

Clinical THYROIDOLOGY FOR THE PUBLIC



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MARCH THYROID AWARENESS *Hashimoto's Disease*



THE AMERICAN THYROID ASSOCIATION

attempts are more likely to carry anti-thyroid antibodies in their blood. The goal of this study was to determine if using prednisolone to suppress the immune system in women with anti-thyroid antibodies can improve the chances of becoming pregnant.

Litwicka K et al. In women with thyroid autoimmunity, does low-dose prednisolone administration, compared with no adjuvant therapy, improve in vitro fertilization clinical results? J Obstet Gynaecol Res. November 25, 2014 [Epub ahead of print].

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Leger J et al. Pregnancy outcomes and relationship to treatment adequacy in women treated early for congenital hypothyroidism: a longitudinal population-based study. J Clin Endocrinol Metab. November 25, 2014 [Epub ahead of print].

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Jeong SH et al Outcome of thyroid nodules characterized as atypia of undetermined significance or follicular lesion of undetermined significance and correlation with ultrasound features and BRAF(V600E) mutation analysis. AJR Am J Roentgenol 2013;201:W854-60.

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Younger patients with papillary microcarcinoma are more likely to progress to significant disease It is unclear whether papillary thyroid microcarcinomas will become clinically important or even if they need to be surgically removed. These authors are following a large group of patients with papillary microcarcinoma without surgery. In this study, the authors examined whether age would be a predictor of cancer growth or spread in patients with papillary thyroid microcarcinoma.
Ito Y et al Patient age is significantly related to the progression of papillary microcarcinoma of the thyroid under observation. Thyroid 2014; 24:27-34. Epub November 14, 2013.

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Clinical Thyroidology for the Public

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CLINICAL THYROIDOLOGY **FOR THE PUBLIC**

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EDITOR'S COMMENTS

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

We also provide even faster updates of late-breaking thyroid news through **Twitter** at [@thyroidfriends](https://twitter.com/thyroidfriends) and on **Facebook**. Our goal is to provide patients with the tools to be the most informed thyroid patient in the waiting room.

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

March is Hashimoto's Disease Awareness Awareness month.

In this issue, the studies ask the following questions:

1. What is the effect of a salt iodination program on thyroid nodules?
2. Does congenital hypothyroidism in the mother during pregnancy affect the baby?
3. Can suppressing the immune system in women with anti-thyroid antibodies increase the success of IVF?
4. What are the cancer rates in thyroid nodules with indeterminate biopsies?
5. Does age have an effect on the progression and spread of papillary thyroid microcarcinoma?

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 NODULES

Thyroid nodules may disappear on long-term follow-up after iodization of salt

BACKGROUND

Iodine is an essential nutrient in making thyroid hormones. Iodine deficiency in the diet leads to thyroid nodules, goiter and hypothyroidism. Iodine can be added to salt to treat iodine-deficient diets and, consequently, many countries have salt iodination programs to prevent iodine deficiency in their populations. When a country starts such a program, the rates of hypothyroidism decrease significantly. What is less well known is whether there is any change in the rate of thyroid nodules after starting a salt iodination program. The main goal of the current study was to assess changes in thyroid gland structure after the introduction of a salt iodination program in Denmark

THE FULL ARTICLE TITLE

Krejberg A et al. Thyroid nodules in an eleven year DanThyr follow-up study. *JCEM* 2014; 99(12):4749-4754

SUMMARY OF THE STUDY

The authors used thyroid ultrasound to follow 2208 individuals from 12 cities in Denmark over an 11-year period after the initiation of mandatory salt iodination program: Aalborg (moderate iodine deficiency) and Copenhagen (mild iodine deficiency). All nodules larger

than 5 mm were recorded. In the case of multiple nodules, only the three largest were registered. At follow-up, median urinary iodine levels had risen, indicating an overall increase in iodine intake. Of the 618 subjects with thyroid nodules at the beginning of the study, 147 (23.8%) had no nodules at follow up. Approximately 1/3rd of solitary nodules identified at baseline had disappeared 11 years later. Disappearance of thyroid nodules was not associated with sex or TSH level.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that in areas of iodine deficiency, thyroid nodules may disappear over time after starting a salt iodination program, presumably due to an increase in iodine intake. This is independent of a decrease in hypothyroidism.

— Philip Segal, MD

ATA THYROID BROCHURE LINKS

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

Iodine Deficiency: <http://www.thyroid.org/iodine-deficiency>

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 sound waves to create a picture of the structure of the thyroid gland and accurately identify and characterize nodules within the thyroid.

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 AND PREGNANCY

Congenital hypothyroidism in the mother and pregnancy complications

BACKGROUND

Thyroid hormone during pregnancy is essential for normal growth and development of the baby. Inadequately treated hypothyroidism in the mother has been associated with negative pregnancy outcomes such as premature delivery and miscarriage. Thyroid hormone requirements increase with pregnancy and many women with pre-existing hypothyroidism need an increase in their thyroid hormone during pregnancy. It is unclear whether the cause of the hypothyroidism in the mother is associated with problems during pregnancy. Congenital hypothyroidism refers to hypothyroidism detected shortly after birth. Fortunately, congenital hypothyroidism is diagnosed and treated much earlier due to the widespread screening programs in most industrialized countries. The aim of this study was to compare pregnancy outcomes in women with a history of congenital hypothyroidism to women without thyroid disease in a national reference population.

THE FULL ARTICLE TITLE

Leger J et al. Pregnancy outcomes and relationship to treatment adequacy in women treated early for congenital hypothyroidism: a longitudinal population-based study. *J Clin Endocrinol Metab*. November 25, 2014 [Epub ahead of print].

SUMMARY OF THE STUDY

This study examined self-reported pregnancy outcomes in women diagnosed with congenital hypothyroidism in the first 10 years (1978-1988) following the introduction of neonatal screening for thyroid disease in France. A total of 1748 women with congenital hypothyroidism were eligible for this study and 336 women reported a total of 570 pregnancies. The investigators analyzed

207 pregnancies reported prior the study period and 174 pregnancies reported in the 3 years following the initial survey. Women from the French national Perinatal Survey served as the reference population. Women with congenital hypothyroidism were more likely to be overweight and give birth to larger babies than women in the reference population. Results indicated that women with congenital hypothyroidism were more likely to report problems with their pregnancies including gestational high blood pressure, emergency cesarean delivery, need for labor induction and premature delivery. Women with a TSH greater than or equal to 10 mIU/L during the first trimester demonstrated an increase risk of preterm labor and those with an elevated TSH in the first 6 months of the pregnancy were at increased risk of delivering a large baby.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Women with congenital hypothyroidism are at increased risk of pregnancy complications compared to women in a national reference population and some complications, such as preterm labor, may be associated with inadequate thyroid hormone replacement. Special care should be taken to adequately treat hypothyroidism in the mother during pregnancy.

—Whitney Woodmansee MD

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.

Congenital hypothyroidism: hypothyroidism that is present at birth

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



THYROID AND PREGNANCY

Immune suppression with prednisolone may improve in-vitro fertilization outcomes in women with anti-thyroid antibodies

BACKGROUND

It is well known that many women of child-bearing age have anti-thyroid antibodies. These are proteins present in blood that have been reported to be associated with problems such as recurrent miscarriages and premature birth. Many thyroid disorders are caused by anti-thyroid antibodies that attack and turn on or turn off the thyroid. Currently, it is not known whether anti-thyroid antibodies could also be one of the reasons why in-vitro fertilization (IVF) is not successful in many patients. There are studies suggesting that women who have three or more unsuccessful IVF attempts are more likely to carry anti-thyroid antibodies in their blood.

Many factors need to come together for successful in-vitro fertilization, including those related to the immune system. The thought that immune problems lead to anti-thyroid antibody production suggests that suppressing the immune system may be helpful. Glucocorticoid medications (ie prednisone) work to suppress the immune system; these medications may be of use for women who have anti-thyroid antibodies but have not been able to conceive with IVF. In fact, two studies have shown that the use of prednisolone (a glucocorticoid) was more successful than standard therapy in inducing pregnancy when using IVF techniques.

The goal of this study was to determine whether low dose prednisolone alone in women with anti-thyroid antibodies can improve the chances of becoming pregnant.

THE FULL ARTICLE TITLE

Litwicka K et al. In women with thyroid autoimmunity, does low-dose prednisolone administration, compared with no adjuvant therapy, improve in vitro fertilization clinical results? *J Obstet Gynaecol Res*. November 25, 2014 [Epub ahead of print].

SUMMARY OF THE STUDY

The patients that were enrolled in this study were going for treatment with IVF at a single clinic. They

needed to meet certain requirements, such as being younger than 40 years of age, regular menstrual periods, normal ovaries on ultrasound and evidence that they had normal ovarian function. A total of 194 women met these criteria and were included in the study. A total of 60 women (31%) tested positive for anti-thyroid antibodies and were randomly assigned to either treatment with 5 mg of prednisolone a day to continue through the first trimester of pregnancy or to no treatment. Women who did not test positive for ATA were used as controls. All the patients underwent in-vitro fertilization using the same protocol.

At the end of the study, there was a higher pregnancy rate in the treatment group (60% vs 30%) and higher live birth rates (46.6% vs 20%) than in the no treatment group amongst anti-thyroid antibody-positive women.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study showed that the presence of anti-thyroid antibodies was associated with decreased rates of pregnancy and live birth and that the use of low dose prednisolone helped more anti-thyroid antibody-positive women have success when going through IVF. This study is important to patients because it provides for evidence that this treatment can be successful. More studies need to be done to show that the use of glucocorticoids during this stage of pregnancy is safe before this approach can be routinely recommended.

— Jesse Block-Galaraza, MD

ATA THYROID BROCHURE LINKS

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



THYROID AND PREGNANCY, continued

ABBREVIATIONS & DEFINITIONS

Autoimmune thyroid disease: a group of disorders that are caused by antibodies that get confused and attack the thyroid. These antibodies can either turn on the thyroid (Graves' disease, hyperthyroidism) or turn it off (Hashimoto's thyroiditis, hypothyroidism).

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.

Anti-thyroid 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.

Steroids/Glucocorticoids: general anti-inflammatory and immunosuppressive drugs that are commonly used for the treatment of many autoimmune diseases associated with inflammation.

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

In-vitro fertilization (IVF): a procedure when an egg is fertilized outside of the body and then implanted in a woman to achieve a pregnancy

Thyroid Awareness Monthly Campaigns

The ATA will be highlighting a distinct thyroid disorder each month and a portion of the sales for Bravelets™ will be donated to the ATA. The month of March is **Hashimoto's Disease Awareness Month** and a bracelet is available through the [ATA Marketplace](#) to support thyroid cancer awareness and education related to thyroid disease.





THYROID NODULES

Cytology, ultrasound features and the BRAF mutation predicts cancer in thyroid nodules classified as AUS/FLUS

BACKGROUND

Although thyroid nodules are very common, only 5-10% of them are cancerous. Thyroid biopsy is the most accurate method to differentiate between benign and cancerous thyroid nodules. While a diagnosis of cancer or benign can usually be made, indeterminate results can be seen in anywhere from 3-18% of biopsies meaning that a definitive diagnosis cannot be made. Atypia of undetermined significance (AUS) and follicular lesion of undetermined significance (FLUS) are a major part of the indeterminate category. Most of these patients undergo a repeat biopsy and a large number of patients undergo surgical removal of their thyroid nodules for a definitive diagnosis. The recent use of molecular markers has been helpful in sorting out the presence of cancer, especially the presence of the BRAF V600E mutation. The aim of this study was to determine whether several features (cytology features, ultrasound appearance of the thyroid nodules and the presence of the BRAF V600E mutation) are helpful to predict cancer in thyroid nodules with initial indeterminate cytology with AUS/FLUS.

THE FULL ARTICLE TITLE

Jeong SH et al Outcome of thyroid nodules characterized as atypia of undetermined significance or follicular lesion of undetermined significance and correlation with ultrasound features and BRAF(V600E) mutation analysis. *AJR Am J Roentgenol* 2013;201:W854-60.

SUMMARY OF THE STUDY

A total of 6118 thyroid nodules were biopsied at a hospital in Korea between January 2010 and June 2012 with 411(6.7%) nodules having AUS/FLUS cytology. Of these 165 nodules were included in this study and divided

according to 9 AUS/FLUS cytologic subcategories. A total of 91 nodules (55.2%) with AUS/FLUS cytology were confirmed to be cancer by surgery or repeat biopsy. Of these, 13 were in the subcategory of mild follicular-cell atypia (76.2% cancer) and 59 were in the subcategory of focal features of papillary carcinoma in an otherwise predominantly benign-appearing specimen (83.1% cancer). The cancer rate of nodules with at least one suspicious ultrasound feature was 79.3% (73 of 92) and the cancer rate of AUS/FLUS cytology and the BRAF V600E mutation was 97.5% (39 of 40). The cancer rate without this mutation was 39.7% (25 of 63).

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In this study, a much higher percentage of AUS/FLUS thyroid nodules were determined to be cancerous than previously reported. In particular, 2 categories of AUS/FLUS had the highest cancer rate. Thyroid nodules with suspicious ultrasound features and those with the BRAF V600E mutation also had a high cancer rate. Thus, indeterminate nodules in the AUS/FLUS nodules should be managed according to their cancer risk. Surgery rather than a repeat biopsy might be a better option for those with the highest cancer risk.

— Alina Gavrila, MD, MMSC

ATA THYROID BROCHURE LINKS

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

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

Thyroid Surgery: <http://thyroid.org/patients/patient-brochures/surgery.html>

ABBREVIATIONS & DEFINITIONS

Cytology: the study of cells from a biopsy specimen.

Thyroid nodule: an abnormal growth of thyroid cells that forms a lump within the thyroid. While most thyroid nodules are non-cancerous (benign), ~5-10% are cancerous (malignant).

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.



THYROID NODULES, continued

Atypical thyroid biopsy (atypia of undetermined significance or follicular lesion of undetermined significance, AUS/FLUS): this happens when there are some abnormal/atypical cells in the biopsy sample but not enough to diagnose a cancer. However, because there are abnormal cells in the biopsy sample, the specimen cannot be called benign. Sometimes a repeat biopsy may be helpful but often surgery is recommended to remove the nodule.

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

Thyroid ultrasound: a common imaging test used to evaluate the structure of the thyroid gland. Ultrasound uses sound waves 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.

BRAF gene: this is gene that codes for a protein that is involved in a signaling pathway and is important for cell growth. Mutations in the BRAF gene in adults appear to cause cancer.

Molecular markers: genes and microRNAs that are expressed in benign or cancerous cells. Molecular markers can be used in thyroid biopsy specimens to either to diagnose cancer or to determine that the nodule is benign.



THYROID CANCER

Younger patients with papillary microcarcinoma are more likely to progress to significant disease

BACKGROUND

Papillary thyroid cancer is the fastest rising cancer in women. Many of these cancers are microcarcinomas which are less than 1 cm in size. It is unclear whether these microcarcinomas will become clinically important or even if they need to be surgically removed. In prior studies, these authors reported on Japanese patients with biopsy-proven papillary thyroid microcarcinoma who were watched instead of having surgery. Another study from Japan showed younger patients were more likely to have growth or spread of the papillary thyroid carcinoma. In this study, the authors examined whether age would be a predictor of cancer growth or spread in patients with papillary thyroid microcarcinoma.

THE FULL ARTICLE TITLE:

Ito Y et al Patient age is significantly related to the progression of papillary microcarcinoma of the thyroid under observation. *Thyroid* 2014; 24:27-34. Epub November 14, 2013.

SUMMARY OF THE STUDY

Patients with biopsy-proven papillary thyroid microcarcinoma were offered observation or immediate surgery. A total of 1235 patients chose observation and this group underwent ultrasound evaluation every 6 to 12 months. Cancer progression was determined by the spread of the cancer to lymph nodes, cancer growth of 3 mm or more, or cancer growth to a size of 12 mm. A total of 82% of patients had papillary thyroid microcarcinoma \leq 8 mm in size. The average period of observation was 60 months.

At 5 years, 4.9% of patients had growth of the cancers of 3 mm or more and at 10 years, 8% had growth of 3 mm or more. Lymph node spread developed in 1.7% of patients at 5 years and in 3.8% at 10 years. Progression to significant disease occurred in 3.9% of patients at 5

years and 6.8% of patients at 10 years. There appears to be a continued increase in the frequency of cancer growth, the development of lymph node spread, and progression to significant disease. Patients were divided into subgroups on the basis of age: young (<40 years; n = 169), middle-aged (40 to 59 years; n = 570), and old (\geq 60 years; n = 496). Cancer growth, new appearance of lymph-node spread, and progression to significant disease were all related to patient age. In the young age group, 9.5% progressed to significant disease in 5 years, as compared with 4.0% of the middle-aged group and 2.2% of the old group. At 10 years of follow-up, 22.5% of the young group, 4.9% of the middle-aged group, and 2.5% of the old group progressed to significant disease. An age of <40 years and a cancer size of 9 mm or larger were risk factors for progression to significant disease. An age of <40 years also predicted cancer growth and development of lymph node spread.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that low-risk papillary thyroid microcarcinoma can be observed without immediate surgery and that older patients are the best candidates for observation if they do not wish to have surgery. Younger patients with papillary thyroid microcarcinoma are at increased risk of their cancer becoming clinically significant and therefore should be treated with surgery in many cases.

— Ronald B. Kuppersmith, MD, FACS

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>

ABBREVIATIONS & DEFINITIONS

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

Papillary microcarcinoma: a papillary thyroid cancer smaller than 1 cm in diameter.



THYROID CANCER, continued

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.

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



ATA Alliance for Thyroid Patient Education

GOAL

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

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

WHO WE ARE (in alphabetical order)

- **American Thyroid Association**
- **Bite Me Cancer**
- **Graves' Disease and Thyroid Foundation**
- **Light of Life Foundation**
- **ThyCa: Thyroid Cancer Survivors' Association, Inc.**
- **Thyroid Cancer Canada**
- **Thyroid Federation International**

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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.

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ThyCa: Thyroid Cancer
Survivors' Association, Inc.SM
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ATA Alliance for Thyroid Patient Education

Continued...

BITE ME CANCER

<http://www.bitemecancer.org>

Bite Me Cancer was formed as a nonprofit foundation in September, 2010, by Nikki Ferraro, who was 17-years old at the time. Nikki was diagnosed with a rare form of thyroid cancer in April 2010 when she was a junior at Chantilly HS in Virginia. Nikki was determined to lead a Relay for Life team just two weeks after her diagnosis. She named the team Bite Me Cancer and experienced immediate success. When Nikki decided to create a foundation a few months later, she wanted to continue the legacy of her team name and thus her foundation became the Bite Me Cancer Foundation.

e-mail: info@bitemecancer.org

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.

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.

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ThyCa: Thyroid Cancer
Survivors' Association, Inc.SM
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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.SM
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