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Clinical THYROIDOLOGY FOR THE PUBLIC

VOLUME 7 • ISSUE 3 • 2014

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Oakley GM et al. Establishing a familial basis for papillary thyroid carcinoma using the Utah population database. *JAMA Otolaryngol Head Neck Surg*, October 3, 2013 [Epub ahead of print].

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Can we predict the presence of central neck nodal metastasis in patients with papillary thyroid cancer? Papillary thyroid cancer has a high rate of spread to lymph nodes in the central neck at the time of diagnosis. Currently there is controversy as to whether the surgeon should remove only the lymph nodes in the central neck they see that look abnormal at the time of surgery or whether they should remove all the lymph nodes possible. This study attempts to develop a nomogram to help with decision-making at the time of surgery.

Thompson AM et al. A pre-operative nomogram for the prediction of ipsilateral central compartment lymph node metastases in papillary thyroid cancer. *Thyroid*. October 1, 2013 [Epub ahead of print].

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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 *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 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](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*, 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. Can overtreatment of congenital hypothyroidism be harmful?
2. Should all patients with subclinical hypothyroidism be treated?
3. Do patients with thyroid cancer have an increased risk of heart disease?
4. Should the approach to treating of Graves' disease in women of child-bearing age be revised?
5. Does papillary thyroid cancer run in families?
6. Can we predict the presence of lymph node metastasis in patients with thyroid cancer?

We welcome your feedback and suggestions. Let us know what you want to see in this publication. I hope you find these summaries interesting and informative.

— Alan P. Farwell, MD



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HYPOTHYROIDISM

Overtreatment of congenital hypothyroidism in the first two years of life may be worse than undertreatment

BACKGROUND

Thyroid hormone is essential for normal brain development in the baby, both during pregnancy and after birth for the first 3-6 months of life. Congenital hypothyroidism occurs in 1 in 3000-4000 births in the United States. All babies are tested for hypothyroidism at birth since untreated hypothyroidism results in irreversible brain damage. Treatment with levothyroxine allows the brain to develop normally and prevents brain damage. There is general agreement that babies whose treatment is started at <2 weeks of age do better than those whose therapy is started later, particularly when the congenital hypothyroidism is severe. Similarly, it is widely accepted that a starting levothyroxine dose of 10 to 15 µg/kg/day results in a better outcome than a dose of 6 to 8 µg/kg/day, which was widely used in the past. Also, rapid normalization of TSH levels has been the goal of starting treatment, even if this results in a period of increased thyroxine levels in the blood. If thyroxine levels remain high, it is considered overtreatment. If the TSH remains increased, it is considered undertreatment. The goal of this study is to determine the effects of both overtreatment and undertreatment of congenital hypothyroidism on brain function.

THE FULL ARTICLE TITLE

Bongers-Schokking, JJ et al. Cognitive development in congenital hypothyroidism: is overtreatment a greater threat than undertreatment? *J Clin Endocrinol Metab* 2013;98:4499-506. Epub August 26, 2013.

SUMMARY OF THE STUDY

A total of 61 children of a Dutch group with congenital hypothyroidism were studied at an average age of 1.8 years. A total of 46 of these children were restudied at 6 years old and 55 were assessed at 11 years of age. The results were compared with children with normal thyroid function at the same ages. TSH and Free T₄ measures were

used to determine if children were overtreated or undertreated. Brain development was measured by the Revised Amsterdam Child Intelligence test.

Overtreatment of congenital hypothyroidism led to a lower performance on the intelligence test at 11 years of age as compared to children with normal thyroid function. Rapid normalization of thyroid function tests at a young age was associated with a higher performance on the intelligence test at a young age, but no difference was seen in the older ages. Undertreatment of congenital hypothyroidism had no effect on the performance on the intelligence test at any age.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Importantly, treatment of children with congenital hypothyroidism that maintains thyroid levels in the normal range results in a similar performance on a standard intelligence test as children without hypothyroidism. Surprisingly, overtreatment of congenital hypothyroidism in the first 2 years of life resulted in a lower performance on the intelligence test while undertreatment had no effect on performance. This study shows that children with congenital hypothyroidism need to have their thyroid levels monitored frequently and suggests that care must be given to avoid overtreatment.

— Heather Hofflich, DO

ATA THYROID BROCHURE LINKS

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

Thyroid Hormone Treatment: <http://www.thyroid.org/thyroid-hormone-treatment>

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



HYPOTHYROIDISM, 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.

Congenital hypothyroidism: hypothyroidism that is diagnosed at birth. This occurs in 1 in 3000 to 4000 births.

Thyroid hormone therapy: patients with hypothyroidism are most often treated with Levothyroxine in order to return their thyroid hormone levels to normal.

Levothyroxine (T₄): the major hormone produced by the thyroid gland and available in pill form as Synthroid™, Tyrosint™ and generic preparations.

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 Awareness monthly campaigns announced in cooperation with PuraVida

The ATA will be highlighting a distinct thyroid disorder each month and a portion of the sales for PuraVida bracelets will be donated to the ATA. The thyroid disorder designated for awareness this month is [Cancer of the Thyroid](#) and a bracelet is available through the [ATA Marketplace](#) to support thyroid cancer awareness and education related to thyroid disease.



HYPOTHYROIDISM

Treatment decisions in patients with subclinical hypothyroidism

BACKGROUND

Patients with a slightly increased thyroid stimulating hormone (TSH) level but normal free T₄ levels are diagnosed as having subclinical hypothyroidism. Treatment of these patients with thyroid hormone is controversial. The American Thyroid Association recommends considering treatment if there are symptoms suggestive of hypothyroidism, positive thyroid antibodies, or evidence of heart disease or associated risk factors for these diseases. There is a concern that many patients who do not meet these criteria are being placed on long-term thyroid hormone replacement therapy. This is an issue since prior studies have shown that 14-22% of patients on thyroid hormone replacement therapy are overtreated. Too much circulating thyroid hormone can increase the risk of abnormal heart rhythms such as atrial fibrillation and can promote bone loss, contributing to osteoporosis.

In the United Kingdom, primary care physicians take care of most patients receiving thyroid hormone therapy for hypothyroidism. A computerized thyroid disease register assists physicians in keeping track of all the patients with hypothyroidism receiving thyroid hormone therapy and to ensure that physicians obtain thyroid-function tests on these patients every 12 months. The current study assessed how instituting these practice targets influenced thyroid hormone therapy prescribing behavior and whether this policy may have had unintended consequences.

THE FULL ARTICLE TITLE

Taylor PN et al. Falling threshold for treatment of borderline elevated thyrotropin levels--balancing benefits and risks: evidence from a large community-based study. *JAMA Intern Med*, October 7, 2013 [Epub ahead of print].

SUMMARY OF THE STUDY

The authors evaluated data from a United Kingdom database of 52,000 patients receiving an initial prescription for thyroid hormone replacement therapy. They found that from 2001 to 2009 the average TSH for which a new patient received thyroid hormone therapy fell from 8.7 mU/L to 7.9 mU/L. Approximately 83% of the patients started on thyroid hormone replacement therapy had a normal free T₄ prior to starting therapy. After 6-12 months of treatment, 6.3% of patients were rendered hyperthyroid from their medication. After 54-60 months of treatment, 10.2% were hyperthyroid.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that the fraction of patients in the United Kingdom with subclinical hypothyroidism treated with thyroid hormone therapy increased progressively between 2001 and 2009. This suggests that more patients with marginal indicators of hypothyroidism are being started on thyroid hormone replacement and that these patients are at significant risk of being made hyperthyroid as a result of their treatment. Practitioners need to be aware of this trend and should exhibit appropriate caution prior to starting a patient on long-term thyroid hormone replacement. Once initiating thyroid hormone therapy, closer monitoring appears to be needed to avoid overtreatment.

— Frank Crantz, MD

ATA BROCHURE LINKS

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

Thyroid Hormone Treatment: <http://www.thyroid.org/thyroid-hormone-treatment>

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

ABBREVIATIONS & DEFINITIONS

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

Subclinical Hypothyroidism: a mild form of hypothyroidism where the only abnormal hormone level is an increased TSH. There is controversy as to whether this should be treated or not.



HYPOTHYROIDISM, continued

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.

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.

Thyroid hormone therapy: patients with hypothyroidism are most often treated with Levothyroxine in order to return their thyroid hormone levels to normal. Replacement therapy means the goal is a TSH in the normal range and is the usual therapy. Suppressive therapy means that the goal is a TSH below the normal range and is used in thyroid cancer patients to prevent growth of any remaining cancer cells.



THYROID CANCER

Cardiovascular risk and risk of death in patients with a history of thyroid cancer

BACKGROUND

After a diagnosis of thyroid cancer, most patients do well and live long lives. Since more and more patients are diagnosed with thyroid cancer now, the long-term health of patients with thyroid cancer an important topic of research. Often patients with thyroid cancer are given doses of thyroid hormone that are slightly higher than they would ordinarily need (suppressive thyroid hormone therapy) in an attempt to reduce the growth of any thyroid cancer cells that remain after the initial therapy. It is known that the long-term effects of high dose thyroid hormone replacement can lead to bone loss and a risk of heart rhythm changes, specifically atrial fibrillation. Cardiovascular risks in patients with thyroid cancer have not been studied as frequently. This study was done to see if patients with thyroid cancer have a higher risk of dying from heart disease than patients without thyroid cancer.

THE FULL ARTICLE TITLE

Klein Hesselink EN et al Long-term cardiovascular mortality in patients with differentiated thyroid carcinoma: an observational study. *J Clin Oncol* 2013;31:4046-53. Epub October 7, 2013.

SUMMARY OF THE STUDY

A total of 524 patients in the Netherlands with a history of thyroid cancer were reviewed and compared to a age and sex-matched group of 1277 patients without thyroid cancer. The medical records were reviewed for an average of 8.5 years for the cancer patients and 10.5 years for the patients without thyroid cancer. The age range of the patients was 26-77 years, with an average of 49 years of age.

A total of 100 patients (19.1%) with thyroid cancer died (22 of cardiovascular disease, 39 as a result of thyroid cancer, and 39 from “other” causes) while 85 (5.4%) of the controls died (24 of cardiovascular disease and 61 of “other” causes). There was an increased risk of cardiovascular disease and of all-cause death in patients with a history of thyroid cancer. The lower the TSH was, the higher the risk of cardiovascular death.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that patients with a history of thyroid cancer have a higher risk of dying of heart disease and raises the concern about long-term risks of suppressive thyroid hormone therapy. It also shows that patients with thyroid cancer should be monitored and considered for cardiovascular prevention strategies, such as aggressive blood pressure and cholesterol treatment, as well as lifestyle modification to include healthy eating and exercise. Additionally, the shortest duration of thyroid hormone suppression therapy necessary should be considered. Thyroid hormone therapy should revert to usual replacement therapy in low risk thyroid cancer patients.

— Julie Hallanger Johnson, MD

ATA THYROID BROCHURE LINKS

Thyroid Hormone Treatment: <http://www.thyroid.org/thyroid-hormone-treatment>

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

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

ABBREVIATIONS & DEFINITIONS

Thyroid hormone therapy: patients with hypothyroidism are most often treated with Levothyroxine in order to return their thyroid hormone levels to normal.

Replacement thyroid hormone therapy: the goal is a TSH in the normal range and is the usual therapy.

Suppressive thyroid hormone therapy: the goal is a TSH below the normal range and is used in thyroid cancer patients to prevent growth of any remaining cancer cells.



HYPERTHYROIDISM

Should the approach to management of Graves' hyperthyroidism in women of child-bearing age be revised?

BACKGROUND

Graves' disease is the most common cause of hyperthyroidism in the United States and often occurs in women of child-bearing age. Because of this, Graves' disease can be diagnosed in women during pregnancy. Untreated hyperthyroidism during pregnancy can result in complications to both the baby and the mother. These complications include heart failure, preterm delivery, low weight at birth and even fetal death. The antithyroid drugs (ATDs) propylthiouracil (PTU) and methimazole (MMI) have been successfully used to treat hyperthyroidism during pregnancy and prevent these complications. In Europe, carbimazole (CMZ), which is converted to MMI in the body, is often used. While antithyroid drugs are usually well tolerated, several rare birth defects have been reported during use of MMI and CMZ. Since the risk of birth defects in prior studies is extremely rare with PTU, this is currently considered the medication of choice during early pregnancy. Indeed, it is recommended that women who got pregnant while on MMI or CMZ be switched to PTU as soon as possible. However, PTU has its own side effects. The aim of this study using the Danish National Register is to evaluate the frequency of birth defects in children exposed to ATDs in early pregnancy compared to children not exposed to these drugs.

THE FULL ARTICLE TITLE

Andersen L et al. Birth defects after early pregnancy use of antithyroid drugs: a Danish nationwide study. *J Clin Endocrinol Metab* 2013;98:4373-81. Epub October 22, 2013.

SUMMARY OF THE STUDY

The study included 817,093 children born in Denmark between 1996 and 2008. Among these children, 1820 children were born to mothers who took ATDs in early

pregnancy, 3542 children were born to mothers who took ATDs before and after but not during pregnancy and 811,730 children were born to mothers never exposed to this treatment. Among the children exposed to ATDs, 564 were exposed to PTU, 1097 were exposed to MMI or CMZ and 159 were exposed to both MMI or CMZ and PTU, these medications being changed in early pregnancy. The frequency of birth defects was higher in babies exposed to ATDs in early pregnancy compared to non-exposed babies (PTU, 8.0%; MMI or CMZ, 9.1%; MMI or CMZ and PTU, 10.1%; babies never exposed to ATD, 5.7%). These birth defects were usually mild and affected the skin and GI tract. Maternal ATD treatment before or after pregnancy was not associated with an increased risk of birth defects. Interestingly, 16 out of 149 babies born to mothers who changed from MMI or CMZ to PTU during early pregnancy, had birth defects.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Surprisingly, PTU use during pregnancy had an increased risk of birth defects, although this risk was slightly less than exposure to either MMI or CMZ. Importantly, a significant proportion of the babies born of mothers who switched from MMI or CMZ to PTU in early pregnancy still developed birth defects. Further studies are needed to confirm these results, as this study is at odds with prior studies. In any event, physicians should discuss the potential risk of congenital malformations associated with antithyroid drug use in early pregnancy with all women of child-bearing age diagnosed with Graves' disease.

— Alina Gavriila, MD, MMSC

ATA THYROID BROCHURE LINKS

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

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.

Hyperthyroidism: a condition where the thyroid gland is overactive and produces too much thyroid hormone. Hyperthyroidism may be treated with antithyroid medications (Methimazole, Propylthiouracil), radioactive iodine or surgery.



HYPERTHYROIDISM, continued

Preterm delivery: the birth of a human offspring occurs too early prior to 37 weeks of pregnancy.

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

Methimazole (MMI): 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.

Carbimazole (CMZ): an antithyroid medication that is transformed to methimazole in the body and blocks the thyroid from making thyroid hormone. This medication is not available in the United States.

Birth defects: Abnormal development of a body part that exists at birth.

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THYROID CANCER

Does papillary thyroid cancer run in families?

BACKGROUND

Most papillary thyroid cancers occur in individuals without a family history of thyroid cancer (sporadic thyroid cancer). Known factors that increase the chance of developing papillary thyroid cancer are radiation exposure to the head and neck area, iodine deficiency and history of thyroid diseases. Approximately 5% of thyroid cancers are thought to run in families (familial thyroid cancer). Previous studies showed that patients having a relative diagnosed with papillary thyroid cancer have a 5-10 fold higher chance of developing the thyroid cancer themselves and are more likely to have a more aggressive form of cancer. It is thus important to detect and treat the at-risk relatives at an early stage. In this study, the authors studied the familial risk of developing papillary thyroid cancer in large Utah population

THE FULL ARTICLE TITLE

Oakley GM et al. Establishing a familial basis for papillary thyroid carcinoma using the Utah population database. JAMA Otolaryngol Head Neck Surg. October 3, 2013 [Epub ahead of print].

SUMMARY OF THE STUDY

A total of 4460 patients diagnosed with papillary thyroid cancer in Utah were compared to individuals similar by sex, age and place of birth but without known thyroid disease. The chance of developing papillary thyroid

cancer among first, second and third degree relatives was then measured.

A 5-fold higher chance of developing papillary thyroid cancer was seen among first degree relatives. This was especially true for brothers and sisters (6.8-fold). Risk of developing papillary thyroid cancer among second degree (grandparents, aunts, uncles, cousins: 2.24-fold) and third degree (first cousins: 1.76-fold) relatives was much lower, but still significantly higher than individuals without known thyroid disease.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The results of this study confirm prior reports that there is an increased risk of developing thyroid cancers in families. However, it remains uncertain if that increased familial risk is due to common genetic causes or exposure to the same environmental factors within a same household. Until more is known on the topic, there are currently no specific recommendations for screening of family members of affected thyroid cancer patients.

— Mona Sabra, MD

ATA THYROID BROCHURE LINKS

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

ABBREVIATIONS & DEFINITIONS

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

Familial thyroid cancer: type of thyroid cancer that runs in families that is not medullary thyroid cancer. This is

usually papillary thyroid cancer and occurs in about 10% of thyroid cancers.

Sporadic thyroid cancer: usual form of thyroid cancer that does not have a genetic component and does not run in families.



THYROID CANCER

Can we predict the presence of central neck nodal metastasis in patients with papillary thyroid cancer?

BACKGROUND

Papillary thyroid cancer has a high rate of spread (metastasis) to lymph nodes in the central neck at the time of diagnosis. Surgical series report the presence of spread to the central nodes anywhere from 20% to 80%. Surgical removal of the central neck lymph nodes is appropriate when there is spread is suspected or confirmed. It may be difficult or impossible to detect by ultrasound, imaging, or examination, whether the thyroid cancer has spread to the lymph nodes prior to surgery. Currently there is controversy as to whether the surgeon should remove only the lymph nodes in the central neck they see that look abnormal at the time of surgery (usual practice) or whether they should remove all the lymph nodes possible (prophylactic central neck dissection). There are increased surgical risks when the lymph nodes are removed as they are near the nerve to the vocal cords and the parathyroid glands, which regulate calcium levels in the body. A method that could predict whether spread has occurred prior to surgery would be very valuable. This study examines possible risk factors that can predict central neck lymph node metastasis prior to surgery in an attempt to develop a nomogram to help with decision-making at the time of surgery.

THE FULL ARTICLE TITLE

Thompson AM et al. A pre-operative nomogram for the prediction of ipsilateral central compartment lymph node metastases in papillary thyroid cancer. *Thyroid*. October 1, 2013 [Epub ahead of print].

SUMMARY OF THE STUDY

The authors looked at the records of 1589 patients that underwent surgery for papillary thyroid carcinoma between 1968 and 2012 at a single institution and identified 914 patients who had a total thyroidectomy and

removal of the lymph nodes in the central neck. In 84% of cases, the lymph nodes were only removed on one side. The authors collected data about the patients and used statistical analysis to try and predict risk factors for spread to the lymph nodes.

The rate of central lymph nodal spread was 43%. Young and old age were associated with spread to the lymph nodes. Men were 2.3 times more likely to have lymph node involvement than women. The larger the primary cancer in the thyroid, the greater the chance of lymph node involvement. The rate was 60% for cancers greater than 5 cm. The authors put these risk factors into a nomogram to assist in the decision-making during surgery.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study highlights some of the risk factors for the spread of thyroid cancer to lymph nodes in the central neck. The authors of this article have created a predictive model with a smart phone application to help identify high risk patients prior to surgery. If their application could reduce the probability of missing clinically significant lymph node spread and limit the number of patients who have to face the added risks of central neck lymph node removal, then it may prove to be useful in clinical practice. Further studies are needed to determine the usefulness of this nomogram.

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 AND DEFINITIONS

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

Cancer metastasis: spread of the cancer from the initial organ where it developed to other organs, such as the lymph nodes, lungs and bone.



THYROID CANCER, continued

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

Parathyroid glands: usually four small glands located around the thyroid that secrete parathyroid hormone (PTH) which regulates the body's calcium levels.

Central neck compartment: the central portion of the neck between the hyoid bone above, and the sternum and collar bones below and laterally limited by the carotid arteries.

Prophylactic central neck dissection: careful removal of all lymphoid tissue in the central compartment of the neck, even if no obvious cancer is apparent in these lymph nodes.



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

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.

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Survivors' Association, Inc.SM
www.thyca.org



Thyroid Cancer Canada
Cancer de la thyroïde Canada





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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.



AMERICAN
THYROID
ASSOCIATION
FOUNDED 1923



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



Thyroid Cancer Canada
Cancer de la thyroïde Canada

