

Clinical THYROIDOLOGY FOR PATIENTS



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Yim JH et al. The outcomes of first reoperation for locoregionally recurrent/persistent papillary thyroid carcinoma in patients who initially underwent total thyroidectomy and remnant ablation. 9

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Thyroglobulin is 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 to detect whether thyroid cancer remains in the body or has returned. This study was done to see if a thyroglobulin test could predict the chance of thyroid cancer return after initial surgery.

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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*.

In this issue, the studies ask the following questions:

- Is absorption of Levothyroxine different in obese patients?
- Is autoimmune thyroid disease in women with normal thyroid function increase the risk of miscarriage?
- Are women in the United States at risk for iodine deficiency?
- Is there a role for selenium in preventing thyroid nodules?
- Can the diabetes drug metformin shrink thyroid nodules?
- Can thyroid cancer patients with recurrence of their cancer still be cured?
- Can a thyroglobulin blood test predict that thyroid cancer is cured?
- How safe is radioactive iodine therapy for 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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THYROID AND WEIGHT

Does extreme obesity affect thyroid hormone absorption?

BACKGROUND

There is a well-known association between thyroid hormone and weight. Hyperthyroid patients frequently lose weight while hypothyroid patients tend to gain weight. Many studies have found a direct correlation between obesity and TSH levels within the normal range in apparently healthy individuals. Further, it has been shown in other studies that obese individuals have higher levels of both TSH and the thyroid hormones T_4 and T_3 than in non-obese individuals. This study continued to examine the relationship between obesity and the thyroid by examining the absorption of thyroid hormone in obese and non-obese individuals.

THE FULL ARTICLE TITLE

Michalaki MA et al. Impaired pharmacokinetics of levothyroxine in severely obese volunteers. *Thyroid*. March 21, 2011 [E-pub ahead of print]. doi: 10.1089/thy.2010.0149.

SUMMARY OF THE STUDY

A total of 16 men and 22 women who were morbidly obese were compared to 24 non-obese individuals. All

individuals had thyroid hormone and TSH levels in the normal range and none had a prior history of thyroid disease. On an empty stomach, all individuals were given 600 micrograms of levothyroxine by mouth and then blood was drawn at various intervals. The results showed that the levothyroxine was absorbed significantly worse in the obese individuals than in the non-obese individuals.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that absorption of levothyroxine is impaired in morbidly obese individuals. This suggests that obese hypothyroid patients may require higher doses of levothyroxine than non-obese patients.

— Heather Hofflich, DO

ATA THYROID BROCHURE LINKS

Thyroid and Weight: http://thyroid.org/patients/patient_brochures/weight.html

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

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.

Thyroxine (T_4): the major hormone secreted by the thyroid gland. Thyroxine is broken down to produce

Triiodothyronine which causes most of the effects of the thyroid hormones.

Triiodothyronine (T_3): 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.

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



THYROID AND PREGNANCY

Thyroid Autoimmunity and Pregnancy

BACKGROUND

Autoimmune disorders of the thyroid, characterized by positive thyroid antibodies, are very common, especially in women of child-bearing age. Autoimmune thyroiditis (Hashimoto's thyroiditis) is the most common cause of hypothyroidism in the United States and hypothyroidism during pregnancy may be associated with problems, including miscarriage. Even women with normal thyroid function but positive thyroid antibodies are at increased risk of having a miscarriage. The goal of this study was to evaluate all of the studies that have been performed to investigate whether positive thyroid antibodies are associated with an increased risk of miscarriage in women with normal thyroid function.

THE FULL ARTICLE TITLE

Chen L, Hu R. Thyroid autoimmunity and miscarriage: a meta-analysis. *Clin Endocrinol (Oxf)* 2011;74:513-9.

SUMMARY OF THE STUDY

This study was a meta-analysis designed to examine whether positive thyroid antibodies are associated with an increased risk of miscarriage in women with normal thyroid function. A meta-analysis is a type of study that statistically analyzes a

group of separate individual studies. In this particular meta-analysis, 22 studies of positive thyroid antibodies in women were included. This study suggested that women with normal thyroid function and positive thyroid antibodies had a greater than 2-fold increased risk of miscarriage than women with negative thyroid antibodies.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This meta-analysis confirms that women with positive thyroid antibodies have an increased risk of miscarriage, even if their thyroid function is normal. What is not known is whether any intervention, such as treating with thyroid hormone, would have any effect on decreasing the risk of miscarriage. These studies are now in progress.

— Whitney Woodmansee, MD

ATA THYROID BROCHURE LINKS

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

Thyroid and Pregnancy: http://thyroid.org/patients/patient_brochures/pregnancy.html

Thyroid Function Tests: http://thyroid.org/patients/patient_brochures/function_tests.html

ABBREVIATIONS & DEFINITIONS

Autoimmune disorders: a diverse group of disorders that are caused by antibodies that get confused and attack the body's own tissues. The disorder depends on what tissue the antibodies attack. Graves' disease and Hashimoto's thyroiditis are examples of autoimmune thyroid disease. Other Autoimmune disorders include: type 1 diabetes mellitus, Addison's disease (adrenal insufficiency), vitiligo (loss of pigment of some areas of the skin), systemic lupus erythematosus, pernicious anemia (B12 deficiency), celiac disease, inflammatory bowel disease, myasthenia gravis, multiple sclerosis and rheumatoid arthritis.

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.

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

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.

Thyroid antibodies: this term refers to a group of antibodies that some people make that can attack the thyroid. Anti-thyroid antibodies is another term that is often used interchangeably. This general term often includes the following specific thyroid antibodies: anti-thyroid peroxidase (TPO Ab), anti-thyroglobulin, thyroid microsomal and thyroid stimulating antibodies.



THYROID AND PREGNANCY

Pregnant women in the United States are at risk for low iodine intake

BACKGROUND

Iodine is required for making thyroid hormones and iodine deficiency can lead to hypothyroidism. In fact, iodine deficiency is the most common cause of hypothyroidism world-wide. However, this is rare in the United States. Both iodine and thyroid hormone are particularly important to the baby for normal brain development during pregnancy. This study, part of the National Health and Nutrition Examination Survey, was done to measure levels of iodine in the urine of individuals in the United States from 2005-2008. Urine iodine levels are a good reflection of iodine intake from the diet. They can only be used to study the iodine nutrition of large groups and are not useful for individuals. Similar measurements have been done since the early 1970s, which show that the United States is generally taking in enough iodine. However, there may be some parts of the population, particularly pregnant women, who might be low in iodine. Such populations would then be at risk for hypothyroidism.

THE FULL ARTICLE TITLE

Caldwell KL et al. Iodine status of the U.S. Population, National Health and Nutrition Examination Survey, 2005-2006 and 2007-2008. *Thyroid*. February 16, 2011 [Epub ahead of print].

SUMMARY OF THE STUDY

About 7600 individuals participated in the study. All of the individuals studied were similar to the general United States population in age, gender and race/ethnicity. The urine iodine levels showed that the United States is overall getting enough iodine, with children and the elderly having the highest average levels. However, 5% of children had severely low urinary iodine levels and 57% of pregnant mothers had urine iodine levels below the recommended level.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The United States population is generally getting enough iodine in the diet. However, there are some groups of the population (such as children and pregnant women) who may not be receiving enough iodine. For this reason, women are encouraged to take a daily multivitamin containing 150 mcg of iodine during pregnancy and breastfeeding.

—Angela Leung, MD

ATA THYROID BROCHURE LINKS

Iodine Deficiency: http://thyroid.org/patients/patient_brochures/iodine_deficiency.html

Thyroid and Pregnancy: http://thyroid.org/patients/patient_brochures/pregnancy.html

ABBREVIATIONS & DEFINITIONS

Iodine: an element found naturally in various foods that is important for making thyroid hormones and for normal thyroid function. Common foods high in iodine include iodized salt, dairy products, seafood and some breads.

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



THYROID NODULES

Selenium may prevent goiter and thyroid nodules

BACKGROUND

Iodine deficiency is an important cause of hypothyroidism and thyroid nodule formation world-wide. It is a major public health concern such that countries whose diets are iodine deficient have national programs that add iodine to food. Adding iodine to salt is a major way this is done. Selenium is a mineral that is linked to iodine and also plays an important role in the function of the thyroid gland. It is concentrated within the thyroid gland and is used in proteins that are important in making the thyroid hormones. In countries that suffer from severe selenium deficiency, there is an increase in hypothyroidism and thyroid nodule formation. However, these regions are also frequently iodine deficient, a clear role for selenium in the development of hypothyroidism and nodule formation has been difficult to show. In this study, the authors examined the relationship between selenium, thyroid size and nodule formation in an iodine deficient country (Denmark) before and after national iodine repletion.

THE FULL ARTICLE TITLE

Rasmussen LB et al. Selenium status, thyroid volume, and multiple nodule formation in an area with mild iodine deficiency. *Eur J Endocrinol* 2011;164:585-90. Epub January 17, 2011.

SUMMARY OF THE STUDY

This study examined the association between serum selenium concentration and thyroid volume, both before and after iodine fortification was introduced in Denmark. Subjects were participants in the Danish Investigation of Iodine Intake and Thyroid Diseases

study. Two groups, one of women and one of men, were studied. Thyroid ultrasounds were performed before and after iodine repletion.

Thyroid volume decreased significantly in the group after iodine repletion. Interestingly, serum selenium decreased slightly (5%) during this period. After iodine repletion, the lower the serum selenium level, the larger the thyroid was in women but not in men. Low serum selenium levels also increased the risk for multiple thyroid nodules in women.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that selenium has an effect on thyroid volume and multiple nodule formation in women. This study also supports some previous studies that suggest that sufficient selenium intake is one of the environmental factors that may add to the prevention of goiter and thyroid nodules. Further studies are needed to evaluate the potential role of selenium treatment in patients with goiter and thyroid nodules. Since the United States has enough selenium in the food, there is no indication to take extra selenium to prevent thyroid nodules or goiter.

— Alan P. Farwell, MD

ATA THYROID BROCHURE LINKS

Thyroid Nodules: http://thyroid.org/patients/patient_brochures/nodules.html

Goiter: http://thyroid.org/patients/patient_brochures/goiter.html

Iodine Deficiency: http://thyroid.org/patients/patient_brochures/iodine_deficiency.html

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THYROID NODULES, continued

ABBREVIATIONS & DEFINITIONS

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

Thyroid nodule: an abnormal growth of thyroid cells that forms a lump within the thyroid. While most thyroid nodules are non-cancerous (Benign), ~5% are cancerous.

Thyroid Ultrasound: a common imaging test used to evaluate the structure of the thyroid gland. Ultrasound uses soundwaves to create a picture of the structure

of the thyroid gland and accurately identify and characterize nodules within the thyroid. Ultrasound is also frequently used to guide the needle into a nodule during a thyroid nodule biopsy.

Iodine: an element found naturally in various foods that is important for making thyroid hormones and for normal thyroid function. Common foods high in iodine include iodized salt, dairy products, seafood and some breads.

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.



THYROID NODULES

Metformin shrinks thyroid nodules in patients with insulin resistance

BACKGROUND

In many patients with diabetes, the main abnormality is insulin resistance, meaning that higher amounts of insulin are required to keep blood glucose in the normal range. Insulin resistance is also found in individuals who have yet to develop diabetes. Individuals with insulin resistance have also been shown to have an increased number of thyroid nodules. Metformin is a diabetes drug that decreases insulin resistance. This study examined if metformin had any effect on the size of thyroid nodules in patients with insulin resistance.

THE FULL ARTICLE TITLE

Rezzonico J et al Metformin treatment for small benign thyroid nodules in patients with insulin resistance. *Metal Syndr Relate Disord* 2011;9:69-75. Epub December 3, 2010.

SUMMARY OF THE STUDY

The study group included 80 women who had insulin resistance and solid, non-cancerous thyroid nodules up to 2 cm in size. Nodule volume was determined using ultrasound evaluation. The women were randomly assigned to one of four treatment groups and followed for 6 months: 1. treated with metformin alone; 2. treated with metformin and levothyroxine; 3. treated with levothyroxine alone and 4. no treatment. The metformin

dose was 1000 mg twice daily; the dose of levothyroxine was adjusted to keep the serum TSH level at 0.11 to 0.99 mU/L. Patients were treated for 6 months and then reevaluated using ultrasound.

Thyroid nodule size decreased by 74% in the group treated with metformin alone and by 95% in the group treated with metformin plus levothyroxine. The nodule size was unchanged in the other two groups.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In this small study, metformin produced a significant decrease in nodule size within 6 months in patients who also had insulin resistance. This also suggests that insulin resistance may play a role in the development of thyroid nodules. At this point, this study is too small to recommend metformin for patients with thyroid nodules but certainly indicates that more studies should be performed to confirm these findings. If confirmed, this would be a valuable addition to the treatment options for patients with thyroid nodules.

— Alan P. Farwell, MD

ATA THYROID BROCHURE LINKS

Thyroid Nodules: http://thyroid.org/patients/patient_brochures/nodules.html

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

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.

Insulin resistance: a condition where higher amounts of insulin are required to keep blood glucose in the normal range. This occurs in many patients with diabetes and in individuals at risk for developing diabetes.

Metformin: a diabetes drug that decreases insulin resistance.



THYROID CANCER

Can a second surgery cure patients with recurrence of thyroid cancer in the lymph nodes of the neck?

BACKGROUND

The usual treatment for thyroid cancer is surgery to remove the thyroid followed by radioactive iodine therapy if the patient falls into a high risk category. Occasionally, patients have a recurrence of the thyroid cancer. When this happens, the cancer most often recurs in the lymph nodes in the neck. In general, if there are clearly abnormal lymph nodes in the neck, the recommendation is usually to have a second surgery to remove these abnormal lymph nodes. This study examined how often a second surgery resulted in curing patients who have a recurrence of their cancer.

FULL ARTICLE TITLE

Yim JH et al. The outcomes of first reoperation for locoregionally recurrent/persistent papillary thyroid carcinoma in patients who initially underwent total thyroidectomy and remnant ablation. *J Clin Endocrinol Metab.* April 20, 2011.

SUMMARY

The study group included 83 patients with recurrence of papillary cancer in the neck who were treated at a university medical center in Korea. All of the patients had been initially treated with total thyroidectomy, some

degree of lymph node removal and radioactive iodine therapy. The thyroid cancer recurred at an average of 2.3 years after the initial therapy. At the second surgery, all identified abnormal lymph nodes were removed from the neck. A total of 42 patients (51%) had no evidence of the thyroid cancer, consistent with remission of the cancer. The main predictor of a potential cure was a thyroglobulin level <5 after the second surgery.

IMPLICATIONS

This study confirms prior studies that patients with recurrent thyroid cancer can still be cured if the cancer can be identified and be removed by a second surgery. The 50% remission rate in this study is better than a study from the United States which reported a 25% remission rate. This is good news for those thyroid cancer patients that develop a recurrence of their cancer.

— Henry Fein, MD

ATA THYROID BROCHURE LINKS

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

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

ABBREVIATIONS & DEFINITIONS

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

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

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).

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.

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.



THYROID CANCER

A blood test predicts low risk of thyroid cancer return

BACKGROUND

In patients with thyroid cancer, the usual initial treatment is surgery to remove the thyroid followed by radioactive iodine therapy to destroy any remaining thyroid tissue, including any remaining thyroid cancer. Thyroglobulin is 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 to detect whether thyroid cancer remains in the body or has returned. It can be measured while the patient is on thyroid hormone (basal thyroglobulin) or after TSH is increased to stimulate any remaining thyroid tissue (stimulated thyroglobulin). Stimulated thyroglobulin is often measured after the TSH is increased by treating patients with recombinant TSH (Thyrogen). This study was done to see if a thyroglobulin test could predict the chance of thyroid cancer return after initial surgery.

THE FULL ARTICLE TITLE

Malandrino P et al Risk-adapted management of differentiated thyroid cancer assessed by a sensitive measurement of basal serum thyroglobulin. *J Clin Endocrinol Metab.* March 30, 2011.

SUMMARY OF THE STUDY

The group studied was 545 patients with either papillary or follicular thyroid cancer. The thyroglobulin was measured after initial thyroid cancer surgery. It was measured before thyroid cells were stimulated (basal thyroglobulin) and another time following administration of recombinant TSH (stimulated thyroglobulin). Patients with antibodies against thyroglobulin or with thyroglobulin levels > 1.0 ng/mL after initial surgery were excluded from further study. The remaining 425 patients were categorized as low risk, intermediate risk and high

risk of having cancer recurrence based on the appearance of the thyroid cancer at the time of initial surgery to remove the cancer.

When the initial thyroglobulin was <0.15 ng/ml, cancer recurrence was found in none of the patients in the low-risk group, 1% in the intermediate-risk groups and 2.7% in the high-risk groups. Only 5 (1.4%) of the 356 patients with basal thyroglobulin levels <0.15 ng/ml had stimulated thyroglobulin values >2.0 ng/ml and none of them had recurrence of their cancer. In contrast, 33 of 69 patients with an basal thyroglobulin >0.15 ng/ml had recurrences. The lower the initial thyroglobulin level, the less likely a patient had high stimulated thyroglobulin levels.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The basal thyroglobulin level after surgery may be adequate to assess the risk of thyroid cancer recurrence, especially in patients at low risk of recurrence. When the initial thyroglobulin level was <0.15 ng/ml, there was no thyroid cancer recurrence in 98.6% of patients. This is important because this single blood test may offer a simple approach for monitoring patients with low risk of recurrence after thyroid surgery.

— Ruth Belin, MD

ATA THYROID BROCHURE LINKS

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

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

Thyroid Function Tests: http://thyroid.org/patients/patient_brochures/function_tests.html

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THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

Cancer recurrence: return of thyroid cancer after an initial treatment that was successful in destroying all detectable cancer.

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

TSH: Thyroid stimulating hormone – produced by the pituitary gland that regulates thyroid function. This is also measured as a screening test of thyroid function.

Recombinant human TSH (rhTSH): human TSH that is produced in the laboratory and used to produce high levels of TSH in patients after an intramuscular injection. This is mainly used in thyroid cancer patients before treating with radioactive iodine or performing a scan to detect thyroid cells or a blood test to detect thyroglobulin. The brand name for rhTSH is Thyrogen™.

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).

Stimulated thyroglobulin testing: this test is used to measure whether there is any cancer present in a patient that has previously been treated with surgery and radioactive iodine. TSH levels are increased, either by withdrawing the patient from thyroid hormone or treating the patient with recombinant human TSH, then levels of thyroglobulin are measured. Sometimes this test is combined with a whole body iodine scan.



THYROID CANCER

Second cancers following radioactive iodine therapy for low-risk thyroid cancer

BACKGROUND

Radioactive iodine is used to treat many patients with thyroid cancer after the thyroid is removed by surgery. Relatively few patients die from their thyroid cancer so the vast majority of patients live a long time after their diagnosis. Some studies have suggested that patients who receive radioactive iodine may have an increased risk for developing a second primary cancer. This study used a large database to see if radioactive iodine treatment for thyroid cancer increases the risk of new cancers developing later.

THE FULL ARTICLE TITLE

Iyher NG et al. Rising incidence of second cancers in patients with low-risk (T1N0) thyroid cancer who receive radioactive iodine therapy. *Cancer*. March 22, 2011 [Epub ahead of print]. doi: 10.1002/cncr.26070.

SUMMARY OF THE STUDY

The authors examined the Surveillance, Epidemiology and End Results (SEER) database of the National Cancer Institute in order to see if a second primary cancer (defined as a cancer that occurs >6 months after diagnosis of the first cancer) was more frequent in patients with thyroid cancer who received radioactive iodine than in patients with thyroid cancer who did not receive radioactive iodine.

The authors found that overall there was an 18% increase in secondary cancers in patients who received radioactive iodine, with significantly elevated risks for cancers of the salivary gland (almost 4-fold increase in this rare cancer), kidneys (a 2.5-fold increase) and leukemia (two-fold increase), with the latter being higher in patients less than 45 years than those who were older.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study joins several others in demonstrating an increase in the incidence of second cancers occurring in patients with thyroid cancer who receive radioactive iodine. The absolute increase in these cancers is actually small, since the overall risk for salivary gland and kidney tumors, as well as leukemia, is very low. In the past, most patients with thyroid cancer would also be treated with radioactive iodine. Recently, this approach has been changing and low risk patients are now often treated with surgery only. This study adds further support not to treat low risk patients with radioactive iodine.

— Glen Braunstein, 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

ABBREVIATIONS & DEFINITIONS

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/>

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.

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.





ATA Alliance for Thyroid Patient Education CALENDAR OF EVENTS

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

ATA Conferences www.thyroid.org

Saturday, October 29, 2011

1:00 pm – 3:00 pm — Indian Wells, CA

FREE Public Health Forum — Thyroid Disease and You

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

October 14–16, 2011 — Los Angeles, California

14th International Thyroid Cancer Survivors' Conference

(at the Hilton Los Angeles Airport Hotel, 5711 West Century Boulevard, Los Angeles, California)

September, 2011 — Worldwide

Thyroid Cancer Awareness Month



AMERICAN
THYROID
ASSOCIATION
FOUNDED 1923

www.thyroid.org

FREE Public Health Forum

Thyroid Experts from the American Thyroid Association and thyroid patients join together to inform the general public, other thyroid patients, and their friends and families about:

Thyroid Disease and You

Have you experienced a significant change in:

- Energy?
- Memory?
- Fatigue level after a good night's sleep?
- Depression?
- Rapid heart beat?
- Restlessness?
- Infertility?
- Weight?
- Hair?
- A lump on your neck?

Could it be your thyroid?

Public Forum will be held on Saturday, October 29, 2011

1:00 pm – 3:00 pm • Indian Wells, California

Renaissance Esmeralda Resort and Spa, 44-400 Indian Wells Lane, Indian Wells CA 92210-8708
Phone: 760-773-4444 or toll free at 800-446-9875

Physician experts will discuss thyroid disorders. This program is free and all are welcome, including walk-in-attendees. Reservations are encouraged to ensure we have enough seating. For more information and to register, please e-mail ThyCa at thyca@thyca.org.

Who should attend? Anyone who has had an overactive or underactive thyroid, thyroiditis, a thyroid nodule, thyroid cancer, or a family history of thyroid problems or related disorders, including rheumatoid arthritis, juvenile diabetes, pernicious anemia, or prematurely gray hair (starting before age 30) Please come if you have questions, symptoms, or concerns about a thyroid problem. Receive free educational materials.

Reservations requested. Walk-ins welcome. E-mail thyca@thyca.org to RSVP
(Please indicate in your message the thyroid condition you are most concerned about.)

Online educational information for patients is provided by all members of the ATA Alliance for Patient Education co-sponsoring this forum: ThyCA: Thyroid Cancer Survivors' Association, Light of Life Foundation, and Graves' Disease Foundation. Go online to www.thyroid.org and click on "Patients and Public" to access the resources you need.