# Clinical THYROIDOLOGY FOR THE PUBLIC

AMERICAN THYROID ASSOCIATION
FOUNDED 1923

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CLINICAL THYROIDOLOGY **FOR THE PUBLIC**
A publication of the American Thyroid Association
VOLUME 7 • ISSUE 1 • 2014

# EDITOR'S COMMENTS

With this issue, *Clinical Thyroidology for Patients* becomes ***Clinical Thyroidology for the Public!*** We are changing our name (but not our content!). In this journal, we will bring to you, the patient, the most up-to-date, cutting edge thyroid research. We will be providing summaries of research studies that were discussed in a recent issue of *Clinical Thyroidology*, a publication of the American Thyroid Association for physicians. These summaries are present in lay language to allow the rapid dissemination of thyroid research to the widest possible audience. The switch from "Patients" to "the Public" simply mirrors these efforts and confirms that you do not need to be a patient to make use of ***Clinical Thyroidology for the Public***. This means that you are getting the latest information on thyroid research and treatment almost as soon as your physicians.

We are also planning additional content, possibly some topic reviews, in future issues. As always, we are happy to entertain any suggestions to improve *Clinical Thyroidology for the Public* so let us know what you want to see.

We also provide even faster updates of late-breaking thyroid news through Twitter at @thyroidfriends and on Facebook. Our goal is to provide patients with the tools to be the most informed thyroid patient in the waiting room.

Also check out our friends in the Alliance for Thyroid Patient Education. The Alliance member groups consist of: the *American Thyroid Association*, the *Graves' Disease and Thyroid Foundation*, the *Light of Life Foundation*, *ThyCa: Thyroid Cancer Survivors Association*, *Thyroid Cancer Canada and Thyroid Federation International*.

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

1. Is autism associated with hypothyroidism in the mother during pregnancy?
2. Are low thyroid hormone levels a risk factor for premature delivery during pregnancy?
3. Is monitoring frequent white blood cell counts helpful in following patients with Graves' disease treated with antithyroid drugs?
4. Can US findings predict the risk that a thyroid nodule is cancerous?
5. Does performing a neck ultrasound before surgery in thyroid cancer patients helpful in planning thyroid surgery?
6. Is the diabetes drug Metformin an effective treatment option for patients with thyroid cancer?
7. Is radioactive iodine therapy useful in radiation-induced thyroid cancers after exposure to the Chernobyl nuclear accident?

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

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## THYROID AND PREGNANCY

# Severe hypothyroidism in the mother is associated with possible autism in their babies

### BACKGROUND

Thyroid hormone is essential for normal brain development in babies during pregnancy. There has been a report that low thyroid levels (hypothyroidism) in babies is possibly associated with the development of autism. Prior studies have shown that low thyroid levels in the mother during pregnancy has been associated with brain abnormalities in the baby. This study was done to see if severe hypothyroidism in the mother during pregnancy is also associated with autism in the baby.

### THE FULL ARTICLE TITLE

Román GC et al. Association of gestational maternal hypothyroxinemia and increased autism risk. Ann Neurol. August 13, 2013 [Epub ahead of print].

### SUMMARY OF THE STUDY

A total of 8,790 pregnant women in the Netherlands were enrolled in the study between 2002-2006. Of these, 4,039 women provided data on whether autism was present in their children at age 6 years old. The pregnant women's free $T_4$, TSH, and TPO antibodies were assessed at 18 weeks of the pregnancy.

A total of 80 children were diagnosed with probable autism. Severe hypothyroidism in the mother was associated with almost 4-times the risk of the baby being diagnosed with autism as compared to women with normal thyroid tests. Babies born to women with low thyroid hormone levels but a normal TSH did not have an increased risk of autism. TPO antibodies in the mother were not associated with autism either.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that severe hypothyroidism in early pregnancy is associated with a diagnosis of autism in children. This is an important study because a controversial question is whether or not women should be routinely screened for thyroid problems during pregnancy. This study further demonstrates that there may be a need for universal screening for hypothyroidism during pregnancy as there can be adverse outcomes later in life. Further studies need to be performed to provide more evidence for routine screening.

— Heather Hofflich, DO

### ATA THYROID BROCHURE LINKS

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

Hypothyroidism: http://www.thyroid.org/what-is-hypothyroidism

### ABBREVIATIONS & DEFINITIONS

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

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

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

TPO antibodies: these are antibodies that attack the thyroid instead of bacteria and viruses, they are a marker for autoimmune thyroid disease, which is the main underlying cause for hypothyroidism and hyperthyroidism in the United States.

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## THYROID AND PREGNANCY

# Low free thyroid hormone levels and positive TPO antibodies are risk factors for premature delivery in women

### BACKGROUND

Premature birth of a child is defined as delivery before 37 weeks of a pregnancy. A full term pregnancy is considered to be 40 weeks. Premature delivery is associated with an increased risk of infant death as well as other potential health problems that may occur later in life. The cause of premature birth is not always known but scientists have investigated a number potential risk factors, including thyroid status. Severe hypothyroidism and hyperthyroidism during pregnancy have been associated with premature birth, but results have been conflicting on milder forms of thyroid problems. Thyroid problems are frequently caused by autoimmune thyroid disease where antibodies get confused and attack the thyroid. TPO antibodies are a marker of autoimmune thyroid disease. This study investigated the relationship between thyroid function, positive TPO antibodies and risk of premature birth.

### THE FULL ARTICLE TITLE

Korevaar TI et al. Hypothyroxinemia and TPO-antibody positivity are risk factors for premature delivery: the Generation R Study. J Clin Endocrinol Metab. September 13, 2013 [Epub ahead of print].

### SUMMARY OF THE STUDY

This study is part of a larger study known as the large "Generation R Study" population that is being conducted in Rotterdam, The Netherlands. This study examined the association between thyroid blood tests with a woman's risk for delivering her baby prematurely. Serum TSH, free and total $T_4$ and TPO antibodies were measured in 5971 pregnant women. The women were followed throughout pregnancy and the relationship between thyroid lab test results and duration of pregnancy were determined. Overall, 5% of women had premature delivery, 4.4% had a spontaneous premature delivery and 1.4% had a very premature delivery (less than 34 weeks of pregnancy). Women with both an elevated TSH during pregnancy and positive TPO antibodies demonstrated an increased risk of premature delivery compared to women with normal TSH levels. Low free $T_4$ levels with a normal TSH and positive TPO antibodies were also associated with an increased risk of all categories of premature birth. The relationship between positive TPO antibodies and premature delivery was independent of thyroid hormone and TSH levels.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

As seen in prior studies, increased TSH levels in the mother were associated with increased risk of premature birth. In addition, this study suggests that decreased $FT_4$ levels and positive TPO antibodies are also associated with an increased risk of premature birth. These results suggest that screening women for thyroid disease in early pregnancy should be considered

— Whitney Woodmansee MD

### ATA THYROID BROCHURE LINKS

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

### 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).

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.

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

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

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## GRAVES' DISEASE

# Regular white blood cell counts are not helpful in monitoring patients with Graves' disease receiving antithyroid drugs

### BACKGROUND

Graves' disease is the most common cause of hyperthyroidism in the United States. Initial therapy often includes the antithyroid drugs Methimazole or Propylthiouracil. These drugs block the formation of thyroid hormone by the thyroid gland, causing thyroid hormone levels to fall and returning the thyroid function to normal. A rare but serious side effect of antithyroid drugs is called agranulocytosis, which is a marked decrease in the white blood cell count to <1000. This causes a patient to be more likely to develop an infection and is commonly associated with a fever and/or a sore throat. It is usually reversible when the antithyroid drug is stopped. There remains some controversy as to whether or not routine measurements of white blood cells are helpful in monitoring for the development of agranulocytosis. Currently, this is not usual practice in the United States. In Japan, physicians, are strongly advised to monitor blood counts of patients treated with antithyroid drugs every two weeks for the first two months of therapy and are required by law to report all complications. This study examines data from Japan collected over a 30 year period from patients on antithyroid drugs who developed agranulocytois or other blood disorders.

### THE FULL ARTICLE TITLE

Nakamura H et al. Analysis of 754 cases of anthithyroid drug-induced agranulocytosis over 30 years in Japan. J Clin Endocrinol Metab. September 20, 2013 [Epub ahead of print]. Doi: 10.1210/jc.2013-2569.

### SUMMARY OF THE STUDY

Between 1981 and 2011, 670 of 33,500 patients taking antithyroid drugs were reported to have developed agranulocytosis and 84 patients were reported with more severe blood disorders. A total of 725 patients had been taking Methimazole and 28 were taking Propylthiouracil. It was calculated that approximately 0.12% of patients developed blood abnormalities on antithyroid drugs. Approximately 70% of disorders appeared within 60 days of starting medication and 85% within 90 days. In 20% of these cases a white blood cell count >1000 was documented within 1 week of the development of agranulocytosis and in another 50% the white blood cell count was reported to be normal within 2 weeks. Overall 96% of patients with agranulocytosis recovered completely while 4% died.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study confirms that agranulocytosis is a very rare complication of treatment with antithyroid drugs. Since 70% of cases occurred abruptly, routine monitoring of white blood cell counts is not helpful. Instead, all patients on antithyroid drugs need to know that upon any suggestion of sore throat, URI, fever or other sign of infection these drugs need to be stopped and a a white blood cell counts needs to be checked.

— Frank Crantz, MD

### ATA THYROID BROCHURE LINKS

Hyperthyroidism: http://www.thyroid.org/what-is-hyperthyroidism

Graves' Disease: http://www.thyroid.org/what-is-graves-disease

### ABBREVIATIONS & DEFINITIONS

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.

Agranulocytosis: a marked decrease in the white blood cell count to <1000. This causes a patient to be more likely to develop an infection and is commonly associated with a fever and/or a sore throat.

Methimazole: an antithyroid medication that blocks the thyroid from making thyroid hormone. Methimazole is used to treat hyperthyroidism, especially when it is caused by Graves' disease.

Propylthiouracil (PTU): an antithyroid medication that blocks the thyroid from making thyroid hormone. Propylthiouracil is used to treat hyperthyroidism, especially in women during pregnancy.

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## THYROID NODULES

# Risk of thyroid cancer based on thyroid ultrasound findings

### BACKGROUND

Thyroid nodules are very common. With the increased use of thyroid ultrasound, some studies suggest that thyroid nodules occur in >50% of the population. Studies report on possibility of thyroid cancer in about 5% of thyroid nodules. Fine needle aspiration biopsy (FNAB) is the best way to find out whether a thyroid nodule is cancerous or benign. Since most of the thyroid nodules are not cancer, it is important to know which nodules should undergo biopsy. This study examines what ultrasound features are most helpful in selecting which nodules are more likely to be cancerous and should be biopsied and which nodules are non-cancerous.

### THE FULL ARTICLE TITLE

Smith-Bindman R. et al. Risk of thyroid cancer based on thyroid ultrasound imaging characteristics: results of a population-based study. JAMA Intern Med. August 26, 2013. [Epub ahead of print]. doi: 10.1001/jamainternmed.2013.9245.

### SUMMARY OF THE STUDY

Between January 2000 and March 30, 2005, records of 11,618 thyroid ultrasound exams performed for any reason in 8806 patients (some had multiple nodules) were reviewed.

Different ultrasound features such as nodule size, microcalcification, solid feature (vs cystic), coarse calcifications, texture of the gland, blood flow within the nodule, the edges of the nodule and shape (more tall than wide) were evaluated and recorded in all cases. A total of 96 patients diagnosed with cancer were matched for age, sex and year of ultrasonography with 369 controls with benign thyroid nodules.

On average, 1 case of thyroid cancer was found for every 111 ultrasound exams performed. Thyroid nodules were found in 97% of patients with thyroid cancer and in 56% of without thyroid cancer. Microcalcifications were found in 38% of cancerous nodules and only in 5% of benign, non-cancerous nodules. The risk of cancer increased with the size of nodule. Data analysis of this study showed that only 3 ultrasound features were related with the risk of cancer: microcalcification, nodule size greater than 2 cm, and solid form.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that ultrasound features of microcalcifications, solid nodule and size larger than 2 cm can be used to identify patients at high risk for thyroid cancer. In contrast, other studies have shown that ultrasound features such as coarse calcifications, more tall than wide, irregular borders and increased blood flow within the nodule can be helpful to identify thyroid cancer. Currently, the American Thyroid Association guidelines recommends to perform a FNAB of solid nodules >1 cm and nodules >0.5 cm only when they have suspicious features detected by ultrasound.

Some authors suggest that hypoechoic, solid nodules larger than 1 to 1.5 cm with macrocalcifications should be biopsied and spongiform nodules and cysts need no biopsy.

— Jamshid Farahiti, MD

### ATA THYROID BROCHURE LINKS

Thyroid cancer: http://www.thyroid.org/cancer-of-the-thyroid-gland

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

### 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.

## **THYROID NODULES,** continued

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.

Microcalcifications: Small flecks of calcium within a thyroid nodule, usually seen as small bright spots on ultrasonography. These are frequently seen in nodules containing papillary thyroid cancer.

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## THYROID CANCER

# Neck ultrasound before surgery may change the extent of surgery in patients with thyroid cancer

### BACKGROUND

Thyroid cancer is the fastest rising cancer in women. Papillary cancer is the most common type of thyroid cancer. Surgery to remove the entire thyroid (total thyroidectomy) is the usual first treatment. Nearly 1/3 of patients with papillary cancer may have spread of the cancer to the lymph nodes at the time their thyroid cancer is discovered. These patients have a higher risk that the cancer will come back after the initial surgery. Neck ultrasound often can identify abnormal lymph nodes prior to surgery, especially when these lymph nodes are lateral to the thyroid. This allows surgeons to find and remove these worrisome lymph nodes at the time of the patient's first operation. However, removing lymph nodes lateral to the thyroid requires more extensive surgery as compared routine total thyroidectomy. It is not clear how often the preoperative neck ultrasound identifies lymph nodes that actually change the surgeon's plan. The present study examines the role of preoperative neck ultrasound in thyroid cancer patients and whether the results change the surgeons' plan.

### THE FULL ARTICLE TITLE

O'Connell K et al. The utility of routine preoperative cervical ultrasonography in patients undergoing thyroidectomy for differentiated thyroid cancer. Surgery. September 5, 2013 [Epub ahead of print]. doi: 10.1016/j.surg.2013.06.040.

### SUMMARY OF THE STUDY

A total of 70 patients with thyroid cancer underwent neck ultrasound prior to surgery. All of these patients then had surgery to remove the thyroid gland and removal of lymph nodes when the surgeon decided this was appropriate. A total of 7 patients were found to have enlarged lymph nodes on physical examination. In the remaining 63 patients, 16 had no evidence of enlargement of lymph nodes on physical exam but did have worrisome lymph node changes on ultrasound alone, including 2 patients with abnormal lymph nodes lateral to the thyroid. Of these 16 patients, 15 were found at the time of surgery to have spread of their thyroid cancer to the lymph nodes. Therefore, 23% (16 out of 70) patients had a change in their operation. In only 1 case was the patient found to have no evidence of spread to the lymph nodes when the neck ultrasound indicated that there were worrisome lymph nodes.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that performing neck ultrasound prior to surgery in patients with thyroid cancer, as recommended by the American Thyroid Association, improves the ability of the surgeon to find and remove lymph nodes that contain spread of thyroid cancer at the time of the first operation in patients. Neck ultrasound appears to be better than physical examination alone to identify patients who are at risk for spread to their lymph nodes. Only 1 patient had to undergo unnecessary additional surgery as a result of the neck ultrasound findings. This study adds to the potential ability of surgeons to improve the results of the first operation in patients with thyroid cancer.

— Jennifer Rosen, MD

### ATA THYROID BROCHURE LINKS

Thyroid cancer: http://www.thyroid.org/cancer-of-the-thyroid-gland

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

## **THYROID CANCER,** continued

### 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.

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

Total thyroidectomy: surgery to remove the entire thyroid gland.

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

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## THYROID CANCER

# Metformin inhibits thyroid cell growth and improves the treatment of thyroid cancer in patients with diabetes

### BACKGROUND

Obesity and type 2 diabetes have both been associated with an increased risk for some types of cancer. Metformin is a diabetes drug that helps the body become more sensitive to insulin. Metformin has also been shown to have beneficial effects in various cancers, suggesting there may be a role for this drug as an additional cancer treatment in some cases. In a prior study, these authors found that metformin decreased the growth of some types of thyroid cancer cells when grown in a lab. This study examined the effects of metformin on the response of thyroid cancer to treatment in patients with diabetes.

### THE FULL ARTICLE TITLE:

Klubo-Gwiezdzinska J et al. Treatment with metformin is associated with higher remission rate in diabetic patients with thyroid cancer. J Clin Endocrinol Metab 2013;98:3269-79. Epub May 24, 2013.

### SUMMARY OF THE STUDY

The authors reviewed the records of 240 patients with thyroid cancer who had been treated with surgery and radioactive iodine and who had previously been diagnosed with type 2 diabetes mellitus. There patients were followed for an average of 6.9 years. They divided the patients into three groups: group 1 had been treated with metformin, group 2 had not received metformin and group 3 had not received metformin and did not have a history of diabetes. The patients in group 1 and 2 were similar in age, sex, weight and use of diabetes medications.

The cancer size was significantly smaller in diabetics who were treated with metformin. The total amount of radioactive iodine given was higher in patients with diabetes who were not taking metformin. Group 2 patients had a significantly lower rate of response to treatment compared to groups 1 and 3. The absence of treatment with metformin was significantly associated with a risk for progression of cancer along with other establish risk factors such as age at diagnosis of cancer and presence of spread of the cancer outside the thyroid.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests a possible role for metformin in the treatment of thyroid cancer. The results raise the possibility that metformin treatment decreases cancer size, although it may also decrease the rate of cancer growth. In patients with diabetes who have thyroid cancer, metformin treatment improved response to cancer treatment and was associated with longer progression-free survival.

— Ronald B. Kuppersmith, MD, FACS

### ATA THYROID BROCHURE LINKS

Thyroid cancer: http://www.thyroid.org/cancer-of-the-thyroid-gland

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

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

### ABBREVIATIONS & DEFINITIONS

Metformin: a diabetes drug that helps the body become more sensitive to insulin.

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.

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## THYROID CANCER

# Usefulness of radioactive iodine therapy in children with thyroid cancer after the Chernobyl nuclear accident

### BACKGROUND

After the Chernobyl nuclear accident in 1986, people living in surrounding areas were exposed to high radiation levels putting then at risk for developing papillary thyroid cancer. This was especially true for children who were under 14 years of age at the time of the accident (40 times higher risk of developing thyroid cancer compared to non-exposed children). Children who developed thyroid cancers were routinely treated with surgery. Those with cancer invasion into surrounding tissues, spread to lymph nodes or spread to other parts of the body went on to receive radioactive iodine therapy. Because this cancer was caused by radiation, it is unclear how effective radioactive iodine therapy is in treating the cancer. This study examined the usefulness of radioactive iodine therapy in children with radiation induced thyroid cancer.

### THE FULL ARTICLE TITLE

Reiners C et al. Twenty-five years after Chernobyl: outcome of radioiodine treatment in children and adolescents with very high-risk radiation-induced differentiated thyroid carcinoma. J Clin Endocrinol Metab 2013;98:3039-48. Epub April 24, 2013.

### SUMMARY OF THE STUDY

A total of 134 children without spread of the cancer outside of the thyroid and 100 patients with spread of the cancer to other parts of the body were included in the study. All children received radioactive iodine therapy after thyroid hormone withdrawal. They were seen in clinic every 3-12 months for up to 13 years. Response to radioactive iodine therapy was assessed based on thyroglobulin level and results of repeat radioactive iodine scanning. Children were treated with repeat radioactive iodine therapies if they had persistent thyroid cancer.

The majority of the patients were cured from thyroid cancer (64%). The other patients had stable disease. No one died from thyroid cancer. Radioactive iodine therapy caused breathing difficulty (8 patients) and one patient died from decreased lung function. Radioactive iodine therapy seemed to cause infertility in men.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that children with radiation-induced papillary thyroid cancer respond well to radioactive iodine therapy. This is certainly encouraging, especially since the thyroid cancer that developed in children after Chernobyl is more aggressive that the usual papillary thyroid cancer. However, it is uncertain whether this response is any different than the response of the usual papillary cancer to radioactive iodine therapy. As in all patients, rare but serious side effects limit the use of repeated radioactive iodine therapy.

— Mona Sabra, MD

### ATA THYROID BROCHURE LINKS

Thyroid cancer: http://www.thyroid.org/cancer-of-the-thyroid-gland

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

### ABBREVIATIONS & DEFINITIONS

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).

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.

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# ATA Alliance for Thyroid Patient Education

## WELCOME

The American Thyroid Association is pleased to welcome our two newest members, **Thyroid Federation International** and **Thyroid Cancer Canada**, to the Alliance for Thyroid Patient Education.

## GOAL

The goal of our organizations is to provide accurate and reliable information for patients about the diagnosis, evaluation and treatment of thyroid diseases.

We look forward to future collaborations and continuing to work together towards the improvement of thyroid education and resources for patients.

## WHO WE ARE (in alphabetical order)

### AMERICAN THYROID ASSOCIATION

**www.thyroid.org**
ATA Patient Resources: http://www.thyroid.org/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 the Public*. We welcome your support.

### GRAVES' DISEASE AND THYROID FOUNDATION

**www.gdatf.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.

*continued on next page*

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ThyCa: Thyroid Cancer Survivors' Association, Inc.
www.thyca.org

GRAVES' DISEASE & THYROID FOUNDATION

Thyroid Cancer Canada
Cancer de la thyroïde Canada

Light of Life Foundation
checkyourneck.com

Thyroid Federation International

# ATA Alliance for Thyroid Patient Education

**Continued...**

## 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.

## THYROID CANCER CANADA

## WWW.THYROIDCANCERCANADA.ORG

Phone: 416-487-8267
Fax: 416-487-0601
e-mail: info@thyroidcancercanada.org

Thyroid Cancer Canada is a non-profit organization founded in 2000. The organization works towards creating an environment in which people who are dealing with thyroid cancer, especially the newly diagnosed, are met with support and information. Their goals & objectives include facilitating communication among thyroid cancer patients, providing credible information about the disease, providing emotional support, and assisting thyroid cancer patients with voicing their needs to health care professionals and those who are responsible for health care policy.

## THYROID FEDERATION INTERNATIONAL

## HTTP://WWW.THYROID-FED.ORG/

e-mail: tfi@thyroid-fed.org

Thyroid Federation International (TFI) was established in Toronto in 1995. Thyroid Federation International aims to work for the benefit of those affected by thyroid disorders throughout the world by providing a network of patient support organizations.

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ThyCa: Thyroid Cancer Survivors' Association, Inc. www.thyca.org

GRAVES' DISEASE & THYROID FOUNDATION

Thyroid Cancer Canada
Cancer de la thyroïde Canada

Light of Life Foundation checkyourneck.com

Thyroid Federation International