

THE FULL ARTICLE TITLE:

Turner MR et al. Levothyroxine dose and risk of fractures in older adults: nested case-control study. *BMJ* 2011;342:d2238.

SUMMARY OF THE STUDY

During the 5-year period ending March 31, 2007, 213,511 adults older than 70 years who received at least

one prescription for levothyroxine were identified and were followed for fractures over the next year. During the evaluation period, 22,236 (10.4%) of the subjects experienced a fracture; 88% of the subjects with fracture were women. Current users of levothyroxine had a higher risk of fracture than those who had used levothyroxine in the past. Among current levothyroxine users, there was an increased risk for all fractures as the daily dose of levothyroxine increased.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study found a significant association between current levothyroxine use and increased risk of fractures in older adults (>70 years). A major problem with this study is that thyroid function was not determined in any of the patients. However, this study clearly provides further data to make sure patients are not on too high of a dose of levothyroxine and that their TSH remains in the normal range. This is especially true in women >70 years.

— Alan P. Farwell, MD

ATA THYROID BROCHURE LINKS

Hypothyroidism: http://thyroid.org/patients/patient_brochures/hypothyroidism.html

Hyperthyroidism: http://thyroid.org/patients/patient_brochures/hyperthyroidism.html

Thyroid Hormone Treatment: http://thyroid.org/patients/patient_brochures/hormonetreatment.html

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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.

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.

Thyroid Stimulating Hormone (TSH): produced by the pituitary gland that regulates thyroid function; also the best screening test to determine if the thyroid is functioning normally.

Levothyroxine: the major hormone produced by the

thyroid gland and available in pill form as Levoxyl™, Synthroid™, Levothroid™ and generic preparations.

Bone Mineral Density (BMD): this is usually measured in the lumbar (lower) spine and the hip and the results give information as to the strength of the bone and the risk of fractures. The results are expressed as T scores, which as standard deviations from the average bone density in a person in their 20s, when bone mass is the highest. A T score of -1 to -2.5 is termed Osteopenia and a T score >2.5 is termed Osteoporosis.

Osteoporosis: a decrease in bone mineral density in which the individual is at a significantly increased risk for fractures with little or no trauma or force. This occurs with a bone mineral density T score of >-2.5. The areas at highest risk for osteoporotic fractures are the wrist, spine and hip.



HYPOTHYROIDISM

Different degrees of hypothyroidism are associated with increased risk of coronary heart disease and death

BACKGROUND

Hypothyroidism occurs when the thyroid gland does not produce enough thyroid hormone causing TSH levels to increase. Overt hypothyroidism, defined by TSH levels > 10, is associated with increased risk factors for coronary heart disease. These risk factors include increased cholesterol levels and higher blood pressure. Subclinical hypothyroidism is defined by a TSH level that is only slightly increased and, for this study, was divided into mild (TSH 3-6) and moderate (TSH 6-10). It is unclear if subclinical hypothyroidism carries the same risk for heart disease, since the changes in cholesterol and blood pressure are mild, at best. This study was done to see if subclinical hypothyroidism was associated with increased risks of coronary heart disease and death.

THE FULL ARTICLE TITLE:

McQuade C et al Hypothyroidism and Moderate Subclinical Hypothyroidism are associated with increased all-cause mortality, independent of coronary heart disease risk factors: a PreCIS Database Study. *Thyroid*. Vol 21, Number 8, 2011, 837-843.

SUMMARY OF THE STUDY

A total of 6240 patients from the database in the Preventive Cardiology section of the Cleveland Clinic

were chosen to be analyzed and monitored for 8 years for the development of coronary heart disease and death from all causes. A total of 1218 patients had mild subclinical hypothyroidism, 178 had moderate subclinical hypothyroidism and 79 were hypothyroid by the above TSH criteria. In patients with subclinical hypothyroidism, death was increased in the moderate group, but not in the mild group.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that patients with TSH levels > 6 are at progressively greater risk for coronary heart disease and death. Those with mild subclinical hypothyroidism (TSH <6) do not appear to have an increased risk. While there is no data to show that treatment would decrease this cardiac risk, this is yet another study to suggest that treating patients with TSH levels > 6 may be beneficial, even in the absence of hypothyroid symptoms.

— Jerrold Stock, MD

ATA THYROID BROCHURE LINKS

Hypothyroidism: <http://thyroid.org/patients/patient-brochures/hypothyroidism.html>

ABBREVIATIONS & DEFINITIONS

Hypothyroidism: a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking 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 or not this should be treated.

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

Thyroid Stimulating Hormone (TSH): produced by the pituitary gland that regulates thyroid function; also the best screening test to determine if the thyroid is functioning normally.



THYROID CANCER

Small thyroid bed masses found after initial treatment of thyroid cancer have a benign outcome

BACKGROUND

While few patients with thyroid cancer will die of their cancer, they do have a 15-25% risk of cancer recurrence in the neck area after the initial total thyroidectomy, even if they undergo radioactive iodine therapy. Periodic neck ultrasound to evaluate for cancer recurrence is part of the routine follow up for patients with thyroid cancer. Masses found on ultrasound in the neck area where the thyroid is located can be malignant representing cancer recurrence or cancer spread to lymph nodes. However, most often they are benign representing fibrosis/scar tissue that develops after the thyroid surgery. Although frequently noted, there are no current guidelines regarding the management of small thyroid bed masses found on ultrasound after the initial therapy for thyroid cancer. The goal of this study was to determine the clinical impact and rate of growth of these small thyroid bed masses.

THE FULL ARTICLE TITLE:

Rondeau G et al. Ultrasonographically detected small thyroid bed nodules identified after total thyroidectomy for differentiated thyroid cancer seldom show clinically significant structural progression. *Thyroid*. 2011 Aug;21(8):845-53.

SUMMARY OF THE STUDY:

Evaluation of 1531 patients with thyroid cancer at Memorial Sloan-Kettering Cancer Center between August 1998 and June 2009 shows that 521 (34%) had thyroid bed nodules identified on the first follow up neck ultrasound performed after their initial treatment. This study included 191 patients who had at least one small thyroid bed mass noted on the first neck ultrasound (average size of 5 mm) and at least two additional follow-up exams. All patients underwent total thyroidectomy and 84% of patients also had radioactive iodine therapy. Only 17 (9%) of these patients had an increase in size

(≥3 mm in the largest dimension) of the thyroid bed mass during a mean follow-up of 7 years. A total of 3 of the 17 patients had a fine-needle aspiration biopsy which showed papillary thyroid cancer. The remaining 14 patients were followed without biopsy or treatment. Most thyroid bed masses showed only minor growth over several years (average rate of growth was 1.3 mm per year). Only 1 patient had significant growth from 9 mm on the first exam to 16 mm 40 months later and then 27 mm approximately 48 months later. There were no specific clinical or ultrasound features that reliably predicted which nodules were likely to grow.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that only a small percentage of small thyroid bed masses found after initial therapy in patients with thyroid cancer increased in size over several years, even if they were cancerous masses. These masses, whether benign or cancerous, grow slowly with no evidence of local invasion into other neck structures. These small thyroid bed masses can be monitored closely with serial ultrasounds rather than exposing the patients to the risks of additional radioactive iodine therapy or second surgery, which has a higher risk of complications.

— Alina Gavrila, MD

ATA THYROID BROCHURE LINKS

Thyroid cancer: http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html

Radioactive Iodine Therapy: http://thyroid.org/patients/patient_brochures/radioactive.html

Thyroid Surgery: http://thyroid.org/patients/patient_brochures/surgery.html

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THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

Thyroid cancer: cancer arising from the follicular cells of the thyroid gland that accounts for the vast majority of thyroid cancers and has a more favorable prognosis and long-term survival. It is represented by papillary and follicular thyroid cancers.

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.

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).

Cancer recurrence: this occurs when the cancer comes back after an initial treatment that was successful in destroying all detectable cancer at some point.

Neck ultrasound: a common imaging test that uses soundwaves to create a picture of the thyroid gland and surrounding tissues. Ultrasound is also frequently used to guide the needle into a nodule during a thyroid nodule biopsy.

Benign mass: non-cancerous growth.

Malignant mass: cancerous growth.

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

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

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



THYROID CANCER

Can radioactive iodine treatment be avoided in some patients with thyroid cancer?

BACKGROUND

In the past 20 years the treatment of papillary and follicular thyroid cancer has become less aggressive and the use of radioactive iodine therapy has decreased. Because most of these cancers progress slowly, it is difficult to evaluate the effects of treating certain thyroid cancers with surgery alone. It does appear that surgery alone is sufficient in treating low risk patients (small cancers with no evidence of spread outside the thyroid at the time of surgery). Surgery followed by radioactive iodine clearly is beneficial in high risk patients (large cancers with spread outside the thyroid). There is no data on the best management of intermediate risk patients (medium-sized cancers with no evidence of spread outside the thyroid at the time of surgery). The purpose of this study was to evaluate the outcome of thyroid cancer patients treated with surgery alone without radioactive iodine.

THE FULL ARTICLE TITLE:

Vaisman F et al. Initial therapy with either thyroid lobectomy or total thyroidectomy without radioactive iodine remnant ablation is associated with very low rates of structural disease recurrence in properly selected patients with differentiated thyroid cancer. Clin Endocrinol (Oxf). February 8, 2011.

SUMMARY OF THE STUDY

Lobectomy was done for cancers <4 cm with no lymph node involvement (evaluated with ultrasound before surgery) and a normal lobe on the other side. A total thyroidectomy was done in selected cancers < 4cm with minimal or no clinically obvious lymph nodes and/or microscopic extension inside or outside the thyroid and thyroglobulin levels <10 ng/L.

A total of 289 patients were studied. Of these, 217 (75%) had a total thyroidectomy and 72 (25%) had a lobectomy. The primary cancer was >1 cm in diameter in 55% of

the cases; microscopic extension outside the thyroid was found in 10% and microscopic extension within the thyroid in 6%. For both groups, 68% of patients had no lymph node involvement, 7% had spread to lymph nodes located in the central neck and 2% had spread to lymph nodes located in the lateral neck.

Only 13.5% of the patients had cancers > 4 cm. Nevertheless, 26% of all cases were considered intermediate-risk cases, of which 79% had a total thyroidectomy and 21% a lobectomy. In patients who had thyroidectomy, recurrence of the cancer was found in 2.3% during the next 4 to 6 years. After lobectomy, reoperation was performed more frequently (9%), but recurrence of the cancer was confirmed in only 4.1%.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In general, intermediate risk thyroid cancer patients usually are treated with radioactive iodine. In this study, intermediate risk patients treated with surgery alone had a recurrence in only 2.1% of patients. More importantly, no one died of their thyroid cancer. This suggests that physicians can avoid radioactive iodine in even more thyroid cancer patients, thus avoiding the very low risk of side effects of radioactive iodine. This and other studies suggest that radioactive iodine can be reserved for only high risk patients.

— M. Regina Castro, MD

ATA THYROID BROCHURE LINKS

Thyroid cancer: http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html

Radioactive Iodine Therapy: http://thyroid.org/patients/patient_brochures/radioactive.html

Thyroid Surgery: http://thyroid.org/patients/patient_brochures/surgery.html

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THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

Follicular thyroid cancer: the second most common type of thyroid cancer.

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.

Total thyroidectomy: surgery to remove the entire thyroid gland.

Lobectomy: surgery to remove one lobe of the thyroid

Thyroglobulin: a protein made only by thyroid cells, both normal and cancerous. When all normal thyroid tissue is destroyed after radioactive iodine therapy in patients with thyroid cancer, thyroglobulin can be used

as a thyroid cancer marker in patients that do not have thyroglobulin antibodies.

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.

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

Cancer recurrence: this occurs when the cancer comes back after an initial treatment that was successful in destroying all detectable cancer at some point.

Central neck compartment: the central portion of the neck between the hyoid bone above, and the sternum and collar bones below and laterally limited by the carotid arteries.



THYROID CANCER

Medullary thyroid microcarcinomas have significant rates of poor prognostic features and require appropriate surgical management

BACKGROUND

Medullary thyroid cancer is a rare type of thyroid cancer. Only 5% of patients with thyroid cancer will have medullary thyroid cancer. It is different from other forms of thyroid cancer in that surgery is the main treatment – radioactive iodine is not indicated. Microcarcinoma is any cancer that is less than 1cm. A small number of patients with medullary thyroid cancer (<1%) will have micromedullary cancer. There is an ongoing debate regarding the prognosis of micromedullary cancer and consequently the need for aggressive surgery for these patients. In this study, the authors attempted to define the clinical characteristics of micromedullary cancer and the prognosis of this diagnosis, especially compared to the usual medullary cancer.

THE FULL ARTICLE TITLE:

Kazaure HS et al. Medullary thyroid microcarcinoma: a population-level analysis of 310 patients. *Cancer*. June 29, 2011 [Epub ahead of print]. doi: 10.1002/cncr.26283.

SUMMARY OF THE STUDY

A total of 310 patients with micromedullary cancer were selected from the SEER database. Most patients were adults (92%). The cancers were mostly confined to the thyroid (92%) and only 1/3 of patients had more than one

cancer focus in the resected gland. Total thyroidectomy was the preferred surgical procedure (89%) and a little over half of the patients also had lymph node dissection, with 37% of the sampled lymph nodes positive for metastatic cancer. Risk of lymph node metastasis increased with cancer size and presence of cancer invasion into surrounding tissues. More than 5% of the patients with micromedullary cancer had distant metastasis (cancer in lungs, bone, etc.) at time of thyroid cancer diagnosis. The 10 year death rate from micromedullary cancer was 4% if the cancer was confined to the thyroid, 13% if the cancer extended into surrounding tissues or lymph nodes and 50% if distant metastasis was detected at time of thyroid cancer diagnosis.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Patients with micromedullary cancer are at increased risk for lymph node spread and death from thyroid cancer. Aggressive surgical intervention is thus needed and should not be modified due to the small size of the primary cancer.

— Mona Sabra, MD

ATA THYROID BROCHURE LINKS

Thyroid cancer: http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html

ABBREVIATIONS & DEFINITIONS

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

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.

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/>

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



AUTOIMMUNE THYROID DISEASE

When are positive thyroid antibodies clinically useful?

BACKGROUND

Autoimmune thyroid disease is caused by the body making antibodies that attack the thyroid and either turn it on (Graves' disease, hyperthyroidism) or turn it off (Hashimoto's thyroiditis, hypothyroidism). Some people with positive thyroid antibodies have normal thyroid function and develop either Graves' disease or Hashimoto's thyroiditis in the future while some never develop clinical thyroid dysfunction. Thyroid antibodies are frequently already present when a patient is first diagnosed with Graves' disease or Hashimoto's thyroiditis. Two such antibodies are frequently measured: thyroid peroxidase (TPO) antibodies and thyroglobulin antibodies. In an attempt to find out when the antibodies first begin to appear, the present study analyzed blood samples obtained years earlier from women now aged 23 to 50 in whom Graves' disease or Hashimoto's thyroiditis recently developed.

THE FULL ARTICLE TITLE:

Hutfless S et al. Significance of Prediagnostic Thyroid Antibodies in Women with Autoimmune Thyroid Disease. *J Clin Endocrinol Metab* 96:E1466-E1471, 2011.

SUMMARY OF THE STUDY

Between 1998 and 2007, 1684 female active-duty U.S. military personnel were seen in a military medicine facility and given a new diagnosis of Hashimoto's thyroiditis or Graves' disease. From this group, 87 randomly-selected patients with Hashimoto's thyroiditis, 87 with Graves' disease, and 348 age matched controls had blood samples assessed for thyroid antibodies in samples obtained at

the time of diagnosis and three additional blood samples obtained up to 7 years before the diagnosis of the thyroid disease. TPO antibodies were found in 14% of those in the control group without thyroid disease. In Hashimoto's thyroiditis, TPO antibodies were found in 66% and thyroglobulin antibodies in 53% of patients in the early sample and the percent did not change at the time of diagnosis. In Graves' disease patients, TPO antibodies were present in 31% at the early point increasing to 57% at the time of diagnosis while thyroglobulin antibodies increased from 18% at the early time point to 47% at the time of diagnosis.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study demonstrates that thyroid antibodies frequently develop years before the clinical diagnosis of Graves' disease or Hashimoto's thyroiditis and may be an early marker to identify patients at risk of developing clinical symptoms of thyroid dysfunction.

— Frank Cranz, MD

ATA THYROID BROCHURE LINKS

Hypothyroidism: http://thyroid.org/patients/patient_brochures/hypothyroidism.html

Graves' disease: http://thyroid.org/patients/patient_brochures/graves.html

Hyperthyroidism: http://thyroid.org/patients/patient_brochures/hyperthyroidism.html

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AUTOIMMUNE THYROID DISEASE, continued

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).

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

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.

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 peroxidase (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.

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



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.

WHO WE ARE

AMERICAN THYROID ASSOCIATION

www.thyroid.org

ATA Patient Resources: <http://www.thyroid.org/patients/>

Find a Thyroid Specialist: www.thyroid.org

Phone (toll-free): 1-800-THYROID

e-mail: thyroid@thyroid.org

ATA Mission: The ATA leads in promoting thyroid health and understanding thyroid biology.

ATA Vision: The ATA is the leading organization focused on thyroid biology and the prevention and treatment of thyroid disorders through excellence and innovation in research, clinical care, education, and public health.

ATA Values: The ATA values scientific inquiry, clinical excellence, public service, education, collaboration, and collegiality.

To further our mission, vision and values the ATA sponsors “Friends of the ATA” online to advance the information provided to patients and the public such as this publication, *Clinical Thyroidology for Patients*. We welcome your support.

GRAVES’ DISEASE FOUNDATION

www.ngdf.org

Phone (toll-free): 1-877-NGDF-123 or 643-3123

e-mail: Gravesdiseasefd@gmail.com

Founded in 1990, the Graves’ Disease Foundation offers support and resources to Graves’ disease patients, their families, and health care professionals. Their mission is to find the cause of and the cure for Graves’ thyroid disease through research, to improve the quality of life for persons with Graves’ disease and their caregivers and to educate persons with Graves’ disease, their caregivers, healthcare professionals, and the general public about Graves’ disease and its treatment. The web site features a monitored bulletin board.

LIGHT OF LIFE FOUNDATION

www.checkyourneck.com

email: info@checkyourneck.com

The Light of Life Foundation, founded in 1997, is a nonprofit organization that strives to improve the quality of life for thyroid cancer patients, educate the public and professionals about thyroid cancer, and promote research and development to improve thyroid cancer care.

THYCA: THYROID CANCER SURVIVORS’ ASSOCIATION, INC.

www.thyca.org

Phone (toll-free): 877 588-7904

e-mail: thyca@thyca.org

ThyCa: Thyroid Cancer Survivors’ Association, Inc., founded in 1995, is an international nonprofit organization, guided by a medical advisory council of renowned thyroid cancer specialists, offering support and information to thyroid cancer survivors, families, and health care professionals worldwide.





SPOTLIGHT ON ThyCa: Thyroid Cancer Survivors' Association

New Records Set at 14th International Thyroid Cancer Survivors' Conference

The 14th International Thyroid Cancer Survivors' Conference was the biggest yet, with more than 500 participants coming from around the United States, 4 Canadian provinces, Mexico, Portugal, and United Kingdom. Held in Los Angeles, California, in October, the conference was sponsored by the nonprofit ThyCa: Thyroid Cancer Survivors' Association, Inc. (www.thyca.org).

The 100-plus sessions during the 3-day conference featured more than 60 speakers, including current and past ATA Presidents Gregory Brent, M.D., Peter Singer, M.D., and Carole Spencer, Ph.D. Speakers also included numerous other medical professionals and ATA members, as well as mental health professionals; attorneys focusing on insurance, employment, and other issues; specialists in complementary approaches; and survivors and caregivers affected by each type of thyroid cancer.

During the rest of 2011 and throughout 2012, ThyCa will sponsor numerous events. These include over 90 local support groups with meetings around the United States and in Canada, Costa Rica, and Philippines, plus free webinars, free seminars with physician speakers, free one-day regional workshops, Thyroid Cancer Awareness Month worldwide for September with year-round awareness campaigns, and the 15th International Thyroid Cancer Survivors' Conference on October 19-21, 2012 in Chicago, Illinois.

ThyCa invites ATA members and friends to get free materials for patients, plus news about educational and supportive events as well as ThyCa's Rally for Research for funding thyroid cancer research grants, by visiting www.thyca.org, e-mailing to thyca@thyca.org, faxing 630-604-6078, or calling 877-588-7904.

— **Cherry Wunderlich**
publications@thyca.org

About ThyCa: Thyroid Cancer Survivors' Association, Inc.

ThyCa: Thyroid Cancer Survivors' Association, Inc. (www.thyca.org) an international nonprofit organization founded in 1995 and advised by thyroid cancer specialists, educates and supports patients and families worldwide through its award-winning web site, in-person and online support groups for all types of thyroid cancer, one-to-one support, free patients' booklets and packets, free newsletters, free downloadable Low-Iodine Cookbook, webinars, seminars, workshops, and conferences. ThyCa sponsors Thyroid Cancer Awareness Month as well as year-round awareness campaigns, plus thyroid cancer research fundraising and research grants awarded every year starting in 2003.

Phone: 877-588-7904

Fax: 630-604-6078,

Address: PO Box 1102, Olney, MD 20830-1102

E-mail: thyca@thyca.org

Website: www.thyca.org



ATA Alliance for Thyroid Patient Education CALENDAR OF EVENTS

Educational forums, patient support groups and other patient-oriented meetings

ATA Conferences www.thyroid.org

Nothing is scheduled at this time. Please visit the website for updates.

Graves' Disease Conferences www.ngdf.org

Fall, 2011 — Boston, MA

Annual Patient & Family Conference

Light of Life Foundation www.checkyourneck.com

Ongoing — www.checkyourneck.com

Thyroid Cancer Awareness campaign with Cindy Crawford and Brooke Shields

June 12, 2010 — a previous symposium available online at:

<http://www.checkyourneck.com/About-Thyroid-Cancer/Thyroid-Cancer-Symposium-Presentations>

Thyroid Cancer Symposium Presentations: What's New in Thyroid Cancer? A Day for Patients and Their Families

Please visit the Light of Life Foundation website to view the Patient Educational Symposium which took place in NYC in 2010. As part of the Patient Educational Program these online presentations provide valuable information in hopes that patients everywhere can gain further information and support about their disease.

ThyCa Conferences www.thyca.org

Every Month

ThyCa Support Group Meetings around the United States and in Canada, Costa Rica, and Philippines.

Complete list of groups, meetings, and contacts at www.thyca.org/sg/local

November 19, 2011 — 10:00 to 11:30 AM — Seattle, Washington

Free Seminar: Thyroid Cancer Surgery, with physician speaker

Hosted by ThyCa Seattle Support Group. Details at www.thyca.org/sg/wa_seattle

April 21, 2012 — 8 AM to 4:15 PM. — Lake Regional Hospital, Osage Beach, Missouri

Free Workshop: 8th Annual Midwest Thyroid Cancer Survivors' Workshop with physician speakers

Details at www.thyca.org/conferences

September 2012 — **Thyroid Cancer Awareness Month**

Worldwide observance sponsored by ThyCa: Thyroid Cancer Survivors' Association, Inc., with many partnering organizations. Details at www.thyca.org

October 19–21, 2012 — Chicago, Illinois.

The 15th International Thyroid Cancer Survivors' Conference

Sponsored by ThyCa: Thyroid Cancer Survivors' Association, Inc. Details at www.thyca.org

October 20, 2012 — Chicago, Illinois

The 10th Annual Dinner/Auction Fundraiser for Thyroid Cancer Research, in conjunction with the 15th International Thyroid Cancer Survivors' Conference

Sponsored by ThyCa: Thyroid Cancer Survivors' Association, Inc. Details at www.thyca.org