Clinical THYROIDOLOGY FOR THE PUBLIC

AMERICAN THYROID ASSOCIATION
FOUNDED 1923

VOLUME 7 • ISSUE 11 • 2014

www.thyroid.org

Follow us on Facebook Follow us on Twitter

AMERICAN THYROID ASSOCIATION
FOUNDED 1923
www.thyroid.org

CLINICAL THYROIDOLOGY **FOR THE PUBLIC**
A publication of the American Thyroid Association
VOLUME 7 • ISSUE 11 • 2014

EDITOR'S COMMENTS

Welcome to *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 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*.

October is Hyperthyroidism Awareness month.

In this issue, the studies ask the following questions:

1. Does subclinical hyperthyroidism decrease patient survival?
2. Do the two types of amirodaone-induced thyrotoxicosis differ in time of onset after starting amiodarone?
3. Is a cold climate a risk factor for thyroid cancer?
4. Can gene mutations identify which patients with papillary thyroid cancer have more aggressive disease?
5. Are patients on parenteral nutrition at risk for iodine deficiency?

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

CLINICAL THYROIDOLOGY **FOR THE PUBLIC**

A publication of the American Thyroid Association

AMERICAN THYROID ASSOCIATION
FOUNDED 1923
www.thyroid.org

HYPERTHYROIDISM

Subclinical hyperthyroidism reduces survival in patients under age 65 years

BACKGROUND

Hypothyroidism and hyperthyroidism are common in our population and subclinical variants of these disorders are even more common. There are many studies that examine whether thyroid disorders are associated with mortality. In particular, hyperthyroidism has been associated with increased mortality as compared to patients without thyroid disease. The current study examines the relationship between mortality and thyroid disorders and also between mortality and thyroid test results within the normal range.

THE FULL ARTICLE TITLE

van de Ven AC et al. Associations between thyroid function and mortality: the influence of age. Eur J Endocrinol 2014;171:183-91. Epub May 6, 2014.

SUMMARY OF THE STUDY

There were 5,816 participants involved in this study from 2002-2003 from a city in the Netherlands. The participants were divided into different age groups: <65, 65-80, >80. During the 9.4 years of follow-up, 13.3% of the population died. A total of 9 subjects with hyperthyroidism had the lowest survival rate. Decreased survival rate for patients with subclinical hyperthyroidism was found only in the age <65 group. Patients with subclinical hypothyroidism were not associated with increased mortality rate.

Within the range of normal thyroid function, reduced survival was found in subjects >80 years who had either a FT_4 or TSH that was high-normal as compared with TSH that was mid-normal. In all age groups either a high TSH or high Free T_4/total T_4 were associated with higher mortality rates than those with normal levels. No significant difference was found between thyroid antibodies and mortality.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

While there are many limitations in the study, the data suggests that thyroid function and mortality differs with age. While this study is not clear evidence for increased screening for thyroid disease, it is suggestive that mild abnormalities of thyroid function could be significant. The is especially true in those with a low serum TSH level. Minimal lowering does not require a workup, but subclinical hyperthyroidism with a suppressed TSH may have serious cardiac consequences and usually requires evaluation and treatment.

— Heather Hofflich, DO

ATA THYROID BROCHURE LINKS

Thyroid Function Tests: http://www.thyroid.org/blood-test-for-thyroid

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

ABBREVIATIONS & DEFINITIONS

Subclinical Hyperthyroidism: a mild form of hyperthyroidism where the only abnormal hormone level is a decreased TSH.

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.

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.

CLINICAL THYROIDOLOGY **FOR THE PUBLIC**

A publication of the American Thyroid Association

AMERICAN THYROID ASSOCIATION
FOUNDED 1923
www.thyroid.org

HYPERTHYROIDISM

The time lag between initiation of amiodarone treatment and first evidence of thyrotoxicosis is a useful indicator for identifying the type of amiodarone–induced thyrotoxicosis

BACKGROUND

Amiodarone, an iodine-rich medication used to treat abnormal heart rhythms, can result in thyrotoxicosis in 15% of patients. There are two distinct forms of amiodarone-induced thyrotoxicosis (AIT): type 1 AIT when the high iodine content of amiodarone precipitates an underlying thyroid disease (Graves' disease or toxic nodules) and causes hyperthyroidism and type 2 AIT, in which a destructive inflammation caused by amiodarone causes a release of preformed thyroid hormone into the circulation. It is important to differentiate between these two types, since they require different treatment. A few prior studies have showed that AIT can develop at any time during or even after the discontinuation of amiodarone because of body storage and slow release of this medication into the circulation. This study evaluated whether the time interval between the initiation of amiodarone treatment and the diagnosis of thyrotoxicosis is different and it can potentially help to differentiate between the two forms of AIT.

THE FULL ARTICLE TITLE

Tomisti L et al. The onset time of amiodarone-induced thyrotoxicosis (AIT) depends on AIT type. Eur J Endocrinol 2014; 171:363-8. Epub June 16, 2014.

SUMMARY OF THE STUDY

This is a study of 200 patients who were followed for AIT at an academic center in Italy between January 1987 and December 2012. A total of 157 men and 43 women were studied (mean age 62). Out of the 200 patients, 42 (21%) were diagnosed with type 1 AIT and 158 (79%) were diagnosed with type 2 AIT. Among the patients with type 1 AIT, 8 had Graves' disease, 6 had a toxic thyroid nodule and 28 had a toxic multinodular goiter. Type 1 AIT patients had significantly higher serum thyroid hormone levels compared to type 2 AIT patients. The average onset time of thyrotoxicosis was 3.5 months in the type 1 AIT group and 30 months in the type 2 AIT group after starting amiodarone. Out of the 200 patients, 38 (19%) developed thyrotoxicosis after amiodarone withdrawal. Most of these (36) were type 2 AIT patients who developed thyrotoxicosis at an average time of 5.5 months after amiodarone withdrawal. These 36 type 2 AIT patients were younger than the those who developed thyrotoxicosis during the amiodarone treatment. A shorter onset time of AIT was seen in patients with larger thyroid volume measured on ultrasound when analyzing the entire group.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study confirmed in a large group of patients that the two types of AIT have a different clinical picture. Thyrotoxicosis usually develops earlier in type 1 AIT compared to type 2 AIT patients. Type 2 AIT patients develop more severe thyrotoxicosis and a higher proportion of type 2 AIT patients develop thyrotoxicosis after discontinuing the treatment compared to AIT1 patients. Patients with type 1 AIT may require more intense follow-up during amiodarone therapy especially at the initiation of this treatment, while type 2 AIT patients may require monitoring for a longer period of time after amiodarone withdrawal.

— Alina Gavrila, MD, MMSC

ATA THYROID BROCHURE LINKS

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

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

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

HYPERTHYROIDISM, continued

ABBREVIATIONS & DEFINITIONS

Thyrotoxicosis: elevated blood levels of thyroid hormone.

Hyperthyroidism: the most common form of thyrotoxicosis when the thyroid gland is overactive and produces too much thyroid hormone. Hyperthyroidism may be treated with antithyroid meds (Methimazole, Propylthiouracil), radioactive iodine or surgery.

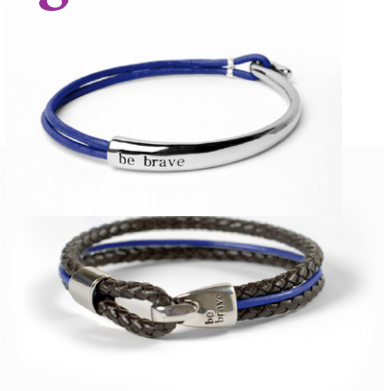
Iodine: an element found naturally in various foods that is important for making thyroid hormones and for normal thyroid function. Common foods high in iodine include iodized salt, dairy products, seafood and some breads.

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.

Toxic thyroid nodule/multinodular goiter: a condition characterized by one or more nodules or lumps in the thyroid that may gradually grow and increase their activity so that the total output of thyroid hormone in the blood is greater than normal.

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 November is **Hyperthyroidism Awareness Month** and a bracelet is available through the ATA Marketplace to support thyroid cancer awareness and education related to thyroid disease.



CLINICAL THYROIDOLOGY **FOR THE PUBLIC**

A publication of the American Thyroid Association

AMERICAN THYROID ASSOCIATION
FOUNDED 1923
www.thyroid.org

THYROID CANCER

Cold climate is a risk factor for thyroid cancer

BACKGROUND

The incidence of thyroid cancer has increased between 1988 and 2005. Some of this increase is likely due to an increase in diagnostic imaging studies, which would pick up small thyroid cancers that are not otherwise apparent. While the number of small thyroid cancers is increasing, so are thyroid cancers of all sizes, so imaging is not the only cause. Other possible causes include environmental factors such as some chemicals as well as a general increase in exposure to ionizing radiation. Non-ionizing radiation from cell phones has also been implicated. Some studies have shown that temperature may play a role in the incidence rates of thyroid cancer. The aim of this study was to examine the relationship between thyroid cancer incidence and the average temperature in 50 US states.

THE FULL ARTICLE TITLE

Lehrer S, Rosenzweig KE. Cold Climate Is a Risk Factor for Thyroid Cancer. Clin Thyroidol 2014;26:273–276.

SUMMARY OF THE STUDY

Data on the incidence of thyroid cancer, average temperature by state, high-impact exposure to nuclear radiation by state, cell-phone subscriber data and mean elevation/latitude of the 50 US states were analyzed. The study found that there was a significant correlation between average temperature by state and incidence of all thyroid cancers - the colder the climate, the higher the incidence of thyroid cancer. This correlation was found to be unrelated to ionizing radiation exposure, cell-phone use and latitude. Living in a cold climate state, such as Alaska, doubles the risk of thyroid cancer as compared with living in a warm state such as Texas. There was no significant correlation between thyroid cancer incidence and elevation/latitude.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In view of significant climate changes, there is an increased risk of heat-related and cold-related expected deaths in the years to come, with the elderly being most at risk. These climate changes may also affect the incidence patterns of thyroid cancer and other cancers. Whether the increase incidence of thyroid cancer in colder regions is due to a deleterious effect of the cold weather or a protective effect of hot weather is unclear. Further research studies are needed to determine whether the temperature-cancer trend persists in other regions within each state as well as other regions of the world.

— Maria Papaleontiou, MD

ATA THYROID BROCHURE LINKS

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

DEFINITIONS AND ABBREVIATIONS

Incidence: The occurrence, rate or frequency of a disease.

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.

Latitude: The angular distance of a place north or south of the earth's equator.

CLINICAL THYROIDOLOGY **FOR THE PUBLIC**

A publication of the American Thyroid Association

AMERICAN THYROID ASSOCIATION
FOUNDED 1923
www.thyroid.org

THYROID CANCER

Presence of gene mutations in patients with papillary thyroid cancer are associated with more aggressive cancer

BACKGROUND

Papillary cancer is the most common thyroid cancer. While most patients with this cancer have an excellent prognosis, a few patients do not do well, with recurrent cancer that requires more aggressive therapy. Many investigators are studying to identify which type of papillary thyroid cancers are more aggressive. The focus of these studies is on mutations in cancer-associated genes, especially a gene known as BRAF. Mutations in another cancer-associated gene TERT was recently found to be common in anaplastic thyroid cancer and poorly differentiated thyroid cancer. This study was undertaken to find out the effect of BRAF and TERT gene mutations on prognosis of patients with papillary thyroid cancer.

THE FULL ARTICLE TITLE

Xing M et al. BRAF V600E and TERT Promoter Mutations Cooperatively Identify the Most Aggressive Papillary Thyroid Cancer With Highest Recurrence. J Clin Oncol. July 14, 2014 [Epub ahead of print].

SUMMARY OF THE STUDY

This study included 507 patients who had surgery for papillary thyroid cancer at the Johns Hopkins Hospital between 1990 and 2012 and were followed for average of 2 years. Thyroid cancer specimens from each patient were obtained and examined for the presence of a mutations in the BRAF or TERT gene or mutations in both genes. A mutation in the BRAF gene was detected in 38% and the TERT mutation in 12% of all 507 patients. Cancer recurred in 26% of patients with BRAF mutation and in 57% of patients with TERT mutation while recurrence was seen in 10% without BRAF mutation and in 11% of patients without TERT mutation. The risk of recurrent cancer was 3.1 times higher in patients with BRAF mutation and 3.3 times higher in patients with TERT mutations as compared to patients without BRAF or TERT mutations. The presence of both BRAF and TERT mutations were associated with larger cancers and the spread of cancer into surrounding tissue as well as outside of the neck. In addition, 69% of patients with both BRAF and TERT mutations had recurrent cancer. The life expectancy was lower in patients with BRAF or TERT mutations and was lowest in patients with both BRAF and TERT mutations as compared to patients without BRAF or TERT mutations.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Detection of mutations in cancer-associated genes BRAF and TERT may identify the few number of patients with papillary thyroid cancer that have a worse prognosis. The authors of this study suggest that cancers that contain mutations in the BRAF and TERT genes require more aggressive treatment, although that needs to be studied.

— Jamshid Farahati MD

ATA THYROID BROCHURE LINKS

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

ABBREVIATIONS & DEFINITIONS

Genes: a molecular unit of heredity of a living organism. Living beings depend on genes, as they code for all proteins and RNA chains that have functions in a cell. Genes hold the information to build and maintain an organism's cells and pass genetic traits to offspring.

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

Anaplastic thyroid cancer: a very rare but very aggressive type of thyroid cancer. In contrast to all other types of thyroid cancer, most patients with anaplastic thyroid cancer die of their cancer and do so within a few years.

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

AMERICAN THYROID ASSOCIATION
FOUNDED 1923
www.thyroid.org

THYROID CANCER, continued

Cancer-associated genes: these are genes that are normally expressed in cells. Cancer cells frequently have mutations in these genes. It is unclear whether mutations in these genes cause the cancer or are just associated with the cancer cells. The cancer-associated genes important in thyroid cancer are BRAF, RET/PTC and RAS

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.

TERT gene: this is a gene that contain instructions for making a subunit of the enzyme telomerase, which maintains structures called telomers. Telomers protect chromosomes from abnormally sticking or breaking down. TERT mutations are common in advanced forms of thyroid cancer.

CLINICAL THYROIDOLOGY **FOR THE PUBLIC**

A publication of the American Thyroid Association

AMERICAN THYROID ASSOCIATION
FOUNDED 1923
www.thyroid.org

IODINE DEFICIENCY

Patients on long-term parenteral nutrition are at risk for iodine deficiency and hypothyroidism

BACKGROUND

Iodine is essential to make thyroid hormone. Individuals living in regions of the world that do not have enough iodine in the diet suffer from an increased risk for hypothyroidism. In some patients with severe gastrointestinal problems, the gut either does not well enough to absorb enough nutrition from eating or the patient cannot eat. These patients must get their nutrition intravenously by a method known as long-term parenteral nutrition. One side effect of long-term parenteral nutrition is the risk of nutritional deficiencies, in particular iodine deficiency. Some patients on long-term parenteral nutrition are able to eat and drink in limited quantities and may receive some iodine in their diet. Some individuals receiving parenteral nutrition may be exposed to iodine through the use of topical iodinated skin cleansers. While the recommended dietary allowance for iodine is 150 µg daily in adults, recommendations for the iodine content of parenteral nutrition are highly variable across different regions. This study was done to examine the risk of iodine deficiency in patients on long term parenteral nutrition.

THE FULL ARTICLE TITLE

Guidetti M et al. Iodine nutrition in adults on long-term home parenteral nutrition. Nutrition 2014;30(9):1050-4. Epub April 3, 2014.

SUMMARY OF THE STUDY

Participants were adults on home parenteral nutrition who received care at the Chronic Intestinal Failure Center in Bologna, Italy. Participants were required to have been receiving home parenteral nutrition for fewer than 6 months, to have had a minimum of three parenteral infusions weekly and to have had an unchanged feeding regimen for 4 months prior to evaluation. Individuals with known thyroid disease were excluded. Spot urinary iodine concentrations and serum TSH levels were measured in all participants. In individuals with elevated serum TSH levels, free T_4 and thyroid antibody measurements were obtained. Information about the iodine content of parenteral nutrition was derived from labeling.

A total of 31 patients were included (13 men; mean age, 54.5 years. None of the patients were using iodinated skin cleansers for routine central line care. Only 8 (26%) patients had iodine levels in their parenteral nutrition that were consistent with European guidelines, 17 (55%) received no iodine in their parenteral nutrition and 6 (19%) of the patients' parenteral nutrition contained less than recommended levels. The median urinary iodine concentration was 63 µg/L and did not correlate with the iodine content of parenteral nutrition. Serum TSH levels were elevated in 7 patients (22%) and low in 1 patient. None of the patients with increased serum TSH were positive for thyroid antibodies or had low free T_4 levels.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that patients on long-term parenteral nutrition are at high risk for iodine deficiency and mild hypothyroidism due to the iodine deficiency. The majority were receiving parenteral nutrition with iodine content lower than that recommended by European guidelines. Studies in the United States are urgently needed determine if the same risk for iodine deficiency exists in this country. However, in the absence of such studies, it seems reasonable to recommend iodine supplementation and monitoring of thyroid function in patients receiving long-term parenteral nutrition.

— Alan P. Farwell, MD

ATA THYROID BROCHURE LINKS

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

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

Thyroid Function Tests: http://www.thyroid.org/blood-test-for-thyroid

AMERICAN THYROID ASSOCIATION
FOUNDED 1923
www.thyroid.org

IODINE DEFICIENCY, continued

ABBREVIATIONS & DEFINITIONS

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

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.

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.

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

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.

Parenteral Nutriton: liquid nutrition that is administered intraveneously.

AMERICAN THYROID ASSOCIATION
FOUNDED 1923
www.thyroid.org

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**

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.

continued on next page

AMERICAN THYROID ASSOCIATION
FOUNDED 1923

Light of Life Foundation
checkyourneck.com

GRAVES' DISEASE & THYROID FOUNDATION

Thyroid Federation International

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

Thyroid Cancer Canada
Cancer de la thyroïde Canada

BITE ME cancer
attitude is everything

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.

continued on next page

AMERICAN THYROID ASSOCIATION FOUNDED 1923

Light of Life Foundation checkyourneck.com

GRAVES' DISEASE & THYROID FOUNDATION

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

Thyroid Federation International

Thyroid Cancer Canada
Cancer de la thyroïde Canada

BITE ME cancer® attitude is everything.

ATA Alliance for Thyroid Patient Education

Continued...

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.

continued on next page

AMERICAN THYROID ASSOCIATION FOUNDED 1923

Light of Life Foundation checkyourneck.com

GRAVES' DISEASE & THYROID FOUNDATION

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

Thyroid Federation International

Thyroid Cancer Canada
Cancer de la thyroïde Canada

BITE ME cancer® attitude is everything.

CALENDAR

GRAVES' DISEASE AND THYROID FOUNDATION
Kids and Graves' Disease — Special Seminar for Parents

November 22, 2014, Childrens Hospital of Philadelphia

The Foundation's patient & family conferences are designed to help attendees learn more about Graves' Disease, thyroid eye disease, and related disorders. Guest speakers include physicians, researchers, and allied health professionals. Attendees will also be able to share their own experiences and connect with fellow patients and family members.

http://gdatf.org/conference