

Clinical THYROIDOLOGY FOR PATIENTS



AMERICAN
THYROID
ASSOCIATION
FOUNDED 1923

VOLUME 6 • ISSUE 3 • 2013

www.thyroid.org

EDITOR'S COMMENTS2

HYPOTHYROIDISM3

Untreated subclinical hypothyroidism may not increase the risk of developing heart disease in the elderly

Subclinical hypothyroidism is defined as an elevated TSH level with thyroid hormone levels in the normal range. Some research studies suggest an increased risk of heart disease in untreated patients as the TSH approaches 10 and above. This study was performed to determine if coronary heart disease, congestive heart failure and death was more common in elderly patients with untreated subclinical hypothyroidism.

Hyland KA et al. Persistent subclinical hypothyroidism and cardiovascular risk in the elderly: the Cardiovascular Health Study. *J Clin Endo Metab*, Nov. 16, 2012 (Epub).

THYROID NODULES4

Should thyroid scans still be used in investigating thyroid nodules?

Thyroid scans can show if nodules are functioning. Thyroid biopsy can be avoided in these cases because the risk of cancer is extremely low in nodules functioning on their own (autonomous nodules). The goal of this study was to examine the role of thyroid scans in evaluating all nodules in a region of iodine deficiency.

Graf D et al. Functional activity of autonomous adenoma in Germany. *Dtsch Med Wochenschr* 2012;137:2089-92.

THYROID NODULES6

The Bethesda classification for thyroid biopsies is effective for clinical management of thyroid nodules

Thyroid nodules are very common and often need to be evaluated for cancer by a fine needle aspiration biopsy (FNAB). To try to make the cytology results uniform across institutions, the Bethesda system suggests a six category classification system to report thyroid FNAB results. The aim of this study was to determine how well these categories matched results obtained from surgical specimens between different medical centers.

Bongiovanni M et al. The Bethesda System for Reporting Thyroid Cytopathology: a meta-analysis. *Acta Cytol.* 2012;56:333-9. Epub July 25, 2012; doi: 10.1159/000339959.

HYPOTHYROIDISM8

Patients undergoing a surgical lobectomy require long-term follow-up to detect postoperative hypothyroidism

Surgical lobectomy is performed to remove a single thyroid nodule. Since only one lobe of the thyroid is removed, some patients may not need to take thyroid hormone replacement, while others develop hypothyroidism. The aim of this study was to identify the risk factors for the development of hypothyroidism after surgical lobectomy.

Verloop H et al. Risk of hypothyroidism following hemithyroidectomy: systematic review and meta-analysis of prognostic studies. *J Clin Endocrinol Metab* 2012;97:2243-55. Epub April 17, 2012.

THYROID SURGERY9

A single PTH measurement on the first postoperative day predicts the need for calcium supplementation following thyroid surgery

Hypocalcemia is a complication of thyroid surgery due to damage to the parathyroid glands which help regulate calcium levels in the body. If the calcium levels became too low then patients are treated with calcium and vitamin D. This study studied whether measuring PTH on the first post-operative day would predict the need for postoperative calcium supplementation.

Cayo AK et al. Predicting the need for calcium and calcitriol supplementation after total thyroidectomy: results of a prospective, randomized study. *Surgery* 2012;152:1059-67. Epub October 13, 2012.

ATA ALLIANCE FOR THYROID PATIENT EDUCATION11



Follow us on Facebook



Follow us on Twitter



AMERICAN THYROID ASSOCIATION

FOUNDED 1923

www.thyroid.org

Editor

Alan P. Farwell, MD

Boston Medical Center

Boston University School of Medicine

88 East Newton St., Boston, MA 02115

Director of Patient Education

American Thyroid Association

e-mail: thyroid@thyroid.org

www.thyroid.org/patients/ct/index.html

Editorial Board

Gary Bloom

New York, NY

Glenn Braunstein, MD

Los Angeles, CA

M. Regina Castro, MD

Rochester, MN

Frank Crantz, MD

McLean, VA

Jamshid Farahati, MD

Bottrop, Germany

Alina Gavril-Filip, MD

Boston, MA

Heather Hofflich, DO

San Diego, CA

Ronald Koppersmith, MD

College Station, TX

Angela Leung, MD

Boston, MA

Mona Sabra, MD

New York, NY

Anna M. Sawka, MD

Toronto, ON,

Canada

Philip Segal, MD

Toronto, ON,

Canada

Jerrold Stock, MD

Morristown, NJ

Whitney Woodmansee, MD

Boston, MA

American Thyroid Association

President

Bryan R. Haugen, MD

Secretary/Chief Operating Officer

John C. Morris, III, MD

Treasurer

David H. Sarne, MD

President-Elect

Hosseini Gharib, MD

Treasurer-Elect

Gregory W. Randolph, MD

Past-President

James A. Fagin, MD

Executive Director

Barbara R. Smith, CAE

American Thyroid Association

6066 Leesburg Pike, Suite 550

Falls Church, VA 22041

Telephone: 703-998-8890

Fax: 703-998-8893

Email: thyroid@thyroid.org

Designed by

Karen Durland

Email: kdurland@gmail.com

Clinical Thyroidology for Patients

Copyright © 2013

American Thyroid Association, Inc.

All rights reserved.

CLINICAL THYROIDOLOGY **FOR PATIENTS**

A publication of the American Thyroid Association

VOLUME 6 • ISSUE 3 • 2013

EDITOR'S COMMENTS

Welcome to our 6th year of **Clinical Thyroidology for Patients**, bringing to you, the patient, the most up-to-date, cutting edge thyroid research. What you read here as research studies will likely become the accepted practice in the future. *Clinical Thyroidology for Patients* is published on a monthly basis and includes summaries of research studies that were discussed in a recent issue of *Clinical Thyroidology*, a publication of the American Thyroid Association for physicians. This means that you, the patients, are getting the latest information on thyroid research and treatment almost as soon as your physicians.

We will be providing even faster updates of late-breaking thyroid news through **Twitter** at [@thyroidfriends](https://twitter.com/thyroidfriends) and on **Facebook**. Our goal is to provide you with the tools to be the most informed thyroid patient in the waiting room. Please feel free to submit questions as well as suggestions as to how we can better serve thyroid patients.

The **Calendar of Events** highlights educational forums and support groups that are organized around the country by members of the **Alliance for Thyroid Patient Education**. The **Alliance** member groups consist of: the *American Thyroid Association*, the *Graves' Disease 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:

- Does untreated subclinical hypothyroidism lead to heart disease in the elderly?
- Should thyroid scans still be used in investigating thyroid nodules?
- Does the Bethesda classification for thyroid biopsies lead to effective management of thyroid nodules?
- How often does surgical lobectomy lead to hypothyroidism?
- Can PTH levels help predict the need for calcium supplementation after thyroid surgery?

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



HYPOTHYROIDISM

Untreated subclinical hypothyroidism may not increase the risk of developing heart disease in the elderly

BACKGROUND

TSH levels rise above the normal range as hypothyroidism develops. Subclinical hypothyroidism is defined as an elevated TSH level with thyroid hormone levels in the normal range. Subclinical hypothyroidism is more common in the elderly than in those younger than 65. There is ongoing controversy about the benefits and risks of treating the elderly with subclinical hypothyroidism, especially when the TSH is only mildly elevated (between 4.5-10). Nevertheless, some research studies suggest an increased risk of heart disease in untreated patients as the TSH approaches 10 and above. For this reason overt hypothyroidism, defined as an increased TSH and decreased thyroid hormone levels, is usually treated. This study was performed to determine if coronary heart disease, congestive heart failure and death was more common in elderly patients with untreated subclinical hypothyroidism.

THE FULL ARTICLE TITLE

Hyland KA et al. Persistent subclinical hypothyroidism and cardiovascular risk in the elderly: the Cardiovascular Health Study. *J Clin Endo Metab*, Nov. 16, 2012 (Epub).

SUMMARY OF THE STUDY

This large study of 4863 individuals older than 65 was begun in 1989. TSH, free T₄ and T₃ levels were measured at baseline and every 2-3 years until 1996. The individuals were monitored over many years for the development of heart disease. Using the TSH level of 4.5 as the upper

limit, 14% of the 4863 subjects had subclinical hypothyroidism at baseline. There were no differences in other coronary heart disease risk factors such as: body weight, cholesterol, hypertension, diabetes or kidney disease between the subclinical hypothyroid group and individuals with normal TSH levels. The risk of subsequent development of heart disease in the subclinical hypothyroid individuals and normal subjects was the same.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Despite the limitations that some individuals were treated during the study for hypothyroidism, there were many individuals with subclinical hypothyroidism who were stable enough to not need treatment. This study suggests that subclinical hypothyroidism is not associated with an accelerated development of heart disease. This finding questions recent recommendations to treat individuals when the TSH level rises to 8-9 and forces treatment decisions to be made using clinical judgment by both the treating physician and the educated patient.

— Jerrold M. Stock, MD

ATA THYROID BROCHURE LINKS

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

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.

Overt hypothyroidism: clear hypothyroidism with an increased TSH and a decreased T₄ level. All patients with overt hypothyroidism are usually treated with thyroid hormone pills.

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

**THYROID NODULES****Should thyroid scans still be used in investigating thyroid nodules?****BACKGROUND**

Thyroid nodules are very common, occurring in up to 50% of individuals. The concern with a thyroid nodule is the risk of cancer. Thyroid scans can be used to determine if a nodule is functioning. If nodules are shown to be functioning on a thyroid scan, then perhaps a thyroid nodule biopsy can be avoided. This is because the risk of cancer is extremely low in nodules functioning on their own (autonomous nodules). However, the current guidelines recommend using a thyroid scan to evaluate nodules only if the patient's serum TSH is low or on the low normal range. In areas with iodine deficiency, thyroid nodules are more common, especially multiple nodules in a single thyroid gland (multinodular goiter). The goal of this study was to examine the role of thyroid scans in evaluating all nodules in a region of iodine deficiency.

THE FULL ARTICLE TITLE

Graf D et al. Functional activity of autonomous adenoma in Germany. Dtsch Med Wochenschr 2012;137:2089-92.

SUMMARY OF THE STUDY

A total of 476 patients with thyroid nodules were investigated by ultrasound and thyroid scanning regardless of their TSH levels. A total of 100 patients were found to have a functioning thyroid nodule on thyroid scanning. Of these

patients, 68 had a normal TSH, whereas 32 had a low/suppressed TSH. There was no correlation between serum TSH levels and scan findings of a functioning nodule.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In regions that have iodine deficiency, goiters are a frequent finding. Thyroid scanning will find autonomously functioning thyroid nodules in about 1/3 of cases. This is useful information because thyroid biopsy can be avoided in these cases. This also shows us that patients with a normal TSH who refuses a thyroid biopsy may benefit from a thyroid scan. This information may help avoid unnecessary thyroid biopsies in patients.

— Heather Hofflich, DO

ATA THYROID BROCHURE LINKS

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

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

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

Goiter: <http://www.thyroid.org/what-is-a-goiter>

ABBREVIATIONS & DEFINITIONS

Goiter: a thyroid gland that is enlarged for any reason is called a goiter. A goiter can be seen when the thyroid is overactive, underactive or functioning normally. If there are nodules in the goiter it is called a nodular goiter; if there is more than one nodule it is called a multinodular goiter.

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

Thyroid scan: this imaging test uses a small amount of a radioactive substance, usually radioactive iodine, to obtain a picture of the thyroid gland. A “cold” nodule means that the nodule is not functioning normally. A patient with a “cold” nodule should have a fine needle aspiration biopsy of the nodule. A “functioning” or “hot” nodule means that the nodule is taking up radioactive iodine to a degree that is either similar to or greater than the uptake of normal cells. The likelihood of cancer in these nodules is very low and a biopsy is often not needed.

continued on next page



THYROID NODULES, 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.

Thyroid Ultrasound: a common imaging test used to evaluate the structure of the thyroid gland. Ultrasound uses soundwaves to create a picture of the structure of the thyroid gland and accurately identify and characterize nodules within the thyroid. Ultrasound is also frequently used to guide the needle into a nodule during a thyroid nodule biopsy.

Thyroid fine needle aspiration biopsy (FNAB): a simple procedure that is done in the doctor's office to determine if a thyroid nodule is benign (non-cancerous) or cancer. The doctor uses a very thin needle to withdraw cells from the thyroid nodule. Patients usually return home or to work after the biopsy without any ill effects.

**THYROID NODULES****The Bethesda classification for thyroid biopsies is effective for clinical management of thyroid nodules****BACKGROUND**

Thyroid nodules are very common and often need to be evaluated for cancer. The possibility that a nodule contains a thyroid cancer is 5-8%. Fine needle aspiration biopsy (FNAB) is the best test for diagnosing cancer outside of surgery; however, the description of FNAB results is different across medical centers and pathologists. The Bethesda system suggests a six category classification system to report thyroid FNAB results: 1. Non-diagnostic/unsatisfactory, 2. Benign/Non-cancerous, 3. Indeterminate, 4. Suspicious for follicular cancer, 5. Suspicious for cancer and 6. Positive for cancer. The aim of this study was to determine how well these categories matched results obtained from surgical specimens between different medical centers.

THE FULL ARTICLE TITLE

Bongiovanni M et al. The Bethesda System for Reporting Thyroid Cytopathology: a meta-analysis. *Acta Cytol.* 2012;56:333-9. Epub July 25, 2012; doi: 10.1159/000339959.

SUMMARY OF THE STUDY

The authors reviewed 8 published studies including 25445 thyroid FNABs. All thyroid FNAB samples were classified according to the Bethesda system. A subgroup of 6362 (25%) patients subsequently underwent thyroidectomy and the final pathology of these specimens was compared to the FNAB result. The category distribution was as follows: 1. Nondiagnostic/unsatisfactory - 13% (ranging between 2-24% among the institutions) - of those 16.8% were cancerous at final pathology, 2. Benign/Non-cancerous - 59% (range, 39-74%) - of those only 3.7% were cancerous at final pathology, 3. Indeterminate - 9.6% (range, 3-27%) - of those 15.9% were cancerous at

final pathology, 4. Suspicious for follicular cancer - 10.1% (range, 1-25%) - of those 26.1% were cancerous at final pathology, 5. Suspicious for cancer - 2.6% (range, 1-6%) - of those 75.2% were cancerous at final pathology and 6. Positive for cancer - 5.4% (ranging between 2-16%) - of those 98.6% were cancerous at final pathology.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The categorizing of FNAB results according to Bethesda system was different among medical centers. However, this study shows that the Bethesda classification for thyroid FNAB is effective for clinical management of thyroid nodules. In patients with benign or inadequate FNAB results, additional clinical factors, such as a family history of thyroid cancer, the size of the nodule or suspicious findings on ultrasonography should be considered for the decision to do surgery. The authors recommend to repeat FNAB when the diagnosis is indeterminate (with 16% possibility of cancer about the same as the nondiagnostic category). In this group, molecular markers may help to find out which patients should proceed to surgery. All patients in "suspicious for cancer" category with a very high possibility of cancer (75%) should undergo surgery.

— Jamshid Farahati, MD

ATA THYROID BROCHURE LINKS

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

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

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

continued on next page

THYROID NODULES, continued

ABBREVIATIONS & DEFINITIONS

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

Thyroid Ultrasound: a common imaging test used to evaluate the structure of the thyroid gland. Ultrasound uses soundwaves to create a picture of the structure of the thyroid gland and accurately identify and characterize nodules within the thyroid. Ultrasound is also frequently used to guide the needle into a nodule during a thyroid nodule biopsy.

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.

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.

Inadequate/Insufficient biopsy: this happens with not enough cells are obtained during the biopsy to provide a diagnosis. This occurs in 5-10% of biopsies. This often results in the need to repeat the biopsy.

Non-diagnostic thyroid biopsy: this happens when some atypical cells are found but not enough to provide a diagnosis. This occurs in 5-10% of biopsies. This often results in the need to repeat the biopsy.

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

Suspicious thyroid biopsy: this happens when there are atypical cytological features suggestive of, but not diagnostic for malignancy. Surgical removal of the nodule is required for a definitive diagnosis.

The ATA is Getting Social



Twitter

www.twitter.com/@thyroidfriends



Facebook

www.facebook.com/ThyroidAssociation

Connect with us!



HYPOTHYROIDISM

Patients undergoing a surgical lobectomy require long-term follow-up to detect postoperative hypothyroidism

BACKGROUND

Surgical lobectomy is performed to remove a single thyroid nodule for several reasons, including if the nodule is biopsied with suspicious cytology, if the cytology is benign but the nodule is causing symptoms or if the nodule is overactive. Since only one lobe of the thyroid is removed, patients may not need to take thyroid hormone replacement as the other remaining lobe may be able to produce enough thyroid hormone to meet the body's needs. However, over time the remaining thyroid lobe may not be able to maintain adequate hormone levels resulting in hypothyroidism. The risk of developing hypothyroidism after a surgical lobectomy as well as the best plan for long term monitoring and management of patients who have had this procedure is not clear. The aim of this study was to identify the risk factors for the development of hypothyroidism after surgical lobectomy.

THE FULL ARTICLE TITLE

Verloop H et al. Risk of hypothyroidism following hemithyroidectomy: systematic review and meta-analysis of prognostic studies. *J Clin Endocrinol Metab* 2012;97:2243-55. Epub April 17, 2012.

SUMMARY OF THE STUDY

The authors performed a systematic review of studies examining the risk of hypothyroidism after surgical lobectomy. A total of 31 studies published between 1983 and 2011 (combined total of 4899 patients) were included in the analysis. The overall risk of hypothyroidism after

surgical lobectomy was 22%. Only 4 of the studies distinguished between subclinical and overt hypothyroidism and from these the risk was 12% and 4% respectively. The most commonly reported risk factors for developing hypothyroidism were the presence of TPO antibodies, older age, a high TSH level before surgery and inflammation within the excised thyroid lobe. While hypothyroidism was usually permanent and was detected within the first 6 months after surgery, a few studies did find that the hypothyroidism was only transient.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Older patients with TPO antibodies, higher preoperative TSH levels and signs of inflammation within the excised thyroid gland are at particular risk of developing hypothyroidism after a surgical lobectomy. Patients and physicians must bear this in mind and must monitor thyroid function at regular intervals since hypothyroidism may still develop many years after surgery.

— Philip Segal, MD

ATA THYROID BROCHURE LINKS

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

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

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

ABBREVIATIONS & DEFINITIONS

Lobectomy: surgery to remove one lobe of the thyroid.

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.

Overt hypothyroidism: clear hypothyroidism with an increased TSH and a decreased T₄ level. All patients with overt hypothyroidism are usually treated with thyroid hormone pills.

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



THYROID SURGERY

A single PTH measurement on the first postoperative day predicts the need for calcium supplementation following thyroid surgery

BACKGROUND

The parathyroid glands are small glands near the thyroid and help regulate calcium levels in the body. When patients undergo surgery to remove the entire thyroid gland, one of the risks is damage to the parathyroid glands. If the parathyroid glands are injured during surgery, calcium levels in the blood can become dangerously low. This can be a temporary or a permanent problem. In the past, frequent blood draws were required to measure calcium levels at regular intervals after surgery to ensure that the calcium levels remain normal. If the calcium levels became too low then patients were treated with calcium and vitamin D.

More recently, physicians have looked for alternative methods that would reduce the number of required blood draws after surgery, predict whether a specific patient would develop low calcium levels and determine which patients would require calcium and/or vitamin D. This study studied whether measuring PTH on the first postoperative day would predict the need for postoperative calcium supplementation.

THE FULL ARTICLE TITLE:

Cayo AK et al. Predicting the need for calcium and calcitriol supplementation after total thyroidectomy: results of a prospective, randomized study. *Surgery* 2012;152:1059-67. Epub October 13, 2012.

SUMMARY OF THE STUDY

This was a prospective, randomized trial over a 23 month period looking at 142 patients that had their thyroid removed. PTH levels were measured on the morning of the first post-operative day. If the patients had a PTH level > 10, no calcium or vitamin D was given. If the PTH level was <5, the patient was randomly assigned to calcium sup-

plementation or calcium and calcitriol (vitamin D analog) supplementation. If the PTH was 5 to 10, the patient was randomly assigned to either calcium supplementation or no supplementation. According to this criteria, 116 patients were not given any supplementation, 20 patients were given calcium alone and 7 patients received calcium and calcitriol.

In 10% of patients with a PTH ≥ 10 and 48 with PTH <10, symptoms of low calcium were reported within the first 72 hours after surgery. On statistical analysis, young age and postoperative PTH were independent risk factors for postoperative low calcium. A total of 55% of patients with a PTH <10 on postoperative day 1 were on calcium and calcitriol at 1 week after surgery, whereas no patients with a PTH ≥ 10 on postoperative day 1 were on routine calcium or calcitriol at 1 week after surgery.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Many studies have looked at PTH measurement after surgery as a predictor for whether a patient needs to take calcium after thyroid surgery. When the measurement should be taken and the guidelines for supplementation based on the measurement have varied between articles. This is a welcome development for patients, as it reduces the number of times blood has to be drawn to determine calcium levels after surgery for many patients and allows patients to go home sooner after their procedure.

— Ronald B. Kuppersmith, MD, FACS

ATA THYROID BROCHURE LINKS

Thyroid Surgery: <http://www.thyroid.org/why-thyroid-surgery>

continued on next page



THYROID SURGERY, continued

ABBREVIATIONS & DEFINITIONS

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

Completion thyroidectomy: surgery to remove the remaining thyroid lobe in thyroid cancer patients who initially had a lobectomy.

Total thyroidectomy: surgery to remove the entire thyroid gland.

Hypoparathyroidism: low calcium levels due to decreased secretion of parathyroid hormone (PTH) from the parathyroid glands next to the thyroid. This can occur as a result of damage to the glands during thyroid surgery and usually resolves. This may also occur as a result of autoimmune destruction of the glands, in which case it is usually permanent.

Hypocalcemia: low calcium levels in the blood, a complication from thyroid surgery that is usually short-term and relatively easily treated with calcium pills. If left untreated, low calcium may be associated with muscle twitching or cramping and, if severe, can cause seizures and/or heart problems.

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

Parathyroid hormone (PTH): the hormone that regulates the body's calcium levels. High levels of PTH cause hypercalcemia, or too much calcium in the blood. Low levels of PTH cause hypocalcemia, or too little calcium in the blood.

Calcitriol: an analog of Vitamin D that is fast acting and works to increase the absorption of calcium from the gut.



ATA Alliance for Thyroid Patient Education

WELCOME

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

GOAL

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

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

WHO WE ARE (in alphabetical order)

AMERICAN THYROID ASSOCIATION

www.thyroid.org

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

Find a Thyroid Specialist: www.thyroid.org

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

e-mail: thyroid@thyroid.org

ATA Mission: The ATA leads in promoting thyroid health and understanding thyroid biology.

ATA Vision: The ATA is the leading organization focused on thyroid biology and the prevention and treatment of thyroid disorders through excellence and innovation in research, clinical care, education, and public health.

ATA Values: The ATA values scientific inquiry, clinical excellence, public service, education, collaboration, and collegiality.

To further our mission, vision and values the ATA sponsors “Friends of the ATA” online to advance the information provided to patients and the public such as this publication, *Clinical Thyroidology for Patients*. We welcome your support.

GRAVES’ DISEASE AND THYROID FOUNDATION

www.gdatf.org

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

e-mail: Gravesdiseasefd@gmail.com

Founded in 1990, the Graves’ Disease Foundation offers support and resources to Graves’ disease patients, their families, and health care professionals. Their mission is to find the cause of and the cure for Graves’ thyroid disease through research, to improve the quality of life for persons with Graves’ disease and their caregivers and to educate persons with Graves’ disease, their caregivers, healthcare professionals, and the general public about Graves’ disease and its treatment. The web site features a monitored bulletin board.

continued on next page



AMERICAN
THYROID
ASSOCIATION
FOUNDED 1923



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



Thyroid Cancer Canada
Cancer de la thyroïde Canada



Light of Life Foundation
checkyourneck.com





ATA Alliance for Thyroid Patient Education

Continued...

LIGHT OF LIFE FOUNDATION

www.checkyourneck.com

email: info@checkyourneck.com

The Light of Life Foundation, founded in 1997, is a nonprofit organization that strives to improve the quality of life for thyroid cancer patients, educate the public and professionals about thyroid cancer, and promote research and development to improve thyroid cancer care.

THYCA: THYROID CANCER SURVIVORS' ASSOCIATION, INC.

www.thyca.org

Phone (toll-free): 877 588-7904

e-mail: thyca@thyca.org

ThyCa: Thyroid Cancer Survivors' Association, Inc., founded in 1995, is an international nonprofit organization, guided by a medical advisory council of renowned thyroid cancer specialists, offering support and information to thyroid cancer survivors, families, and health care professionals worldwide.

THYROID CANCER CANADA

www.thyroidcancercanada.org

Phone: 416-487-8267

Fax: 416-487-0601

e-mail: info@thyroidcancercanada.org

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

THYROID FEDERATION INTERNATIONAL

<http://www.thyroid-fed.org/>

e-mail: tfi@thyroid-fed.org

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



AMERICAN
THYROID
ASSOCIATION
FOUNDED 1923



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



Thyroid Cancer Canada
Cancer de la thyroïde Canada

