CLINICAL THYROIDOLOGY FOR PATIENTS

AMERICAN THYROID ASSOCIATION
FOUNDED 1923

VOLUME 3 • ISSUE 9 • SEPTEMBER 2010

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CLINICAL THYROIDOLOGY **FOR PATIENTS**
A publication of the American Thyroid Association
VOLUME 3 • ISSUE 9 • SEPTEMBER 2010

EDITOR'S COMMENTS

Welcome to *Clinical Thyroidology for Patients*. This publication is a collection of summaries of the top articles from the recent medical literature that cover the broad spectrum of thyroid disorders. *Clinical Thyroidology for Patients* is published on a monthly basis and includes 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. This means that you, the patients, are getting the latest information on thyroid research and treatment almost as soon as your physicians. 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 Foundation*, the *Light of Life Foundation* and *ThyCa: Thyroid Cancer Survivors Association*.

Welcome to an entire issue dedicated to thyroid cancer! This is especially appropriate since **ThyCa** is holding their annual conference on October 15–17 in Dallas — please see their flyer on page 15 for more details.

The Graves' Disease Foundation is also holding their annual meeting on October 22–24 in San Diego — please see their flyer on page 16 for more details.

In this issue, studies ask the following questions:

- How aggressive should patients with low risk thyroid cancer be treated?
- Can we identify patients who are at risk for a poorer prognosis at the time of their thyroid biopsy?
- Is lemon juice helpful to protect salivary glands at the time of radioactive iodine treatment?
- Are diagnostic whole body scans helpful in following 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

HOW TO NAVIGATE THIS DOCUMENT: The Table of Contents and the Bookmarks are linked to the articles. To navigate, move your cursor over the article title you wish to see (either in the Contents or in the Bookmarks panel) and the hand will show a pointing finger, indicating a link. Left-click the title and the article will instantly appear. To return to the Contents, move the cursor to the bottom of the page and left-click Back to Table of Contents.

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THYROID CANCER

Patients with very low-risk thyroid cancer treated with thyroidectomy rarely have persistent or recurrent cancer and may not require radioactive iodine therapy

WHAT IS THE STUDY ABOUT?

The number of patients with thyroid cancer is rapidly increasing in the world. In fact, thyroid cancer is the fasting growing cancer diagnosed in women. Many of the new cases are small papillary cancers <1cm in size, so-called microcarcinomas. Since very few patients with papillary microcarcinoma will die from their cancer, there is a debate on how aggressively to treat these patients. Specifically, the role of radioactive iodine therapy in these patients is currently being debated. This study attempts to address this issue by looking at the outcomes of patients with very low risk papillary microcarcinoma treated with surgery followed by radioactive iodine therapy as compared to those treated with surgery alone.

THE FULL ARTICLE TITLE:

Durante C et al; on behalf of the Papillary Thyroid Cancer Study Group. Identification and optimal postsurgical follow-up of patients with very low-risk papillary thyroid microcarcinomas. J Clin Endocrinol Metab 2010;19:487-94.

WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to examine the outcomes of patients with very low risk papillary microcarcinoma treated with surgery followed by radioactive iodine therapy as compared to those treated with surgery alone.

WHO WAS STUDIED?

The study group was a subgroup of 946 patients with papillary microcarcinoma treated during the last two decades in nine centers for thyroid disease in Italy. A total of 312 patients had sufficient information in their records for at least 5 years after the initial therapy.

HOW WAS THE STUDY DONE?

The records of the 312 patients were reviewed for the following information: surgical treatment, radioactive iodine therapy, levothyroxine therapy, ultrasound and laboratory results. All patients had total or near total thyroidectomy. 137 received radioactive iodine therapy after the surgery, whereas 175 received no additional radioactive iodine therapy.

WHAT WERE THE RESULTS OF THE STUDY?

None of the patients in the study group died from thyroid cancer over the course of the study. Further, none of the patients underwent further surgery after the initial thyroidectomy. Ultrasound of the neck found no sign of abnormal lymph nodes, which would indicate spread of the cancer, in any of the 312 patients during the study. Thyroglobulin levels were undetectable in all patients that had received radioactive iodine therapy, whereas detectable thyroglobulin levels were found in 12/175 patients who did not receive radioactive iodine. However, the thyrogloblulin levels in these 12 patients remained stable or decreased during the sudy and there was no evidence of recurrent cancer in this group of patients.

HOW DOES THIS COMPARE WITH OTHER STUDIES?

The impact of radioactive iodine on outcome of patients with low-risk papillary microcarcinoma is controversial. However, this is the first study in a subgroup of patients with papillary microcarcinoma with carefully defined very-low-risk characteristics that may require only surgery without additional radioactive iodine therapy.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that in selective subgroup of patients with very low risk papillary microcarcinoma with total or near total thyroidectomy, there may be no need for additional radioactive iodine therapy.

— Jamshid Farahati, MD

ATA THYROID BROCHURE LINKS

Thyroid cancer: http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html

Thyroid Surgery: http://thyroid.org/patients/patient_brochures/surgery.html

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THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

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

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

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 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.

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).

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

Thyroglobulin — a protein made only by thyroid cells, both normal and cancerous. When all normal thyroid tissue is destroyed after radioactive iodine therapy in patients with thyroid cancer, thyroglobulin can be used as a thyroid cancer marker.

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THYROID CANCER

Presence of BRAF gene mutations in small thyroid cancers is an indication of worse prognosis

WHAT IS THE STUDY ABOUT?

Papillary cancer is the most common thyroid cancer. Small papillary thyroid cancers are cancers that are less than 2 cm in size. While most patients with these small cancers have an excellent prognosis and are treated solely with surgery, a few patients do not do well, with recurrent cancer that requires more aggressive therapy. Many investigators are studying how to identify patients that have the more aggressive small papillary thyroid cancers. The focus of these studies is on mutations in cancer-associated genes, especially a gene known as BRAF. The aim of this study was to correlate BRAF gene mutations with the clinical and pathological features in patients with small papillary thyroid cancers.

THE FULL ARTICLE TITLE:

Basolo F et al. Correlation between the BRAF V600E mutation and tumor invasiveness in papillary thyroid carcinomas smaller than 20 millimeters: analysis of 1060 cases. J Clin Endocrinol Metab 2010 doi:101210/jc.2010/jc.2010-0337.

WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to correlate BRAF gene mutations with the clinical and pathological features in patients with small papillary thyroid cancers.

WHO WAS STUDIED?

The study group included 1060 patients who had surgery for papillary thyroid cancers less than 2 cm at the University of Pisa, Italy, between January 2006 and April 2009. All patients had a total or near total thyroidectomy and removal of enlarged lymph nodes when necessary.

HOW WAS THE STUDY DONE?

Thyroid cancer specimens from each patient were obtained and examined for the presence of a mutation in the BRAF gene. The thyroid cancers were also divided into groups based on degree of spread of the cancer into surrounding tissues.

WHAT WERE THE RESULTS OF THE STUDY?

A mutation in the BRAF gene was common and was found in 44.6% of all cancers. The mutation was more common in larger cancers (> 1.1 cm), those without capsule surrounding the cancer, those spreading into surrounding tissues and lymph nodes and in patients with a more advanced stage of disease. Only 1/3 of the non-aggressive papillary cancers had the BRAF mutation while 2/3 of the aggressive papillary cancers had the mutation. The results suggest that BRAF mutation may be a precursor to the cancer invading the soft tissues adjacent to the thyroid.

HOW DOES THIS COMPARE WITH OTHER STUDIES?

The prevalence of BRAF mutation in this study was similar to prior reports. While most prior reports linked presence of BRAF mutation in papillary cancers to worse outcomes and older age at diagnosis, some did not find an association with age, or cancer aggressiveness. In this study, presence of BRAF mutation was linked with younger age at diagnosis and worse outcomes.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The identification of mutations in cancer-associated genes has the potential to identify the small numbers of patients with papillary thyroid cancer that have a worse prognosis. The results of this study suggest that cancers that contain mutations in the BRAF gene require more aggressive therapy.

— Mona Sabra, MD

ATA THYROID BROCHURE LINKS

Thyroid cancer: http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html

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THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

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

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

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.

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

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THYROID CANCER

Lemon juice increases the radiation exposure of salivary glands after Radioactive Iodine (RAI) treatment in patients with thyroid cancer

WHAT IS THE STUDY ABOUT?

After surgery for thyroid cancer, most patients are treated with radioactive iodine (I-131). This serves two functions: 1) destroy any remaining cancer cells anywhere in the body and 2) destroy any remaining normal thyroid tissue, thus allowing patients to be followed more easily for thyroid cancer return or persistence. I-131 is taken up not only by thyroid tissue, but also some other tissues in the body such as salivary glands. As a result, I-131 can damage the salivary glands, which are very sensitive to radiation. Because of this, the radiation sialadenitis (salivary gland inflammation) and xerostomia (dry mouth) are the most common complications of I-131 therapy, which can even occur with small amounts of I-131. Sour liquids, juices and drops with lemon have traditionally been used to increase saliva flow in an attempt to reduce radiation exposure of the salivary glands after RAI therapy. There are conflicting studies which suggest either no benefit or increased risk from these practices. This study examines the benefits/risks of salivary gland stimulation with lemon slices on radiation exposure to the glands immediately after RAI.

THE FULL ARTICLE TITLE:

Jentzen W et al. The influence of saliva flow stimulation on the absorbed radiation dose to the salivary glands during radioiodine therapy of thyroid cancer using (124) I PET(CT) imaging. Eur J Nucl Med Mol Imaging 2010. July 13 (Epub ahead of print).

WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to determine the effect of chewing lemon slices immediately after RAI on salivary gland radiation exposure.

WHO WAS STUDIED?

The study group included 10 patients preparing for RAI therapy after surgery for thyroid cancer.

HOW WAS THE STUDY DONE?

The patient's all received a scanning dose of RAI after which they either chewed on lemon slices or did nothing. The patients in the lemon slice group began to chew for 20 minutes after the RAI test dose and throughout the day. Serial scans were performed to determine the radiation absorption. In the non-lemon slice group, the patients were not allowed to eat (which would also have increased saliva flow) for 4 hours after the scanning dose to further minimize the radiation exposure of the salivary glands.

WHAT WERE THE RESULTS OF THE STUDY?

The absorbed radiation was about 28% less in the non-lemon slice group, especially in the parotid glands. Lemon slices increased the initial uptake of the RAI by salivary glands, but did not speed up the saliva flow out of the salivary glands with RAI. The net effect was to prolong the radiation exposure of the salivary glands in the lemon slice group.

HOW DOES THIS COMPARE WITH OTHER STUDIES?

A prior study reported in this journal (Farahati, J. Salivary stimulation with vitamin C at any time after I-131 therapy has no major effect on salivary uptake of I-131 in Clinical Thyroidology for Patients, Vol 3, May 2010) showed no effect of increasing salivary flow on radiation exposure. Other studies demonstrate increased risk of sialadenitis and other forms of damage to the salivary glands when saliva flow was stimulated with lemon drops immediately after RAI compared to lemon drop use delayed by 24 hours after treatment.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Salivary gland stimulation with lemon drops/slices/juice immediately after RAI treatment results in more radiation complications compared to a delay of 24 hours. The benefit of any lemon drops/slices salivary stimulation at any time after RAI treatment has not been proven. It is recommended that no salivary gland stimulation protocols with lemon drops/slices should be used until further studies discover a better method of reducing these radiation risks.

— Jerrold Stock, MD

ATA THYROID BROCHURE LINKS

Thyroid cancer: http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html

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THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

Radioactive iodine (RAI) — 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).

Sialadenitis — inflammation of salivary gland.

Xerostomia — dry mouth due to lack of saliva, frequently observed after radiation to the head and neck and after I-131 therapy.

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THYROID CANCER

Neck ultrasound and thyroglobulin levels are superior to diagnostic whole body scans during follow-up of patients thyroid cancer

WHAT IS THE STUDY ABOUT?

Patients with thyroid cancer usually are initially treated with surgery to remove the thyroid gland and any abnormal lymph nodes. Most patients then are treated with radioactive iodine to destroy any remaining cancer cells, as well as any remaining normal thyroid tissue. In order to determine if any cancer remains or returns, patients are followed with neck ultrasounds, blood thyroglobulin levels (a thyroid protein that is used as a thyroid cancer marker) and diagnostic whole body scans. The diagnostic whole body scans are usually performed 1 year after initial therapy and are performed after increasing the patient's TSH levels by withdrawing thyroid hormone or treating with recombinant human TSH (Thyrogen). Blood thyroglobulin levels are measured at the same time as the scan. In most cases, this diagnostic scan is negative. If the scan is positive and blood thyroglobulin levels increase, the patient is frequently given a second dose of radioactive iodine. The aim of this study was to examine the clinical outcomes of thyroid cancer patients that had positive diagnostic whole body scans as compared to those who had negative scans.

THE FULL ARTICLE TITLE:

Kim EY et al. Clinical outcomes of persistent radioiodine uptake in the neck shown by diagnostic whole body scan in patients with differentiated thyroid carcinoma after initial surgery and remnant ablation. Clin Endocrinol (Oxf) 2010;73:257-63.

WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to examine the clinical outcomes of thyroid cancer patients that had positive diagnostic whole body scans as compared to those who had negative scans.

WHO WAS STUDIED?

The study group included 572 patients with thyroid cancer who were treated from January 2000 through January 2004 at the Asan Medical Center in Seoul, Korea.

HOW WAS THE STUDY DONE?

All patients were treated with radioactive iodine (150 mCi of ^{131}I) after the initial surgery. A diagnostic whole body scan was performed usually 12 months later. Patients were followed with blood tests of thyroglobulin, neck ultrasound and annual diagnostic whole body scans.

WHAT WERE THE RESULTS OF THE STUDY?

There were 70 men (12%) and 502 women (88%) in the study group. Of this group, 550 (96%) patients had papillary thyroid cancer. Over 50% of these patients had spread of the cancer into the lymph nodes in the neck or outside of the neck. Only a total of 25 of the 572 patients (4.4%) had persistent uptake on the diagnostic whole body scan. Despite the positive scan, only 5 patients were found to have recurrence of their cancer on neck ultrasound and showed an elevated blood thyroglobulin level. Interestingly, 50% of these patients with persistent uptake on the first diagnostic whole body scan had subsequent negative scans without any intervening therapy. There was no difference in the clinical outcomes in those patients that had persistent uptake on the diagnostic whole body scan as compared to those who had negative scans. A diagnosis of recurrent or persistant thyroid cancer was most closely correlated with increasing thyroglobulin levels or the presence of masses on ultrasound.

HOW DOES THIS COMPARE WITH OTHER STUDIES?

There is a general consensus that diagnostic whole body scans are not routinely recommended for follow-up and that serum thyroglobulin levels and neck ultrasonography are more likely to identify persistent or recurrent cancer.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study adds to the general recommendation that diagnostic whole body scans are of limited usefulness in following patients with thyroid cancer. Neck ultrasounds and blood thyroglobulin levels are superior to diagnostic whole body scans in identifying persistent thyroid cancer.

— Alan P. Farwell, MD

ATA THYROID BROCHURE LINKS

Thyroid cancer: http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html

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THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

Radioactive iodine (RAI) — 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).

Post- Radioactive iodine Whole Body Scan (post-RAI WBS) — the scan done after radioactive iodine treatment that identifies what was treated and if there is any evidence of metastatic thyroid cancer.

Diagnostic Whole Body Scans — these radioactive iodine scans are performed under TSH stimulation, either after thyroid hormone withdrawal or after injections of recombinant human TSH (Thyrogen), and usually include measuring serum thyroglobulin levels.

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

Thyroglobulin — a protein made only by thyroid cells, both normal and cancerous. When all normal thyroid tissue is destroyed after radioactive iodine therapy in patients with thyroid cancer, thyroglobulin can be used as a thyroid cancer marker in patients that do not have thyroglobulin antibodies.

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.

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THYROID CANCER

Thyroid hormone therapy without TSH suppression may be considered for patients with low-risk papillary thyroid cancer after the initial surgery

WHAT IS THE STUDY ABOUT?

There are frequently three steps in the treatment of thyroid cancer: 1) surgery to remove the cancer and the thyroid, 2) radioactive iodine therapy to destroy any remaining thyroid cancer and 3) thyroid hormone therapy. Thyroid hormone therapy is usually aimed at suppressing TSH levels below the normal range to prevent any stimulation to any remaining thyroid cancer cells after Steps 1 and 2. The recent guidelines published by the American Thyroid Association suggests initial suppression of TSH to <0.1 mIU/L for high-risk and intermediate-risk patients with thyroid cancer. However, suppression therapy may have adverse effects of developing irregular heart rhythms and worsening osteoporosis. The risk of these adverse effects may be warranted in patients at risk for recurrence of their thyroid cancer. However, treatment of patients with low risk cancer (small cancers, no spread of the cancer outside the thyroid) has been debated as to how aggressive the treatment should be. Often, low risk patients are not treated with radioactive iodine and there is a paper in this issue on page three that examines this option. The current study examines the need for thyroid hormone suppression therapy in low risk thyroid cancer patients. The goal of this study was to examine outcomes in low risk thyroid cancer patients treated with thyroid hormone suppression as compared to those patients treated with thyroid hormone at a dose to keep the TSH in the normal range.

THE FULL ARTICLE TITLE:

Sugitani I, Fujimoto Y. Does postoperative thyrotropin suppression therapy truly decrease recurrence in papillary thyroid carcinoma? A randomized controlled trial. J Clin Endocrinol Metab 2010. jc.2010-0161 [pii];10.1210/jc.2010-0161 [doi]

WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to examine outcomes in low risk thyroid cancer patients treated with thyroid hormone suppression therapy as compared to those patients treated with thyroid hormone replacement therapy.

WHO WAS STUDIED?

The study group included 441 patients with papillary thyroid cancer who had initial surgery at the Cancer Institute Hospital, a tertiary oncology referral center in Japan, from January 1996 through February 2005. All thyroid cancers were >1 cm in diameter.

HOW WAS THE STUDY DONE?

The patients were treated with several types of surgeries, from removal of one lobe of the thyroid to removal of the entire thyroid plus lymph nodes. None of the patients were treated with radioactive iodine. After surgery, all the patients were placed on Levothyroxine and randomly assigned to either Suppression or Replacement therapy.

Suppression Therapy group: patients were treated with varying doses of Levothyroxine to maintain TSH levels <0.1 µU/ml.

Replacement Therapy group: patients were treated with Levothyoxine to maintain TSH levels within the normal range (0.5 to 5.0 µU/ml).

Every 6 months, patients were evaluated for recurrence of the cancer or spread to the lymph nodes by neck ultrasonography and either chest x-ray or chest CT scanning.

WHAT WERE THE RESULTS OF THE STUDY?

A total 218 patients were assigned to the Suppression group and 215 patients to the Replacement group. TSH suppression was suspended in 12 patients with thyrotoxicosis, 5 with angina or atrial fibrillation and 6 with osteoporosis. Within the entire group, 49 patients (11%) had a recurrence of their cancer and 9 (2%) died of thyroid cancer. There was no difference in these outcomes between the two groups, either taken as a whole or when separated into low-risk and high-risk groups.

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THYROID CANCER, continued

HOW DOES THIS COMPARE WITH OTHER STUDIES?

The results of this study are different than other studies. The recent guidelines published by the American Thyroid Association recommend TSH suppression to <0.1 mIU/L for patients with high-risk and intermediate-risk thyroid cancer, while maintenance of the TSH at or slightly below the lower limit of normal (0.1 to 0.5 mIU/L) is appropriate for low-risk patients. A meta-analysis of several studies has suggested that patients who received thyroid hormone suppression had a decreased risk of major adverse clinical outcomes.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that not all patients with thyroid cancer need to be treated with suppressive doses of thyroid hormone after surgery. Patients with low risk papillary thyroid cancer may do just as well on replacement therapy and, thus, avoid potential adverse effects of TSH suppression.

— Alan P. Farwell, MD

ATA THYROID BROCHURE LINKS

Thyroid Hormone Treatment: http://thyroid.org/patients/patient_brochures/hormonetreatment.html

Thyroid cancer: http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html

ABBREVIATIONS & DEFINITIONS

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

Levothyroxine — the major hormone produced by the thyroid gland and available in pill form as Levoxyl™, Synthroid™, Levothroid™ and generic preparations.

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.

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.

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
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 FOUNDATION

www.ngdf.org
Phone (toll-free): 1-877-NGDF-123 or 643-3123
e-mail: Gravesdiseasefd@gmail.com

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

LIGHT OF LIFE FOUNDATION

www.checkyourneck.com
email: info@checkyourneck.com

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

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.

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Graves' Disease Foundation
Light of Life Foundation checkyourneck.com
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ATA Alliance for Thyroid Patient Education
CALENDAR OF EVENTS

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

ATA Conferences www.thyroid.org

Graves' Disease Conferences www.ngdf.org

October 22 - 24, 2010 — San Diego,CA.
Graves' Disease Foundation 2010 Patient & Family Conference
Sponsored by Graves' Disease Foundation

Light of Life Foundation www.checkyourneck.com

ThyCa Conferences www.thyca.org

September 2010
Thyroid Cancer Awareness Month
Sponsored by ThyCa: Thyroid Cancer Survivors' Association, Inc. Plus year-round awareness campaigns.
Visit the Raise Awareness Page to download free flyers, or request free awareness materials.

October 15–17, 2010 — Dallas, Texas.
The 13th International Thyroid Cancer Survivors' Conference
Sponsored by ThyCa: Thyroid Cancer Survivors' Association, Inc.

October 16, 2010 — Dallas, Texas
The 8th Annual Dinner/Auction Fundraiser for Thyroid Cancer Research
Thyroid Cancer Survivors' Conference. Sponsored by ThyCa: Thyroid Cancer Survivors' Association, Inc.

Support • Education • Communication • Hope through Research

You're invited to the 13th International

Thyroid Cancer Survivors' Conference

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

October 15-17, 2010

Dallas, Texas

Sheraton Grand Hotel DFW Airport
4440 West John Carpenter Freeway
Irving, TX 75063

- For everyone whose life has been touched by thyroid cancer—people being tested, those newly diagnosed, long-term survivors, people with advanced disease, caregivers, and friends
- More than 80 sessions. The latest research, advances in treatment and follow-up, issues for survivors and caregivers, and coping skills for well-being
- Featuring leading physicians and other specialists—more than 50 speakers
- Learn from experts. Share experiences with others coping with thyroid cancer.
- Registration information:
  - Individual: • Regular $50 • Annual members $40 • Lifetime members $35 • Added family members/guests $30
  - Early-bird discount: $5 off if postmarked or sent online by September 15, 2010.
  - Scholarships available to cover the registration fee.
  - Walk-in attendees welcome. Sessions from 8 a.m. to 5:15 p.m. Friday and Saturday; 8 a.m. to 3:30 p.m. Sunday. There are 5-6 choices of topics and speakers in different rooms at each time period during the day.
  - Hotel's special room rate for conference attendees: Single or double $99, triple $109, quad $119, plus tax. Free parking. Close to Dallas/Fort Worth International Airport.

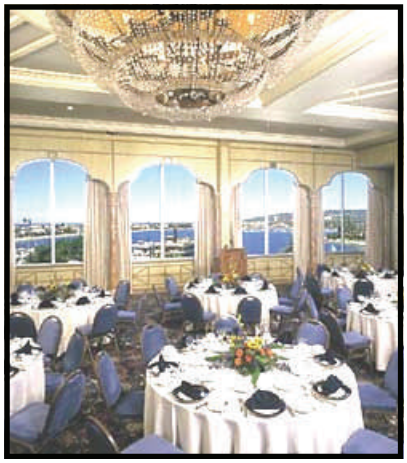
Plan to attend! Please share this flyer with others. For details & registration form:

Visit .....**www.thyca.org**
E-mail .....conference@thyca.org or thyca@thyca.org
Write.....ThyCa: Thyroid Cancer Survivors' Association, Inc.
P.O. Box 1545, New York, NY 10159-1545
Call toll-free 1-877-588-7904

ThyCa℠

ThyCa: Thyroid Cancer Survivors' Association, Inc. is a national non-profit 501(c)(3) organization of thyroid cancer survivors, family members, and health care professionals, dedicated to education, communication, support, awareness for early detection, and thyroid cancer research fundraising and research grants.

Graves' Disease Foundation
Patient & Family Conference
October 22-24, 2010
San Diego, California



BAHIA RESORT HOTEL
rooms @ $99 night

CONFERENCE REG:
Early Bird Discount
$175 includes meals

For details visit:
www.NGDF.org or call:
1(877)643-3123

BRIDGE TO WELLNESS

My Thyroid & ME ...

a better Understanding

The Conference helps educate patients & family members with Graves' disease and other thyroid disorders. Topics include Graves' disease symptoms & treatment, hyperthyroidism & hypothyroidism, thyroid-related eye conditions, Children with Graves; plus an update on the latest research. Specialists will give you insight into the medical, psychological and social aspects of Graves' disease. You can share your own experiences and meet other patients from around the country. Conference Registration includes meals & all handouts.

Space is limited — call today to Register!

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Phone: 716.631-2310 or Fax: 716.631-2822

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