# Clinical THYROIDOLOGY FOR PATIENTS

AMERICAN THYROID ASSOCIATION
FOUNDED 1923

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## HYPOTHYROIDISM

### Using age-specific upper limit for normal TSH slightly reduces the incidence of subclinical hypothyroidism in the elderly

It is known that TSH levels may also increase with age, even in those without thyroid disease. Indeed, living longer may be associated with higher TSH levels, further advancing the possibility that a mildly elevated TSH may be normal and even beneficial in certain elderly patients. The aim of this study was to determine the age-specific TSH ranges from a statewide reference laboratory and to use this to estimate the normal upper limit of TSH in elderly patients.

Kahapola-Arachchige KM et al. Age-specific TSH reference ranges have minimal impact on the diagnosis of thyroid dysfunction. Clin Endocrinol (Oxf). June 15, 2012 [E-pub ahead of print]. doi:10.1111/j.1365-2265.2012.04463.x

## HYPOTHYROIDISM

### Treatment of subclinical hypothyroidism and the effect on chronic kidney disease

There is a debate in the endocrine community about whether or not to treat subclinical hypothyroidism. Overt hypothyroidism can be associated with changes in kidney function that resolve with thyroid hormone therapy. This study was done to see if treatment with thyroid hormone in patients with subclinical hypothyroidism and chronic kidney disease has any effect on their kidney function

Shin DH et al. Preservation of renal function by thyroid hormone replacement therapy in chronic kidney disease patients with subclinical hypothyroidism. J Clin Endocrinol Metab. June 20, 2012 [Epub ahead of print].

## THYROID NODULES

### Molecular analysis of thyroid nodule biopsies may be helpful to determine whether an indeterminate nodule is benign

Up to 30% of thyroid biopsies fall into the "indeterminate" category where a clear diagnosis of cancer or a benign nodule cannot be made. At present, these indeterminate nodules usually end up being removed by surgery and only 10-30% will actually be cancerous. This study evaluates a commercial molecular analysis method that classifies indeterminate biopsy cytology into a category of either benign nodule or suspicious for cancer.

Alexander EK et al Preoperative diagnosis of benign thyroid nodules with indeterminate cytology. N Engl J Med. June 25, 2012 [Epub ahead of print].

## THYROID CANCER

### It takes only 1 month for urinary iodine to return to its baseline value after the use of iodinated contrast agents in patients who have undergone thyroidectomy

Intravenous contrast agents used in CT scans contain a lot of iodine. If a patient undergoes radioactive iodine treatment too soon after receiving intravenous contrast, the large amount of iodine makes the radioactive iodine therapy ineffective. This study examines how long you need to wait after receiving intravenous contrast before radioactive iodine therapy can be effective.

Padovani R et al. One month is sufficient for urinary iodine to return to its baseline value after the use of water soluble iodinated contrast agents in post-thyroidectomy patients requiring radioiodine therapy. Thyroid. June 6m, 2012 [Epub ahead of print].

## THYROID CANCER

### PET scans are superior to radioactive iodine whole-body scanning in localizing recurrent or persistent thyroid carcinoma

Many patients with thyroid cancer will have a recurrence of their cancer, usually discovered as an increase in the level of serum thyroglobulin or thyroglobulin antibody or an abnormal lymph node on neck ultrasound during a routine follow up. Frequently, an increase thyroglobulin is associated with a negative neck ultrasound, so the question is, where is the cancer? This study compares the sensitivity of post-treatment WBS to FDG PET/CT in localizing persistent or recurrent thyroid cancer.

Leboulleux et al. Postradioiodine treatment whole-body scan in the era of 18-fluorodeoxyglucose positron emission tomography for differentiated thyroid carcinoma with elevated serum thyroglobulin levels. Thyroid. 22:8:832-838

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**Clinical Thyroidology for Patients**


CLINICAL THYROIDOLOGY **FOR PATIENTS**

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# EDITOR'S COMMENTS

Welcome to Clinical Thyroidology for Patients, bringing to you, the patients, 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.

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* and *ThyCa: Thyroid Cancer Survivors Association*.

Follow us on Twitter at @thyroidfriends. Get the most up-to-date thyroid news fast and easy! 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.

Check us out on Facebook: www.facebook.com/thyroidassociation.

**In this issue, the studies ask the following questions:**

- Should there be a different upper limit of normal for TSH in the elderly?
- Does treating hypothyroidism have any effect on chronic kidney disease?
- Can molecular analysis of thyroid biopsies help avoid surgery for benign nodules?
- How long does it take for urinary iodine to return to normal after receiving iodinated contrast?
- What is the better study to localize recurrent thyroid cancer – PET scans or RAI withdrawal scans?

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.

Have a Happy Thanksgiving!

— Alan P. Farwell, MD

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## HYPOTHYROIDISM

# Using age-specific upper limit for normal TSH slightly reduces the incidence of subclinical hypothyroidism in the elderly

### BACKGROUND

Subclinical hypothyroidism is a common form of hypothyroidism where the only hormone abnormality is an increased TSH level – thyroid hormone levels are normal. There is controversy as to whether or not subclinical hypothyroidism should be treated. It is known that TSH levels may also increase with age, even in those without thyroid disease. In addition, recent reports suggest that living longer may be associated with higher TSH levels, further advancing the possibility that a mildly elevated TSH may be normal and even beneficial in certain elderly patients. The aim of this study was to determine the age-specific TSH ranges from a statewide reference laboratory in Western Australia and to use this to estimate the normal upper limit of TSH in elderly patients.

### THE FULL ARTICLE TITLE

Kahapola-Arachchige KM et al. Age-specific TSH reference ranges have minimal impact on the diagnosis of thyroid dysfunction. Clin Endocrinol (Oxf). June 15, 2012 [E-pub ahead of print]. doi:10.1111/j.1365-2265.2012.04463.x.

### SUMMARY OF THE STUDY

The authors examined values from 150,000 consecutive TSH tests from a laboratory in Western Australia. Most of the samples came from general practitioners' offices. The TSH data was sorted by patient age in 5-year intervals. A total of 97.5% of patients up to the age of 55 years had TSH values less than 4.0 mU/L. Above that age the upper value for the 97.5th percentile gradually rose, reaching about 4.75 mU/L in those between 75 and 85 years and 5.0 mU/L in patients between 85 and 90 years of age. Thus, when applied to the study population, these age-specific TSH ranges would reduce the fraction of elderly patients who would be given a diagnosis of subclinical hypothyroidism by 2% for patients over 75 and by 5% for those over age 90.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

TSH levels do increase with age and using age-specific reference TSH ranges does slightly reduce the fraction of elderly patients who would be otherwise be diagnosed with subclinical hypothyroidism and perhaps unnecessarily treated with thyroid hormone replacement. This study suggests that a mildly elevated TSH in elderly patients could be normal and does not necessarily require treatment with thyroid hormone.

— Philip Segal, MD

### ATA THYROID BROCHURE LINKS

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

### 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.

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.

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## HYPOTHYROIDISM

# Treatment of subclinical hypothyroidism and the effect on chronic kidney disease

### BACKGROUND

Subclinical hypothyroidism is defined as an elevated TSH in the presence of normal $T_4$ levels. There is a debate in the endocrine community about whether or not to treat subclinical hypothyroidism, especially when no significant symptoms are present. Overt hypothyroidism (increased TSH with a low $T_4$ level) can be associated with changes in kidney function that resolve with thyroid hormone therapy. This study was done to see if treatment with thyroid hormone in patients with subclinical hypothyroidism and chronic kidney disease has any effect on their kidney function.

### THE FULL ARTICLE TITLE

Shin DH et al. Preservation of renal function by thyroid hormone replacement therapy in chronic kidney disease patients with subclinical hypothyroidism. J Clin Endocrinol Metab. June 20, 2012 [Epub ahead of print].

### SUMMARY OF THE STUDY

A total of 309 patients were studied. The glomerular filtration rate (GFR) is the most sensitive test of kidney function. The authors looked at the changes in GFR in patients with and without thyroid hormone replacement.

In the 309 patients studied, 180 (58.3%) were treated with thyroid hormone whereas 129 (41.7%) were not treated. Kidney function remained stable in patient treated with thyroid hormone whereas those patients who were not treated demonstrated a decrease in their kidney function.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that thyroid hormone treatemnt maintained kidney function in patients with chronic kidney disease who had subclinical hypothyroidism. This is another argument to treat patients with subclinical hypothyroidism.

— Heather Hofflich, DO

### ATA THYROID BROCHURE LINKS

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

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

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

### ABBREVIATIONS & DEFINITIONS

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 an increased TSH and a decreased $T_4$ level. All patients with overt hypothyroidism are usually treated with thyroid hormone pills.

Thyroxine ($T_4$): the major hormone produced by the thyroid gland. $T_4$ gets converted to the active hormone $T_3$ in various tissues in the body.

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

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## THYROID NODULES

# Molecular analysis of thyroid nodule biopsies may be helpful to determine whether an indeterminate nodule is benign

### BACKGROUND

Once a significant thyroid nodule is identified, the next step often is a fine-needle aspiration biopsy to determine if the nodule is cancerous. However, a definitive diagnosis of cancer vs benign can only be made in 70-85% of nodules as 15-30% fall into the "indeterminate" category. In this category are 3 subgroups: 1) atypical, 2) follicular neoplasm and 3) suspicious for cancer. At present, these indeterminate nodules usually end up being removed by surgery and only 10-30% of those in the atypical or follicular neoplasm category will actually be cancerous. Certainly any way to separate cancers from benign nodules in this group without depending upon surgery would be very beneficial for patients. Various molecular diagnostic procedures have been reported to clarify the diagnosis of malignant or benign in the indeterminate category in order to determine whether a thyroidectomy is appropriate therapy. Molecular procedures take advantage of the fact that cancers express different profiles of certain genes than do benign nodules. The authors report a multicenter study that evaluates a commercial method (gene-expression classifier (GEC)) that classifies indeterminate biopsy cytology into a category of either benign nodule or suspicious for cancer category.

### THE FULL ARTICLE TITLE

Alexander EK et al. Preoperative diagnosis of benign thyroid nodules with indeterminate cytology. N Engl J Med. June 25, 2012 [Epub ahead of print].

### SUMMARY OF THE STUDY

The Veracyte company collected 4812 nodule aspirates from 3789 patients at 49 clinical sites in the United States and 577 were classified as indeterminate (12%). For 413 of the 577 samples, surgical resection of the nodule was performed. A total of 265 samples subsequently were available for primary analysis: 129 in the atypical category, 81 in the follicular neoplasm category and 55 in the suspicious for cancer category. In addition to the indeterminate samples, 47 benign and 55 cancerous surgical samples were evaluated

In the atypical category, 31 of 129 samples (24%) were cancerous by pathology and 28 of 31 were classified as suspicious by the GEC. The remaining 98 were benign, but the GEC result was suspicious in 46 of them and benign in 52.

In the follicular neoplasm category, 20 of 81 samples (25%) were cancerous by pathology and the GEC was suspicious in 18 of 20 but benign in two. The remaining 6 were benign, but 31 of them were classified as suspicious by GEC.

In the suspicious category, 34 of 55 samples (62%) were cancerous by pathology and the GEC classified 32 of them as suspicious. Of the 21 that were benign, the GEC classified only 11 as benign and the other 10 as suspicious.

All of the additional 55 pathologically cancerous samples were categorized as suspicious by the GEC. Of the 47 additional samples considered benign cytologically, 3 were cancerous and 44 were benign by pathology and of these 44, the GEC considered 13 as suspicious.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Many molecular diagnostic procedures are currently being tested. This study shows that one such method, the gene-expression classifier, may be used to identify a subpopulation of patients with a low likelihood of thyroid cancer who might otherwise have been treated by thyroidectomy.

— Alan P. Farwell, MD

### ATA THYROID BROCHURE LINKS

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

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

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## **THYROID NODULES,** continued

### ABBREVIATIONS & DEFINITIONS

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.

Indeterminate thyroid biopsy: this happens usually when the diagnosis of a benign nodule or cancer cannot be made with certainty. There are 3 categories:

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.

Atypical thyroid biopsy: this happens when there are some abnormal/atypical cells in the biopsy sample but not enough to diagnose a cancer. However, because there are abnormal cells in the biopsy sample, the specimen cannot be called benign. Sometimes a repeat biopsy may be helpful but often surgery is recommended to remove the nodule.

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

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

Molecular markers: genes and microRNAs that are expressed in benign or cancerous cells. Molecular markers can be used in thyroid biopsy specimens to either to diagnose cancer or to determine that the nodule is benign.

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## THYROID CANCER

# It takes only one month for urinary iodine to return to its baseline value after the use of iodinated contrast agents in patients who have undergone thyroidectomy

### BACKGROUND

The thyroid gland takes up and concentrates iodine within the gland in order to make thyroid hormone. Nuclear medicine studies of the thyroid (thyroid scans) and radioactive iodine therapy work by giving radioactive iodine to the patient in either pill or liquid form. The radioactive iodine is then taken up by thyroid gland and either provides a picture of the gland, in the case of a thyroid scan, or destroys the gland, in the case of radioactive iodine therapy. The latter is the goal with radioactive iodine therapy for thyroid cancer, as the radioactive iodine is taken up by the cancer cells and destroys them. You can prevent radioactive iodine from getting into the thyroid by taking iodine pills that flood the gland with iodine and block the uptake of the radioactive iodine.

Intravenous contrast agents contain a lot of iodine. These are frequently used during radiology studies such as CT scans. If a patient undergoes radioactive iodine treatment too soon after receiving intravenous contrast, the large amount of iodine makes the radioactive iodine therapy ineffective. There is not a lot of data about how long after receiving contrast the extra iodine is cleared from the body. The current study measures iodine in the urine after receiving intravenous contrast in patients who underwent thyroid surgery.

### THE FULL ARTICLE TITLE

Padovani R et al. One month is sufficient for urinary iodine to return to its baseline value after the use of water soluble iodinated contrast agents in post-thyroidectomy patients requiring radioiodine therapy. Thyroid. June 6m, 2012 [Epub ahead of print].

### SUMMARY OF THE STUDY

This study looked at 25 patients who underwent a CT scan of the chest and neck with intravenous contrast after undergoing total thyroidectomy and radioactive iodine therapy. The patients were given contrast and urine iodine levels were measured before the contrast, at 1 week, 1 month, 2 months and 3 months afterward. The study showed that the iodine was elevated at one week and at one month the urine iodine was back to normal.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study demonstrates that in patients without a thyroid gland who receive intravenous contrast, iodine levels are back to normal at 1 month. This means patients need to wait only 1 month after receiving intravenous contrast before getting treated with radioactive iodine for their thyroid cancer.

— Ronald B. Kuppersmith, MD, FACS

### ATA THYROID BROCHURE LINKS

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

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

Radioactive Iodine: http://www.thyroid.org/radioactive-iodine/

### 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.

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

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).

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## THYROID CANCER

# PET scans are superior to radioactive iodine whole-body scanning in localizing recurrent or persistent thyroid carcinoma

### BACKGROUND

The majority of patients with thyroid cancer do well after their initial treatment and are cured. However, many will have a recurrence of their cancer, usually discovered as an increase in the level of serum thyroglobulin or thyroglobulin antibody or an abnormal lymph node on neck ultrasound during a routine follow up. Frequently, an increase thyroglobulin is associated with a negative neck ultrasound, so the question is, where is the cancer? One option is to simply re-treat with radioactive iodine, using the post-treatment whole body scan (WBS) to localize and treat the disease. More recently, positron emission tomography/computed tomography (PET/CT) scanning has proven valuable in identifying cancer that has spread outside of the neck. This study compares the sensitivity of post-treatment WBS to 18 –fluorodeoxyglucose PET/CT (FDG PET/CT) in localizing persistent or recurrent thyroid cancer.

### THE FULL ARTICLE TITLE

Leboulleux et al. Postradioiodine treatment whole-body scan in the era of 18-fluorodeoxyglucose positron emission tomography for differentiated thyroid carcinoma with elevated serum thyroglobulin levels. Thyroid. 22:8:832-838.

### SUMMARY OF THE STUDY

A total of 34 patients with recurrent thyroid cancer were referred for empiric radioactive iodine therapy and also underwent FDG PET/CT scanning. A total of 23 of these patients had persistently elevated thyroglobulin levels, 10 had elevated thyroglobulin levels observed during follow-up after having had initially low thyroglobulin levels and 1 had the appearance of thyroglobulin antibodies during follow-up. Post-treatment WBS and FDG PET/CT were analyzed by independent readers. A total of 75 lesions were found in 23 patients: 30 in the neck, 28 in the lungs, 11 in the mediastinum and 6 in bone. FDG PET/CT revealed the lesions in 22 patients, 5 of whom also had abnormal post-treatment WBS. Only one patient had an abnormal post-treatment WBS with a normal FDG PET/CT. Based on these data, the authors conclude that FDG PET/CT, rather than post-treatment WBS, is the preferred method to localize disease in patients with thyroid cancer suspected of having recurrent or persistent disease based on thyroglobulin levels or positive thyroglobulin antibodies.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The greater success of FDG PET/CT in localizing persistent or recurrent thyroid cancer compared to post-treatment WBS favors the use of FDG PET/CT to localize disease in patients suspected of having persistent or recurrent cancer. This is an important tool to help in the diagnosis of metastatic cancer in the patient with an increasing thyroglobulin level and no evidence of disease on neck ultrasound.

— Frank Crantz, MD

### ATA THYROID BROCHURE LINKS

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

Radioactive Iodine: http://www.thyroid.org/radioactive-iodine/

### ABBREVIATIONS & DEFINITIONS

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 who 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,** continued

Positron-emission-tomography (PET) scans: a nuclear medicine imaging test that uses a small amount of radiolabeled glucose to identify cancer. Since cancer cells are more active than normal cells, the cancer cells take up more of the radiolabeled glucose and show up on the PET scan. PET scans are frequently combined with CT scans to accurately identify where the cancer is located.

18F-2-fluoro-2-deoxy-d-glucose-positron emission tomography (FDG-PET): a nuclear medicine imaging test that uses a small amount of radiolabeled glucose to identify cancer. Since cancer cells are more active than normal cells, the cancer cells take up more of the radiolabeled glucose and show up on the FDG-PET scan. FDG-PET scans are frequently combined with CT scans to accurately identify where the cancer is located. Its role in thyroid cancer is still being studied.

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.

# 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 AND THYROID FOUNDATION

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

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

### LIGHT OF LIFE FOUNDATION

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

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

### 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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# ATA Alliance for Thyroid Patient Education CALENDAR OF EVENTS

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

## ATA Conferences www.thyroid.org

Nothing is scheduled at this time. Please visit the website for updates.

## Graves' Disease Conferences www.gdatf.org

Nothing is scheduled at this time. Please visit the website for updates.

## Light of Life Foundation www.checkyourneck.com

Ongoing — www.checkyourneck.com

**Thyroid Cancer Awareness campaign with Cindy Crawford and Brooke Shields**

June 12, 2010 — a previous symposium available online at:
http://www.checkyourneck.com/About-Thyroid-Cancer/Thyroid-Cancer-Symposium-Presentations

**Thyroid Cancer Symposium Presentations: What's New in Thyroid Cancer?**
**A Day for Patients and Their Families**

Please visit the Light of Life Foundation website to view the Patient Educational Symposium which took place in NYC in 2010. As part of the Patient Educational Program these online presentations provide valuable information in hopes that patients everywhere can gain further information and support about their disease.

November 17, 2012 — New York, NY

**Annual Light of Life Foundation Patient Symposium**. Details at www.checkyourneck.com

## ThyCa Conferences www.thyca.org

Every Month

**ThyCa Support Group Meetings around the United States and in Canada, Costa Rica, and Philippines.** Complete list of groups, meetings, and contacts at www.thyca.org/sg/local