

# CLINICAL THYROIDOLOGY FOR PATIENTS



AMERICAN  
THYROID  
ASSOCIATION  
FOUNDED 1923

VOLUME 2 • ISSUE 2 • JUNE 2009

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Lee SJ, Kang JG, Ryu OH, Kim CS, Ihm SH, Choi MG, Yoo HJ, Hong KS. The relationship of thyroid hormone status with myocardial function in stress cardiomyopathy. *Eur J Endocrinol/ EJE-08-0808 [Pii] 10.1530/EJEJ 2009[doi]* ..... 4

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Mercante G, Frasoldati A, Pedroni C, Formisano D, Renna L, Piana S, Gardini G, Valcavi R, Barbieri V. Prognostic factors affecting neck lymph node recurrence and distant metastasis in papillary microcarcinoma of the thyroid: results of a study in 445 patients. *Thyroid* 19(7) 2009:1-10. .... 5

### THYROID CANCER

The number of new cases of thyroid cancer has been rising over the last 30 years. Most thyroid cancers occur in women and currently thyroid cancer is the 6th most common cancer in women. Part of the reason is likely due to the increased use of imaging and biopsy studies, so smaller thyroid cancers can now be found. However, there is growing awareness that there may be other as yet unidentified causes for the increased number of new cases of thyroid cancer. This study was done to determine the rate of new cases of thyroid cancer and the trends in cancer size in Vigo, Spain, from 1979 through 2001.

Rego-Iraeta A, Perez-Mendez LE, Mantinan B, Garcia-Mayor RV. Time trends for thyroid cancer in northwestern Spain: true rise in the incidence of micro and larger forms of papillary thyroid carcinoma. *Thyroid* 2009;19:333-40. .... 6

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A total thyroidectomy is the usual first treatment for papillary cancer, the most common type of thyroid cancer. There is a current debate as to how aggressive the initial surgery should be in removing lymph nodes. A common complication of thyroid surgery is low calcium levels (hypocalcemia) after surgery, which may be more common after more extensive surgery. This study looks at the effects of more aggressive as opposed to less aggressive surgery on cancer spread and on levels of calcium after surgery.

Roh JL, Park JY, Park CI. Total thyroidectomy plus neck dissection in differentiated papillary thyroid carcinoma patients: pattern of nodal metastasis, morbidity, recurrence, and postoperative levels of serum parathyroid hormone. *Ann Surg* 2007;245 (4):604-10. .... 7

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**Clinical Thyroidology for Patients**

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# CLINICAL THYROIDOLOGY FOR PATIENTS

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VOLUME 2 • ISSUE 2 • JUNE 2009

## EDITOR'S COMMENTS

Welcome to the new format for *Clinical Thyroidology for Patients*. This publication is a collection of summaries of recently published articles from the medical literature that covers the broad spectrum of thyroid disorders. *Clinical Thyroidology for Patients* will be published on a monthly basis and include summaries of research studies that were discussed in the previous month's issue of *Clinical Thyroidology*, a publication of the American Thyroid Association for physicians. There will also be a **Calendar of Events** that will highlight educational forums and support groups that are organized by members of the **Alliance for Thyroid Patient Education**. The **Alliance** member groups consist of: the *American Thyroid Association*, the *Graves' Disease Foundation*, the *Light of Life Foundation* and *ThyCa: Thyroid Cancer Survivors Association*.

In this issue, studies ask the following questions:

- Is a higher TSH level normal for people over the age of 90 years?
- Do low thyroid hormone levels in very sick hospitalized patients cause heart problems?
- What factors make very small thyroid cancers more likely to spread?
- Are environmental factors playing a role in the rapid increase of new cases of thyroid cancer?
- Is a higher risk of complications after more aggressive surgery for thyroid cancer worth a higher rate of cure?

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 Farwell, MD

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## TSH

### WHAT IS THE STUDY ABOUT?

TSH is a pituitary hormone that regulates thyroid function. Usually when TSH is increased, it means that the person is hypothyroid and needs to be treated with thyroid hormone pills. Recent studies indicate that TSH levels increase with age. It is unclear if this is a normal part of getting older or means that these older people are becoming hypothyroid. Some professional societies have recommended that older people with elevated TSH levels are the same as younger people and should be treated with thyroid hormone. The aim of this study is to look at TSH and thyroxine (T<sub>4</sub>) levels in very old people (>90 years old) and compare them with TSH and T<sub>4</sub> levels in younger people.

**THE FULL ARTICLE TITLE:** Atzmon G, Barzilai N, Hollowell JG, Surks MI, Gabriely I. Extreme longevity is associated with increased serum thyrotropin. *J Clin Endocrinol Metab* 2009;94:1251-4.

### WHAT WAS THE AIM OF THE STUDY?

The aim of this study is to look at TSH and thyroxine (T<sub>4</sub>) levels in very old people (>90 years old) and compare them with TSH and T<sub>4</sub> levels in younger people.

### WHO WAS STUDIED?

The study group was 232 healthy people >90 years of age (166 women and 66 men) who were already part of the Longevity Genes Study at Albert Einstein College of Medicine, Bronx, NY were studied. Their results were compared to a group of 188 healthy people 60-79 years old from the same area and a group of 605 people also 60-79 years old from across the country.

### HOW WAS THE STUDY DONE?

All of the people from the study group and the younger group had a physical exam, gave a blood sample that was measured for TSH and T<sub>4</sub> and answered a questionnaire. The group from across the country had TSH measurements done as a part of another study national study. People who were not healthy or were known to have thyroid disease or on thyroid pills were excluded from the study.

### WHAT WERE THE RESULTS OF THE STUDY?

TSH levels were higher in the older study group than in either of the younger groups. Over half of the older group had TSH levels >2 mIU/l and these levels ranged as high

as 7.2 mIU/l (TSH normal range 0.4–4.0 mIU/l). T<sub>4</sub> levels were the same in all of the groups.

### HOW DOES THIS COMPARE WITH OTHER STUDIES?

Several other studies have shown that TSH levels increase as we age. Some of these studies have shown that the T<sub>4</sub> levels fell as well. The present study supports others that show higher TSH levels in very old people.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In people <65 years old, several studies have suggested that mild elevations of TSH are associated with heart disease and may be a reason to treat these people with thyroid hormone. This does not seem to be true in older people. This study suggests that a higher TSH may be normal in very old people and provides a reason not to routinely treat these individuals if their T<sub>4</sub> levels are normal. Importantly, while higher TSH levels were found in the older study group, this study does not show that an elevated TSH allows you to live longer.

— Alan P. Farwell, MD

### ATA THYROID BROCHURE LINKS

**Hypothyroidism:** [http://thyroid.org/patients/patient\\_brochures/hypothyroidism.html](http://thyroid.org/patients/patient_brochures/hypothyroidism.html)

**Thyroid Function Tests:** [http://thyroid.org/patients/patient\\_brochures/function\\_tests.html](http://thyroid.org/patients/patient_brochures/function_tests.html)

### ABBREVIATIONS & DEFINITIONS

**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<sub>4</sub>):** the major hormone secreted by the thyroid gland. Thyroxine is broken down to produce Triiodothyronine which causes most of the effects of the thyroid hormones

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



## THYROID AND THE HEART

### WHAT IS THE STUDY ABOUT?

Thyroid hormone has many effects on the heart. For example, hypothyroidism causes the heart not to beat as strong or as fast, although most of these effects are mild. Treatment with thyroid hormone returns heart function to normal. Heart function may also be decreased in very sick patients in the hospital who have infections, liver disease or other major illnesses, even though they do not have heart disease. In these patients, the heart function returns to normal after they get better. Thyroid hormone levels are decreased in these very sick patients due to their illnesses for reasons that are unclear. Treating these sick patients with thyroid hormone does not help. This study looked at whether the decreased heart function was related to the low thyroid levels in these sick patients.

**THE FULL ARTICLE TITLE:** Lee SJ, Kang JG, Ryu OH, Kim CS, Ihm SH, Choi MG, Yoo HJ, Hong KS. The relationship of thyroid hormone status with myocardial function in stress cardiomyopathy. *Eur J Endocrinol/ EJE*-08-0808 [Pii] 10.1530/EJE] 2009[doi]

### WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to determine if the decreased heart function in very sick hospitalized patients was related to the low thyroid levels found in these sick patients.

### WHO WAS STUDIED?

The study group was 45 hospitalized patients that did not have heart disease but had decreased heart function treated at the Hallym University Sacred Heart Hospital in Korea from January 2003 through December 2006. These patients had pneumonia, liver disease, kidney infection or other infections. This group was compared to 58 healthy people without these illnesses and 31 hospitalized patients who had the same illnesses but normal heart function.

### HOW WAS THE STUDY DONE?

Everyone in this study had blood thyroid levels and heart function measured. The thyroid levels that were measured were thyroxine ( $T_4$ ), triiodothyronine ( $T_3$ ) and TSH. Heart function was measured by blood pressure, heart echo measurements and blood levels of heart-related proteins, including BNP, a hormone that is increased in heart failure. Thyroid levels and heart function were measured in the study patients while they were sick and after they got better.

### WHAT WERE THE RESULTS OF THE STUDY?

$T_3$  levels were much lower in the study patients when they were sick than when they got better.  $T_4$  and TSH levels remained normal. When the study patients were sick, their

blood pressure was lower, their heart function by heart echo was lower and the BNP levels were higher than when they got better. After they study patients got better, their  $T_3$  levels, blood pressure, heart function and BNP levels were the same as the healthy patients. This study showed that  $T_3$  levels are related to heart function in sick patients and that sick patients with decreased heart function have lower  $T_3$  levels.

### HOW DOES THIS COMPARE WITH OTHER STUDIES?

It has been shown in many other studies that  $T_3$  levels are lower in sick patients than in healthy individuals and that the  $T_3$  levels become normal after sick patients recover. Several other studies have shown that patients with heart failure, both in the hospital and after recovery, have lower  $T_3$  levels than normal and that the lower the  $T_3$  levels, the worse the patient does. This study shows that patients without heart disease also have low  $T_3$  levels if their heart function decreases when they are sick.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The low  $T_3$  levels in sick patients is related to decreased heart function in these patients.

— Alan P. Farwell, MD

### ATA THYROID BROCHURE LINKS

**Thyroid Function Tests:** [http://thyroid.org/patients/patient\\_brochures/function\\_tests.html](http://thyroid.org/patients/patient_brochures/function_tests.html)

**Hypothyroidism:** [http://thyroid.org/patients/patient\\_brochures/hypothyroidism.html](http://thyroid.org/patients/patient_brochures/hypothyroidism.html)

### ABBREVIATIONS & DEFINITIONS

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

**Thyroxine ( $T_4$ )** — the major hormone secreted by the thyroid gland. Thyroxine is broken down to produce Triiodothyronine which causes most of the effects of the thyroid hormones

**Triiodothyronine ( $T_3$ )** — the active thyroid hormone, usually produced from thyroxine

**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

**Heart echo** — a test that uses sound waves to measure how well the heart is working and how the heart valves are moving

**BNP** — a hormone produced by the heart that is increased in heart failure



## THYROID CANCER

### WHAT IS THE STUDY ABOUT?

Papillary microcarcinoma is a form of thyroid cancer where the cancer is very small. This is often found in patients that have their thyroid removed for reasons other than cancer and the cancer is found by “accident”. Very few patients with Papillary microcarcinoma will die of their cancer, so it is not clear how aggressive treatment should be for these patients. This study looks at what features in these patients may cause the cancer to come back or spread after the initial treatment.

**THE FULL ARTICLE TITLE:** Mercante G, Frasoldati A, Pedroni C, Formisano D, Renna L, Piana S, Gardini G, Valcavi R, Barbieri V. Prognostic factors affecting neck lymph node recurrence and distant metastasis in papillary microcarcinoma of the thyroid: results of a study in 445 patients. *Thyroid* 19(7) 2009:1-10.

### WHAT WAS THE AIM OF THE STUDY?

This study looks at the clinical course of very small papillary thyroid cancers and what features in these patients may cause the cancer to come back or spread after the initial treatment.

### WHO WAS STUDIED?

This study looked at records of a group of 1,030 patients who were treated for papillary thyroid cancer at the Thyroid Disease Center in Reggio Emilia, Italy, between 1978 and 2003. From this large group, 445 patients with very small papillary thyroid cancers (<1 cm) were chosen for this study. All patients were also treated with radioactive iodine I-131 after surgery. Patients were followed up with I-123 whole body scans, laboratory tests and ultrasound to evaluate for tumor recurrence.

### HOW WAS THE STUDY DONE?

The records of patients in the study were reviewed. All patients were initially treated with surgery; either the whole thyroid was removed (total thyroidectomy) or one lobe and the middle was removed (partial thyroidectomy). The cancers were examined after they were removed. The thyroid is covered by a capsule of fibrous cells. If the cancer spread into or through the capsule, it was called thyroid capsular invasion.

### WHAT WERE THE RESULTS OF THE STUDY?

Half of the Papillary microcancers were found after thyroid surgery performed for conditions other than cancer. Most patients (90%) had a total thyroidectomy as the initial surgery. In an average of 5.3 years after the initial surgery, only 17 patients (3.8%) still had cancer in the neck region. In only 4 patients (0.9%) had the cancer spread outside of the neck. The risk factors for persistent cancer were thyroid capsular invasion,

spread into surrounding tissues in the neck or spread to the neck lymph nodes at the time of the initial surgery.

### HOW DOES THIS COMPARE WITH OTHER STUDIES?

Some studies have shown that patients with Papillary microcancers have ~ 5% risk of persistent cancer and a 2% risk of dying from this cancer but do not provide information on the cancer at the time of surgery. Other studies have shown that spread into the lymph nodes and into the tissues of the neck and the size closer to 1 cm were risk factors for continued cancer. In contrast to this study, several studies found that older age was a risk factor.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

More aggressive therapy (total thyroidectomy and radioactive iodine I-131 treatment) should be considered the treatment of choice in patients with Papillary microcarcinomas that have thyroid capsular invasion, spread into surrounding tissues in the neck or spread to the neck lymph nodes at the time of the initial surgery. In addition, solitary Papillary microcarcinomas without these risk factors may be treated with a less aggressive approach.

— M. Regina Castro, MD

### ATA THYROID BROCHURE LINKS

**Thyroid cancer:** [http://thyroid.org/patients/patient\\_brochures/cancer\\_of\\_thyroid.html](http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html)

**Thyroid Surgery:** [http://thyroid.org/patients/patient\\_brochures/surgery.html](http://thyroid.org/patients/patient_brochures/surgery.html)

**Radioactive Iodine Therapy:** [http://thyroid.org/patients/patient\\_brochures/radioactive.html](http://thyroid.org/patients/patient_brochures/radioactive.html)

### ABBREVIATIONS & DEFINITIONS

**Papillary thyroid cancer** — the most common type of thyroid cancer

**Papillary Microcarcinoma** — a papillary thyroid cancer smaller than 1 cm in diameter

**Total thyroidectomy** — Surgery to remove the entire thyroid gland

**Partial thyroidectomy** — surgery that removes only part of the thyroid gland (usually one lobe with or without the isthmus)

**Radioactive iodine** — this plays a valuable role in diagnosing and treating thyroid problems since it is taken up only by the thyroid gland. I-131 is the destructive form used to destroy thyroid tissue in the treatment of thyroid cancer and with an overactive thyroid. I-123 is the non-destructive form that does not damage the thyroid and is used in scans to take pictures of the thyroid (Thyroid Scan) or to take pictures of the whole body to look for thyroid cancer (Whole Body Scan)



## THYROID CANCER

### WHAT IS THE STUDY ABOUT?

The number of new cases of thyroid cancer has been rising over the last 30 years. Most thyroid cancers occur in women and currently thyroid cancer is the 6th most common cancer in women. Part of the reason is likely due to the increased use of imaging and biopsy studies, so smaller thyroid cancers can now be found. However, there is growing awareness that there may be other as yet unidentified causes for the increased number of new cases of thyroid cancer. This study was done to determine the rate of new cases of thyroid cancer and the trends in cancer size in Vigo, Spain, from 1979 through 2001.

**THE FULL ARTICLE TITLE:** Rego-Iraeta A, Perez-Mendez LF, Mantinan B, Garcia-Mayor RV. Time trends for thyroid cancer in northwestern Spain: true rise in the incidence of micro and larger forms of papillary thyroid carcinoma. *Thyroid* 2009;19:333-40.

### WHAT WAS THE AIM OF THE STUDY?

The aims of this study were to determine the rate of new cases of thyroid cancer and the trends in cancer size in Vigo, Spain, from 1979 through 2001.

### WHO WAS STUDIED?

Patient records were obtained from the Pathology Registry of the Vego University Hospital in Vigo, Spain, which contains information on almost all cancers in the area. The records of 322 cases of thyroid cancer were examined.

### HOW WAS THE STUDY DONE?

The records of 322 cases of papillary, follicular, anaplastic, and medullary thyroid cancer were examined. Papillary thyroid cancers  $\leq 1$  cm were categorized as papillary microcarcinoma.

### WHAT WERE THE RESULTS OF THE STUDY?

The number of thyroid surgeries done for all causes increased almost 14% from 1979 to 2001. The number of thyroid cancers increased from ~9% to over 12% of the thyroid surgeries. The average age of thyroid cancer patients was almost 47 years and almost 75% of these patients were women. Of the 322 cases of thyroid cancer, 245 (76%) were papillary, 44 (13.7%) follicular, 23 (7.1%) medullary, and 10 (3.1%) anaplastic thyroid cancers. Of the 245 papillary cancers, 95 were papillary microcarcinomas, over 90% of which were discovered after thyroid surgery done for reasons other than cancer. The rate of new thyroid

cancers steadily increased over the time period, with over six times as many cancers found in 2001 as in 1979. This increase was due solely to an increase in papillary cancer. The increase was the same for both papillary microcarcinomas and the larger papillary cancers.

### HOW DOES THIS COMPARE WITH OTHER STUDIES?

Previous studies in the United States and in Canada showed a similar increase in the rate of thyroid cancer and also have shown that the increase is due to new Papillary thyroid cancers. While several of these prior studies suggested that this increase was due to an increase in small thyroid cancers, a study discussed in the May 2009 issue of *Clinical Thyroidology for Patients* (Enewold et al, as cited in Farwell, 2009) was the first to show an increase in all sizes of papillary thyroid cancer. This study confirms an increase in both the small and large papillary cancers. (Farwell A. *Clinical Thyroidology for Patients* [serial online]. 2009;2(1):4. Available at: [http://thyroid.org/patients/ct/volume2/issue1/ct\\_patients\\_v21\\_4.pdf](http://thyroid.org/patients/ct/volume2/issue1/ct_patients_v21_4.pdf). Accessed July 6, 2009.)

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The increase in new cases of thyroid cancer in Spain is only partly due to improved imaging tests. This study suggests that other environmental factors are playing a role in the recent increase in thyroid cancer.

— Alan P. Farwell, MD

### ATA THYROID BROCHURE LINKS

**Thyroid cancer:** [http://thyroid.org/patients/patient\\_brochures/cancer\\_of\\_thyroid.html](http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html)

### ABBREVIATIONS & DEFINITIONS

**Papillary thyroid cancer** — the most common type of thyroid cancer

**Follicular thyroid cancer** — the second most common type of thyroid cancer

**Medullary thyroid cancer** — a relatively rare type of thyroid cancer that also may be inherited

**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

**Papillary microcarcinoma** — a papillary thyroid cancer smaller than 1 cm in diameter



## THYROID CANCER

### WHAT IS THIS STUDY ABOUT?

A total thyroidectomy is the usual first treatment for papillary cancer, the most common type of thyroid cancer. When papillary cancer spreads outside of the thyroid, it initially spreads into the lymph nodes in the neck around the thyroid. In fact, it is very common to have papillary cancer spread into the lymph nodes in the middle of the neck at the time of surgery. There is a current debate as to how aggressive the initial surgery should be in removing lymph nodes. One approach is to remove all of the neck lymph nodes in the middle of the neck that can be found. Another approach is to remove only lymph nodes that look like they contain cancer. A common complication of thyroid surgery is low calcium levels (hypocalcemia) after surgery, which may be more common after more extensive surgery. Calcium levels are controlled by parathyroid hormone (PTH), which is secreted by the parathyroid glands. The parathyroid glands often get moved around during the thyroid surgery and may take a few days to a few weeks to recover. This study looks at the effects of more aggressive as opposed to less aggressive surgery on cancer spread and on levels of PTH and calcium after surgery.

**THE FULL ARTICLE TITLE:** Roh JL, Park JY, Park CI. Total thyroidectomy plus neck dissection in differentiated papillary thyroid carcinoma patients: pattern of nodal metastasis, morbidity, recurrence, and postoperative levels of serum parathyroid hormone. *Ann Surg* 2007;245 (4): 604-10.

### WHAT WAS THE AIM OF THE STUDY?

The authors looked at good and bad effects of two types of surgery to remove papillary thyroid cancer: (1) remove the thyroid gland and all of the lymph nodes in the middle of the neck (more extensive surgery) or (2) remove the thyroid gland and only lymph nodes that look like they contain cancer (less extensive surgery).

### WHO WAS STUDIED?

The study looked at 155 patients who had a total thyroidectomy for papillary thyroid cancer from 2001 through 2004 at the Asian Medical Center of the University of Ulsan College of Medicine in Seoul, Korea.

### HOW WAS THE STUDY DONE?

Patient records were examined for the type of surgery, the extent of lymph node removal, the size of cancer and spread into the lymph nodes, the levels of calcium and PTH after surgery and other complications of the surgery.

### WHAT WERE THE RESULTS OF THE STUDY?

In this study, 130 (84%) were women, and 25 (16%) were men. The average age was 47 years. 82 patients had surgery to remove the thyroid gland and all of the lymph nodes in the middle of the neck (more extensive surgery). Spread of the cancer to the lymph nodes was found in 62% of these patients. PTH levels were lower and short-term hypocalcemia occurred in 32% of this group. Permanent hypocalcemia occurred in 5% of this group. 73 people had surgery to remove the thyroid gland and only lymph nodes that looked like they contained cancer (less extensive surgery). Spread of the cancer to lymph nodes was found in 26% of these patients. Only 10% of this group had short-term hypocalcemia and none had permanent hypocalcemia. So, while more lymph nodes containing cancer were removed in the group with more extensive surgery, more complications with hypocalcemia was seen as well. Over 4 years later, only 1 of the patients with the more extensive surgery still had evidence of the cancer as compared to 3 patients in the group with the less extensive surgery.

### HOW DOES THIS COMPARE WITH OTHER STUDIES?

Other studies have shown that after surgery with extensive lymph node removal, permanent hypocalcemia is rare but occurs more frequently than after less extensive surgery. On the other hand, studies also suggest that the more extensive surgery may decrease the risk of future cancer return and may increase cancer survival. A very recent study suggested that more extensive surgery was helpful in guiding treatment after surgery and caused permanent hypocalcemia in ~1% of patients.

*continued on next page*



## THYROID CANCER, continued

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study brings out the problem in choosing the best surgery for Papillary thyroid cancer. Most patients do well and do not die from their thyroid cancer. Because of this, would it be worth having more extensive surgery that leads to more short-term and permanent hypocalcemia but also likely decreases the small number of patients who cannot be cured and who may eventually die of their cancer? While not answering this question, this study provides more information for surgeons, thyroid experts and patients to use when deciding on the best surgery for this relatively low-risk cancer.

— Ruth M. Belin, MD

### ATA THYROID BROCHURE LINKS

**Thyroid cancer:** [http://thyroid.org/patients/patient\\_brochures/cancer\\_of\\_thyroid.html](http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html)

**Thyroid Surgery:** [http://thyroid.org/patients/patient\\_brochures/surgery.html](http://thyroid.org/patients/patient_brochures/surgery.html)

### ABBREVIATIONS & DEFINITIONS

**Papillary thyroid cancer** — the most common type of thyroid cancer

**Total thyroidectomy** — Surgery to remove the entire thyroid gland

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

**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.



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ASSOCIATION  
FOUNDED 1923



*Friends of the ATA*  
Founded 2005

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## 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.

### WHO WE ARE

#### AMERICAN THYROID ASSOCIATION

[www.thyroid.org](http://www.thyroid.org)

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

Find a Thyroid Specialist: [www.thyroid.org](http://www.thyroid.org)

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

e-mail: [thyroid@thyroid.org](mailto: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 FOUNDATION

[www.ngdf.org](http://www.ngdf.org)

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

e-mail: [Gravesdiseasefd@gmail.com](mailto: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](http://www.checkyourneck.com)

email: [info@checkyourneck.com](mailto: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](http://www.thyca.org)

Phone (toll-free): 877 588-7904

e-mail: [thyca@thyca.org](mailto: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.





## ATA Alliance for Thyroid Patient Education CALENDAR OF EVENTS

Educational forums, patient support groups and other patient-oriented meetings

DATE	EVENT	PLACE	ORGANIZATION
Saturday, July 25, 2009	<b>San Francisco/Northern California Thyroid Cancer Survivors' Workshop</b> <a href="http://www.thyca.org/conferences.htm">http://www.thyca.org/conferences.htm</a>	Stanford, CA	ThyCa
August 1, 2009	<b>Light of Life Golf Outing</b> <a href="http://www.checkyourneck.com">www.checkyourneck.com</a>	Long Island, NY	Light of Life
September 2009	<b>Thyroid Cancer Awareness Month</b> <a href="http://www.ThyCa.org">www.ThyCa.org</a>		ThyCa
September 12, 2009	<b>Light of Life Educational Symposium</b> <a href="http://www.checkyourneck.com">www.checkyourneck.com</a>	New York, NY	Light of Life
September 12, 2009	<b>ThyCa Workshop and Symposium</b> <a href="http://www.ThyCa.org">www.ThyCa.org</a>	Denver, CO	ThyCa
September 23–27, 2009	<b>ATA 80th Annual Meeting</b> <a href="http://www.thyroid.org">www.thyroid.org</a> <a href="http://www.thyroid.org/ann_mtg/2009_80th/index.html">http://www.thyroid.org/ann_mtg/2009_80th/index.html</a>	The Breakers Hotel Palm Beach, FL	ATA
Saturday, September 26, 2009	<b>ATA Alliance for Patient Education Public Forum</b> <a href="http://www.thyroid.org">www.thyroid.org</a>	The Breakers Hotel Palm Beach, FL	ATA
September 29, 2009	<b>Light of Life Annual Fundraiser</b> <a href="http://www.checkyourneck.com">www.checkyourneck.com</a>	New York, NY	Light of Life
October 16-18, 2009	<b>ThyCa 12th International Thyroid Cancer Survivors' Conference</b> <a href="http://www.ThyCa.org">www.ThyCa.org</a> <a href="http://www.thyca.org/conferences.htm">http://www.thyca.org/conferences.htm</a>	Boston, MA	ThyCa
October 16–18, 2009	<b>Patient &amp; Family Conference</b> <a href="http://www.ngdf.org">www.ngdf.org</a> <a href="http://www.ngdf.org/conference.php">http://www.ngdf.org/conference.php</a>	Charlotte, NC	Graves' Disease Foundation