

# Clinical THYROIDOLOGY FOR PATIENTS



AMERICAN  
THYROID  
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VOLUME 5 • ISSUE 1 • 2012

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Radioactive iodine, specifically I-131, is the major radiation product released from a nuclear accident. When radioactive iodine is released into the atmosphere, it can then be absorbed into the body and increase the risk of developing thyroid cancer. Potassium iodide and sodium perchlorate are compounds that can protect the thyroid from taking up radioactive iodine after a nuclear accident. This study was done to determine which compound is more effective.

Hänscheid H et al Facing the nuclear threat: thyroid blocking revisited. *J Clin Endocrinol Metab.* August 24, 2011 [Epub ahead of print]..... 3

### **THYROID AND PREGNANCY Pre-term birth and its relationship to hypothyroidism**

Low birth weight can be seen in babies born prematurely and previous studies suggested that low birth weight is associated with hypothyroidism in later life. This study was the largest study known to assess pre-term birth and its effect on hypothyroidism in adulthood.

Crump, C et al Preterm birth and risk of medically treated hypothyroidism in young adulthood. *Clin Endocrinol (Oxf)* 2011;75:255-260. .... 4

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Iodine is important for making thyroid hormones and for normal thyroid function. Worldwide, iodine deficiency is the most common cause of hypothyroidism. During pregnancy, mothers require more iodine to make more thyroid hormone. The current study examined the effects of varying amounts of dietary iodine on the mothers' thyroid function during pregnancy.

Moleti M. et al Maternal thyroid function in different conditions of iodine nutrition in pregnant women exposed to mild-moderate iodine deficiency: an observational study. *Clin Endocrinol (Oxf)* 2011;74:762-8. .... 5

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identify a benign nodule, they may not require a biopsy. This study tests the reliability of several ultrasound patterns to identify benign thyroid nodules.

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Surgery is often needed to remove benign non-cancerous thyroid growths (nodules) or enlarged thyroids (goiters). The authors of this study examined a database including information about 119,885 thyroid operations in the United States from 1993 to 2007 to discover trends related to thyroid surgery during that time period.

Ho TW et al. Utilization of thyroidectomy for benign disease in the United States: a 15-year population-based study. *Am J Surg* 2011;201:570-4. .... 8

### **THYROID CANCER Is a family history of any cancer a risk for thyroid cancer?**

While certain types of thyroid cancer run in families, the vast majority do not have a family history of thyroid cancer. However, some studies suggest that thyroid cancer may run in families with other types of cancer. The aim of this study was to examine the association of a family history of cancer in patients with thyroid cancer.

Xu L et al. Family history of cancer and risk of sporadic differentiated thyroid carcinoma. *Cancer*. 2011. Epub online publication July 28, 2011. .... 9

### **THYROID CANCER Determining which thyroid cancer patients are at low risk for cancer recurrence**

Because only a relatively few patients will die from thyroid cancer, the main risk is for cancer recurrence. The aim of this study was to find out how well testing of patients with thyroid cancer at 8 to 12 months following initial surgery could identify high and low risk patients for cancer recurrence.

Castagna MG et al. Delayed risk stratification, to include the response to initial treatment (surgery and radioiodine ablation), has better outcome predictivity in differentiated thyroid cancer patients. *Eur J Endocrinol* 2011;165:441-6. Epub July 12, 2011; doi: 10.1530/eje-11-0466. .... 10

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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 the start of another year of **Clinical Thyroidology for Patients**. We are starting our 4th year of publication, bringing to you, the patients, the most up-to-date, cutting edge thyroid research. What you read here as research studies will likely become the accepted practice in the future.

*Clinical Thyroidology for Patients* is published on a monthly basis and includes summaries of research studies that were discussed in a recent 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:

- What is the best way to protect your thyroid in the event of a nuclear accident?
- Is pre-term birth a risk factor for developing hypothyroidism as an adult?
- Should women who are considering pregnancy take extra iodine prior to getting pregnant?
- Do thyroid nodules that have a benign appearance on ultrasound need to be biopsied?
- Has the type of thyroid surgery changed in recent years?
- Is a family history of any cancer a risk factor for developing thyroid cancer?
- What is the best way to identify thyroid cancer patients who are at low risk for cancer recurrence?

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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## RADIOACTIVE IODINE

### Radiation protection after a nuclear accident

#### BACKGROUND

Radioactive iodine, specifically I-131, is the major radiation product released from a nuclear accident. The most recent accident was the nuclear reactor damage from the Tsunami in Japan. When radioactive iodine is released into the atmosphere, it can then be absorbed into the body. Eating contaminated foods is another way for radioactive iodine to get into the body. Once in the body, the radioactive iodine is taken up by thyroid cells. When thyroid cells absorb too much of the I-131 radioactive iodine, it can cause thyroid cancer. Babies and young children are at highest risk. The risk is much lower for people over age 40. Indeed, the rates of thyroid cancer were higher near Chernobyl, Russia after the nuclear accident there in 1986. Potassium iodide is the same form of iodine used to iodize table salt. Potassium iodide floods the thyroid with iodine, thus preventing radioactive iodine from being absorbed. Taking potassium iodide immediately after a nuclear accident appears to lessen the risk of developing thyroid cancer. Sodium perchlorate is a chemical that causes the thyroid to release any iodine that is stored in the thyroid cells. Thus, taking sodium perchlorate after a nuclear accident may cause the thyroid to release any radioactive iodine that the thyroid cells have already taken up. This study was to see if taking sodium perchlorate might also lower the chance of thyroid cancer after a nuclear accident.

#### THE FULL ARTICLE TITLE:

Hänscheid H et al Facing the nuclear threat: thyroid blocking revisited. *J Clin Endocrinol Metab.* August 24, 2011 [Epub ahead of print].

#### SUMMARY OF THE STUDY

This was a study of 27 healthy volunteers who did not have any thyroid problems. Each volunteer received a small (not harmful) dose of radioactive iodine, then different amounts of either potassium iodide or sodium perchlorate. The volunteers then had a radioactive iodine uptake (RAIU) test to see how long the radiation stayed in the thyroid. The authors found that 100 mg of either potassium iodide or sodium perchlorate was able to decrease radioactive iodine levels by almost 90%. However, younger people may need higher doses of these protective agents after a nuclear accident.

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

The results suggest that both potassium iodide and sodium perchlorate lower radioactive iodine levels to the thyroid after a nuclear accident. Decreasing radioactive iodine exposure is important for lowering thyroid cancer risk. Both are relatively safe to take as a single dose following a nuclear accident. Currently, potassium iodide is the main compound to take after a nuclear accident and is stockpiled in areas that have nuclear power plants in the United States. Since thyroid effects of low levels of perchlorate in the U.S. environment are controversial, it is unlikely that it will be made available to the general U.S. public following a nuclear accident. However, it is another compound that can be used in this situation.

— Angela Leung, MD

#### ATA THYROID BROCHURE LINKS

Thyroid cancer: [http://thyroid.org/patients/patient\\_brochures/cancer\\_of\\_thyroid.html](http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html)

#### ABBREVIATIONS & DEFINITIONS

**Ionizing radiation:** Radiation that can damage cells, causing cell death or mutation. It can originate from radioactive materials, x-ray tubes or specialized machines. It is invisible and not directly detectable by human senses.

**Radioactive iodine uptake (RAIU):** This is a measurement of activity of the thyroid gland and is reported as the percent of a dose of radioactive iodine that is retained in the thyroid gland 24 h after the dose is given.

**Potassium iodide:** This is the same form of iodine used to iodize table salt. Taking potassium iodide immediately after a nuclear accident appears to lessen the risk of developing thyroid cancer. This is because potassium iodide floods the thyroid with iodine, thus preventing radioactive iodine from being absorbed.

**Sodium perchlorate:** This chemical causes the thyroid to release any iodine that is stored in the thyroid cells. This is also a component of rocket fuel that can be found in the environment. The thyroid effects of low levels of perchlorate in the U.S. environment are controversial.



## THYROID AND PREGNANCY

### Pre-term birth and its relationship to hypothyroidism

#### BACKGROUND

It is well known that thyroid hormone has a major effect during pregnancy, both in the developing baby and in the mother. Even mild hypothyroidism has been associated with pre-term delivery. Low birth weight can be seen in babies born prematurely and previous studies suggested that low birth weight was associated with hypothyroidism in later life. The goal of this study was to examine pre-term birth and its effect on hypothyroidism in adulthood.

#### THE FULL ARTICLE TITLE:

Crump, C et al Preterm birth and risk of medically treated hypothyroidism in young adulthood. *Clin Endocrinol (Oxf)* 2011;75:255-260.

#### SUMMARY OF THE STUDY

A total of 629,806 individuals between 25 and 37 years of age were studied. A total of 27,935 (4.4%) were born prematurely (<37 weeks). Most of these (25,873, 4.1%) were born between 32 to 36 weeks. Compared to individuals who were born at full-term, those who were born prematurely were more likely to be male and/or a twin. A total of 11,159 (1.8%) individuals were prescribed at least one thyroid hormone medication per

year during the follow-up period and were presumed to be hypothyroid. Individuals who were born very pre-term (23 to 31 weeks) had a higher prevalence of being on thyroid hormone than those who were born full-term. Among individuals born prematurely (<37 weeks), twins had a higher prevalence of being on thyroid hormone than single births (2.3% vs. 1.8%).

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

Pre-term birth is associated with an increased risk of hypothyroidism that requires treatment in young adulthood. Hypothyroidism was more common in twins. While further studies are needed to assess this, this study suggests that physicians should follow thyroid tests more closely in twins and pre-term babies.

Heather Hofflich, MD

#### ATA THYROID BROCHURE LINKS

Hypothyroidism: [http://thyroid.org/patients/patient\\_brochures/hypothyroidism.html](http://thyroid.org/patients/patient_brochures/hypothyroidism.html)

Thyroid and Pregnancy: [http://thyroid.org/patients/patient\\_brochures/pregnancy.html](http://thyroid.org/patients/patient_brochures/pregnancy.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.



## THYROID AND PREGNANCY

### Pregnant women benefit from beginning iodine supplementation long before pregnancy

#### BACKGROUND

Iodine is a mineral that we get from our diet that is important for making thyroid hormones and for normal thyroid function. It is important in adults as well as in developing babies. Worldwide, iodine deficiency is the most common cause of hypothyroidism. In the United States we rarely see this problem since our diet usually contains adequate amounts of iodine. Iodine and thyroid hormones are critical to normal development of the baby's brain and nervous system. The baby gets its supply of iodine from the mother's diet. During pregnancy, mothers require more iodine. Prior studies have shown that mothers who use salt with extra iodine in it for two years prior to becoming pregnant are at low risk to develop hypothyroidism during the pregnancy. The current study examined the effects of varying amounts of dietary iodine on the mothers' thyroid function during pregnancy.

#### THE FULL ARTICLE TITLE:

Moleti M. et al Maternal thyroid function in different conditions of iodine nutrition in pregnant women exposed to mild-moderate iodine deficiency: an observational study. Clin Endocrinol (Oxf) 2011;74:762-8.

#### SUMMARY OF THE STUDY

Three groups were studied: one group (I-supplement) included 168 women who began using iodized salt upon becoming pregnant or shortly before and received 150 micrograms iodine supplementation per day upon becoming pregnant; another group (I-salt) included 105 women who had regularly used iodized salt for at least 2 years prior to becoming pregnant and a third group (No-I) included 160 women who took no extra iodine in their salt or during their pregnancy.

The women in the I-supplement group were found to have a higher average TSH levels than the other two groups. However, similar numbers of patients with an increased TSH above the normal range in both the I-supplement and the No-I groups; a lower number of women in the I-salt group had an elevated TSH. A total of 20% of the women in the No-I group had low T<sub>4</sub> levels (20%), which was over 2-fold greater than the I-salt (9.5%) and the I-supplement (8.5%) groups .

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

Women who wait until becoming pregnant to begin taking extra iodine may experience an increase in TSH, perhaps due to the abrupt increase in taking iodine. The regular use of additional iodine intake during pregnancy decreases the risk of low free T<sub>4</sub> levels during pregnancy. The study suggests that women considering becoming pregnant should make sure that they are using iodized salt perhaps as long as 2 years before they conceive in order to ensure normal thyroid tests during pregnancy. Given that many pregnancies are unplanned, perhaps all women who may become pregnant should take extra iodine to ensure normal thyroid tests during any pregnancy that may occur.

— Ruth Belin, MD

#### ATA THYROID BROCHURE LINKS

Thyroid and Pregnancy: [http://thyroid.org/patients/patient\\_brochures/pregnancy.html](http://thyroid.org/patients/patient_brochures/pregnancy.html)

Hypothyroidism: [http://thyroid.org/patients/patient\\_brochures/hypothyroidism.html](http://thyroid.org/patients/patient_brochures/hypothyroidism.html)

Thyroid Function Tests: [http://thyroid.org/patients/patient\\_brochures/function\\_tests.html](http://thyroid.org/patients/patient_brochures/function_tests.html)

Iodine Deficiency: [http://thyroid.org/patients/patient\\_brochures/iodine\\_deficiency.html](http://thyroid.org/patients/patient_brochures/iodine_deficiency.html)

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## **THYROID AND PREGNANCY, continued**

### **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.

**Thyroxine (T<sub>4</sub>):** 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. Free T<sub>4</sub> is the portion of T<sub>4</sub> that is not attached to other proteins in the body and is available to enter the various tissues that need thyroid hormone.

**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 NODULES

### Can nodules with a benign ultrasound appearance be left alone without biopsy?

#### BACKGROUND

Thyroid nodules are very common. Some studies have suggested that up to 50% of individuals that have neck imaging for any reason will have a thyroid nodule. The evaluation of a thyroid nodule often includes a thyroid ultrasound and a biopsy, depending on the size of the nodule. Several studies have attempted to link certain features on the thyroid ultrasound that are found in cancerous nodules in order to help target the more concerning nodules for biopsy. Additional studies have shown that some ultrasound patterns are associated with noncancerous (benign) nodules. If these features reliably identify a benign nodule, they may not require a biopsy. This study tests the reliability of several ultrasound patterns to identify benign thyroid nodules.

#### THE FULL ARTICLE TITLE:

Virmani V, Hammond I. Sonographic patterns of benign thyroid nodules: verification at our institution. *Am J Roentgenol* 2011;196:891-5.

#### SUMMARY OF THE STUDY

The pathology records and ultrasound studies of 950 thyroid nodules that underwent ultrasound-guided fine-needle aspiration biopsy from July 2005 through July 2009 were reviewed. The nodules were divided into benign (690 nodules) or cancerous (121 nodules)

based in the biopsy results and the ultrasound images were examined for the presence of one of 4 characteristic patterns seen with benign nodules. A total of 116 of the benign nodules (16.1%) had one of the 4 patterns. A total of 102 of these nodules had biopsies that were benign. The remaining 12 nodules had indeterminate findings and went to surgery; all 12 were benign after surgery. None of the 121 cancerous nodules showed any of the benign ultrasound patterns.

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

This study suggests that there are at least 4 ultrasound features that are always associated with benign thyroid nodules. Thus, if a nodule shows one of these features, it does not necessarily need to be biopsied. However, most benign thyroid nodules do not have one of these findings. If these results are confirmed in larger studies, this may lead to a decrease in the need for biopsies and decrease in the number of surgeries for nodules with indeterminate biopsies.

— Alan Farwell, MD

#### ATA THYROID BROCHURE LINKS

Thyroid Nodules: [http://thyroid.org/patients/patient\\_brochures/nodules.html](http://thyroid.org/patients/patient_brochures/nodules.html)

#### ABBREVIATIONS & DEFINITIONS

**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.

**Thyroid fine needle aspiration biopsy (FNAB):** 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.

**Indeterminate thyroid biopsy:** this usually happens when the diagnosis is a follicular or hurtle cell lesion. Follicular and hurtle cells are normal cells found in the thyroid. Current analysis of thyroid biopsy results cannot differentiate between follicular or hurtle cell cancer from noncancerous adenomas. This occurs in 15-20% of biopsies and often results in the need for surgery to remove the nodule.



## GOITER

### Increasing rates of total thyroidectomy for non-cancerous thyroid disorders

#### BACKGROUND

Surgery is often needed to remove benign non-cancerous thyroid growths (nodules) or enlarged thyroids (goiters). Removing the entire thyroid gland is called a total thyroidectomy. When less than all of the thyroid gland is removed, the surgery is called a partial thyroidectomy. The amount of thyroid gland removed often depends on whether the problem involves both sides thyroid. The balance between the risk of surgical complications and eliminating the need for further surgery if nodules occur in the remaining gland are important to consider. The authors of this study examined a database including information about 119,885 thyroid operations in the United States from 1993 to 2007 to discover trends related to thyroid surgery during that time period.

#### THE FULL ARTICLE TITLE:

Ho TW et al. Utilization of thyroidectomy for benign disease in the United States: a 15-year population-based study. *Am J Surg* 2011;201:570-4.

#### SUMMARY OF THE STUDY

The authors found that the percentage of patients having total thyroidectomy increased from 17.6% (from 1993-1997) to 39.4% (from 2003-2007) for benign, non-cancerous, thyroid disease. While there was very little variation across different regions of the United States, patients were more likely to undergo total thyroidectomy at an urban teaching hospital than in urban non-teaching

or rural hospitals. The authors also found that the length of time spent in the hospital and the hospital charges were significantly more for total thyroidectomy. The data also demonstrated a higher rate of post-operative complications with total thyroidectomy, such as low calcium levels, bleeding and hoarseness due to vocal cord problems. Hospitals that performed a higher number of thyroid operations were found to have lower complication rates.

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

This study clearly shows an increase in the rate of total thyroidectomy for benign non-cancerous thyroid disease relative to partial thyroidectomy over a period of fifteen years. It is not clear from the database why the rate of total thyroidectomy is increasing. Regardless, every patient with benign thyroid disease should have an individualized approach based on multiple factors, including risk of surgical complications, type of thyroid disease and patient preference.

— Ronald Kuppersmith, MD

#### ATA THYROID BROCHURE LINKS

Thyroid Surgery: [http://thyroid.org/patients/patient\\_brochures/surgery.html](http://thyroid.org/patients/patient_brochures/surgery.html)

Thyroid Nodules: [http://thyroid.org/patients/patient\\_brochures/nodules.html](http://thyroid.org/patients/patient_brochures/nodules.html)

Goiter: [http://thyroid.org/patients/patient\\_brochures/goiter.html](http://thyroid.org/patients/patient_brochures/goiter.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.

**Total thyroidectomy:** surgery to remove the entire thyroid gland.

**Partial thyroidectomy:** surgery that removes only part of the thyroid gland (usually one lobe with or without the isthmus).

**Near-total thyroidectomy:** removal of nearly all of each thyroid lobe, leaving only a small portion of the thyroid gland.

**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 CANCER

### Is a family history of any cancer a risk for thyroid cancer?

#### BACKGROUND

Thyroid cancer is common and appears to be increasing in incidence. Indeed, thyroid cancer is the fastest rising cancer diagnosed in women. Most thyroid cancer generally is associated with an excellent prognosis. While certain types of thyroid cancer run in families, the vast majority do not have a family history of thyroid cancer. However, some studies suggest that thyroid cancer may run in families with other types of cancer. The aim of this study was to examine the association of a family history of cancer in patients with thyroid cancer.

#### THE FULL ARTICLE TITLE:

Xu L et al. Family history of cancer and risk of sporadic differentiated thyroid carcinoma. *Cancer*. 2011. Epub online publication July 28, 2011.

#### SUMMARY OF THE STUDY

This study was performed at the MD Anderson Cancer Center in Texas. This study compared 3 groups of individuals and assessed whether there was an association between family history of cancer and risk of thyroid cancer. The patients were divided into 3 groups studied: 1) 288 patients with thyroid cancer, 2) 188 patients with

thyroid nodules without cancer and 3) 591 patients with no thyroid disease. Patients completed a survey regarding their family history of cancer. A family history of any type of cancer was reported by 49% of the thyroid cancer group, 55% of the thyroid nodule group and 58% of the individuals without thyroid disease. However, while only 6.3% of patients with thyroid cancer had a family history of thyroid cancer, this was >4 times more common than in the individuals without thyroid disease. All of these cancers were papillary thyroid cancer. Having a family history of thyroid cancer was also more common in patients with thyroid nodules.

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

While the overall likelihood is low, individuals with a family history of thyroid cancer appear to be at increased risk for developing thyroid cancer of their own.

—Whitney Woodmansee, MD

#### ATA THYROID BROCHURE LINKS

Thyroid cancer: [http://thyroid.org/patients/patient\\_brochures/cancer\\_of\\_thyroid.html](http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.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.

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



## THYROID CANCER

### Determining which thyroid cancer patients are at low risk for cancer recurrence

#### BACKGROUND

Patients with thyroid cancer initially undergo surgery to remove the thyroid. This may be followed by radioactive iodine therapy. Because only a relatively few patients will die of thyroid cancer, the main risk is for cancer recurrence. Identification of patients at high risk for cancer recurrence would allow more aggressive follow up and treatment. Identification of those patients at low risk would decrease the need for close follow up. The aim of this study was to find out how well testing of patients with thyroid cancer at 8 to 12 months following initial surgery could identify high and low risk patients for cancer recurrence.

#### THE FULL ARTICLE TITLE:

Castagna MG et al. Delayed risk stratification, to include the response to initial treatment (surgery and radioiodine ablation), has better outcome predictivity in differentiated thyroid cancer patients. *Eur J Endocrinol* 2011;165:441-6. Epub July 12, 2011; doi: 10.1530/eje-11-0466.

#### SUMMARY OF THE STUDY

The authors studied 512 patients with papillary or follicular thyroid cancer at the University of Siena in Italy. All patients had a thyroidectomy followed by radioactive iodine. Using guidelines from the American and European Thyroid Associations, patients were separated into risk groups with slightly less than half of patients being defined as low risk of developing recurrent cancer and the rest being classified as intermediate or high risk. At 8 to 12 months following initial thyroid cancer treatment, the patients had a number of tests including: clinical examination, thyroglobulin blood tests, neck ultrasound and sometimes whole body radioactive iodine scans and were re-assigned

into high and low risk categories. If all the tests were completely normal, the patients were considered to be in “clinical remission” and defined as “low risk”. If one or more of the tests was abnormal, then patients were defined as “high risk”. About 1/3rd of patients (31%, 159/512) were placed in the high risk category and the rest (69%, 353/512) fell into the low risk category.

As expected, the risk of dying from cancer was very low (1.2%, 8/512 patients) and no low risk patient died of this disease. Over 95% of the low risk patients stayed in remission while ~1/3rd of high risk patients went into remission over the study period. The recurrence rate of the thyroid cancer was the same in both the high and low risk patients, ranging from 2.3-4%.

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

The risk of dying from thyroid cancer is very low. Also, while tests may become positive (blood tests or ultrasound), <5% of patients will have a recurrence of the cancer that will require further treatment. This study suggests that >95% of patients with thyroid cancer who have completely normal thyroid cancer tests at 8-12 months after initial treatment will remain in remission. In addition, 1/3rd of patients with initially positive cancer tests will achieve a remission. While these results need to be confirmed, this should be reassuring to thyroid cancer patients.

— Anna M. Sawka, MD, PhD, FRCPC

#### ATA THYROID BROCHURE LINKS

Thyroid cancer: [http://thyroid.org/patients/patient\\_brochures/cancer\\_of\\_thyroid.html](http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html)



## THYROID CANCER, continued

### ABBREVIATIONS & DEFINITIONS

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

**Follicular thyroid cancer:** the second 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.

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

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

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

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

e-mail: [thyroid@thyroid.org](mailto: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](http://www.ngdf.org)

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

e-mail: [Gravesdiseasefd@gmail.com](mailto: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](http://www.checkyourneck.com)

email: [info@checkyourneck.com](mailto: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](http://www.thyca.org)

Phone (toll-free): 877 588-7904

e-mail: [thyca@thyca.org](mailto: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](http://www.thyroid.org)

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

### **Graves' Disease Conferences** [www.ngdf.org](http://www.ngdf.org)

Fall, 2011 — Boston, MA

#### **Annual Patient & Family Conference**

### **Light of Life Foundation** [www.checkyourneck.com](http://www.checkyourneck.com)

Ongoing — [www.checkyourneck.com](http://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](http://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](http://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](http://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](http://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](http://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](http://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](http://www.thyca.org)