Clinical THYROIDOLOGY FOR THE PUBLIC

AMERICAN THYROID ASSOCIATION
FOUNDED 1923

VOLUME 7 • ISSUE 4 • 2014

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A publication of the American Thyroid Association

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Clinical Thyroidology for the Public

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EDITOR'S COMMENTS

Welcome to *Clinical Thyroidology for the Public*. In this journal, we will bring to you the most up-to-date, cutting edge thyroid research. We will be providing summaries of research studies that were discussed in a recent issue of *Clinical Thyroidology*, a publication of the American Thyroid Association for physicians. These summaries are present in lay language to allow the rapid dissemination of thyroid research to the widest possible audience. This means that you are getting the latest information on thyroid research and treatment almost as soon as your physicians. As always, we are happy to entertain any suggestions to improve *Clinical Thyroidology for the Public* so let us know what you want to see.

We also provide even faster updates of late-breaking thyroid news through Twitter at @thyroidfriends and on Facebook. Our goal is to provide patients with the tools to be the most informed thyroid patient in the waiting room.

Also check out our friends in the Alliance for Thyroid Patient Education. The Alliance member groups consist of: the *American Thyroid Association*, the *Graves' Disease and Thyroid Foundation*, the *Light of Life Foundation*, *ThyCa: Thyroid Cancer Survivors Association*, *Thyroid Cancer Canada and Thyroid Federation International*.

In this issue, the studies ask the following questions:

1. Are patients with thyroid cancer at risk for second cancers?
2. Should the upper limit of TSH vary by gestational age?
3. Does hypothyroidism affect cognitive function in the elderly?
4. Does treatment of central hypothyroidism have any effect on cardiovascular risk factors?
5. What factors lead to stable TSH values in patients on Levothyroxine?
6. Does a break in antithyroid drug treatment affect the risk of agranulocytosis?

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

— Alan P. Farwell, MD

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THYROID CANCER

The incidence of second primary cancers is significantly higher than expected in patients with thyroid cancer

BACKGROUND

The incidence of thyroid cancer has been reported to have increased in many countries in the past 2-3 decades. In many cases, this increase is observed in patients younger than 50 years. Some unfortunate patients will be diagnosed with other cancers after being treated for thyroid cancer. While many of these secondary cancers are unrelated to thyroid cancer, certain secondary cancers could potentially occur as a late consequence of radioiodine therapy that frequently is part of the treatment of thyroid cancer. A variety of "secondary primary cancers" have been reported, including cancers of salivary glands, pharynx, stomach, colon, brain, breast, prostate, bone and joints and adrenal glands, as well as soft-tissue sarcomas, non-Hodgkin's lymphomas and leukemia. This study's aim was to determine the risk of secondary cancers in patients with thyroid cancer.

THE FULL ARTICLE TITLE

Lu CH et al. Second primary malignancies following thyroid cancer: a population-based study in Taiwan. Eur J Endocrinol 2013;169:577-85.

SUMMARY OF THE STUDY

This study used the National Registry of Taiwan, which covers the entire population of that country. The authors evaluated the incidence of cancer during the period between 1979 and 2006. The cases were grouped every 5 years (i.e 1979-1984, etc). The incidence of cancer by age group in the whole population was compared to the incidence of secondary cancer in the thyroid cancer group.

A total of 19,068 patients with thyroid cancer were found and 644 of those (3.4%) were found to have secondary cancers. The majority of patients were followed through the first 10 years after the diagnosis of thyroid cancer, but 28% were seen only after 10 years. The average age of patients with thyroid cancer was 45 years while the age of patients with secondary cancers was 59 years. The average interval between the two cancers was 6 years. There was a significant increase in the occurrence of secondary cancers involving the salivary glands, nasopharynx, thymus, female breast, bladder, brain, and for leukemia and lymphoma. Patients less than 50 years of age were more often diagnosed with leukemia, lymphoma, or bladder cancers. The overall risk of these cancers occurring in patients without thyroid cancer was 2.7%. The survival rate of the 19,068 patients with thyroid cancer was 90%. The median survival was 23 years, but for patients who developed secondary cancers the median survival after the diagnosis of the secondary cancer was only 4.7 years. In general women lived longer than men

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that patients with a diagnosis of thyroid cancer have a 33% increase in risk of a secondary cancer as compared to the general population without thyroid cancer. One limitation of this study is that it did not provide information about radioactive iodine therapy. The secondary cancers included those that have been previously noted to be possibly associated with radioactive iodine (leukemia, lymphoma, colon or bladder cancer) as well as cancers that have not been association with radioactive iodine. Therefore, it is difficult to determine if the excess mortality is associated with radioactive iodine treatment or due to other causes. More studies are needed to clarify these questions. However, this study does reinforce the recommendation from the American Thyroid Association to not treat thyroid cancer patients with radioactive iodine if they are otherwise at low risk for cancer recurrence.

— M. Regina Castro, MD

ATA THYROID BROCHURE LINKS

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

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

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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).

Second primary cancer: Refers to a new cancer different from the original one in a person with a history of cancer

Thyroid Awareness Monthly Campaigns Announced in Cooperation with PuraVida

The ATA will be highlighting a distinct thyroid disorder each month and a portion of the sales for PuraVida bracelets will be donated to the ATA. The thyroid disorder designated for awareness this month is **Hypothyroidism** and a bracelet is available through the **ATA Marketplace** to support thyroid cancer awareness and education related to thyroid disease.

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THYROID AND PREGNANCY

Should the upper limit of TSH vary by gestational age during early pregnancy?

BACKGROUND

Thyroid hormone is important for normal brain development. This is particularly important during early pregnancy, when the developing baby is entirely dependent on the mother to provide thyroid hormones through the placenta. Severe hypothyroidism in the mother can cause brain development problems in the baby. However, the consequences of subclinical hypothyroidism (an increased TSH with normal thyroid hormone levels) in the mother are less clear. In any event, the American Thyroid Association recommends that TSH levels be less than 2.5 mIU/L during the first trimester of pregnancy. While it is clear that the normal range of the thyroid hormones changes during pregnancy, it is unclear if similar changes occur with TSH levels. The aims of this study were to determine if the normal range of TSH changes according to gestational age during the first trimester and to determine the upper limit of TSH to define subclinical hypothyroidism in pregnant women.

THE FULL ARTICLE TITLE

Li C et al. Assessment of thyroid function during first-trimester pregnancy: what is the rational upper limit of serum TSH during the first trimester in Chinese pregnant women? J Clin Endocrinol Metab 2014;99:73-9. doi: 10.1210/jc.2013-1674. Epub December 20, 2013.

SUMMARY OF THE STUDY

This was a study of nearly 7,000 women in China who were either considering a pregnancy or already pregnant during the first trimester. Women who had a history of thyroid disease, including thyroid antibodies, were not included. The women had TSH levels measured at various times during their pregnancy. The results showed that pregnant women between 4-6 gestational weeks had TSH levels that were similar to those of nonpregnant women, while those between 7-12 gestational weeks had lower TSH levels. Using the slightly higher upper limit of TSH derived from this group of Chinese women (4.87 mIU/L), much fewer women were defined as having subclinical hypothyroidism, compared to if the standard recommendation of 2.5 mIU/L was used.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that the nonpregnant upper limit for TSH can be used in women between 4-6 weeks of pregnancy and that a lower TSH upper limit can be applied to first-trimester women after 7 weeks gestation. In addition, authors show that the normal upper limit for TSH during the first trimester among Chinese women is higher than that treatment goal recommended by the American Thyroid Association (2.5 mIU/L). If these results are confirmed with additional research, fewer pregnant women in China will be diagnosed with subclinical hypothyroidism and may not be require treatment.

— Angela Leung, MD

ATA THYROID BROCHURE LINKS

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

Thyroid and Pregnancy: http://www.thyroid.org/thyroid-disease-and-pregnancy

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 IN THE ELDERLY

Hypothyroidism is not associated with mild cognitive impairment in elderly patients

BACKGROUND

Symptoms of hypothyroidism in adults can include cognitive problems such as decreased memory, depressed mood and a general mental slowing. Treatment with thyroid hormone causes resolution of these symptoms if their only cause was hypothyroidism. In the elderly, there are multiple causes for cognitive problems other than hypothyroidism. Several studies have examined associations between hypothyroidism and cognitive problems in the elderly with mixed results. The aim of this study was to examine associations between mild cognitive impairment and hypothyroidism in an elderly population.

THE FULL ARTICLE TITLE

Parsaik AK et al Hypothyroidism and risk of mild cognitive impairment in elderly persons: a population-based study. JAMA Neurol. December 30, 2013 [Epub ahead of print]

SUMMARY OF THE STUDY

This was a population-based study that included 1904 eligible individuals from the 2004 Mayo Clinic Olmsted Study of Aging cohort, aged 70-89 years old on October 1, 2004. Baseline evaluations were conducted between 2004 and 2007, including demographics and presence of concomitant diseases. Mild cognitive impairment was diagnosed by consensus between the evaluating physician, nurse and neuropsychologist based on absence of dementia, memory concerns and impairment in one or more cognitive domains on psychological testing. Clinical hypothyroidism was defined as documentation of thyroid hormone replacement therapy and/or a TSH ≥10 mIU/L with a low free T_4. Subclinical hypothyroidism was defined as a TSH <10 mIU/L, normal free T_4 and no history of thyroid hormone replacement.

Of the 1904 patients included in the analyses, 316 were diagnosed with mild cognitive impairment, 313 with clinical hypothyroidism and 141 with subclinical hypothyroidism. No associations were found between either clinical or subclinical hypothyroidism and the presence of mild cognitive impairment.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study showed no associations between hypothyroidism and mild cognitive impairment in this large population of elderly patients. However, the results are limited by a lack of information on adequacy of treatment in the group with clinical hypothyroidism, so many patients that would adequately treated were included in the hypothyroid group. Assuming that most patients are adequately treated, this study indicates that there is not permanent cognitive impairment in patients with hypothyroidism. In light of the conflicting results of observational studies to date, screening of patients with newly diagnosed cognitive impairment for hypothyroidism remains a reasonable approach.

— Maria Papaleontiou, MD

ATA THYROID BROCHURE LINKS

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

Thyroid and the Elderly: http://www.thyroid.org/hypothyroidism-elderly

DEFINITIONS AND ABBREVIATIONS

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.

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HYPOTHYROIDISM IN THE ELDERLY, continued

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.

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

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

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HYPOTHYROIDISM

Thyroid hormone treatment of central hypothyroidism has a beneficial influence on cardiovascular risk factors

BACKGROUND

The hypothalamus (a region of the brain) and pituitary gland secrete hormones that regulate the function of thyroid gland, including thyroid hormone production. In addition to the thyroid gland, the hypothalamus and pituitary also control a number of other glands such as the adrenal gland, ovaries and testicles and are very important regulators of body growth. Hypothyroidism may be due to failure of the thyroid gland (primary hypothyroidism) or a lack of either a pituitary or hypothalamic hormone (central hypothyroidism). The vast majority of people with hypothyroidism have primary hypothyroidism, often due to Hashimoto's thyroiditis. Central hypothyroidism is much less common and is usually due to a tumor in the pituitary gland that disrupts its function and causes hypopituitarism. Hypopituitary patients may be deficient in one or more hormones, including thyroid hormone, growth hormone, cortisol, estrogen (women) or testosterone (men). Primary hypothyroidism has been associated with increased risk of cardiovascular disease. Since central hypothyroidism is relatively rare, few studies address the relationship between thyroid hormone replacement and cardiovascular risk in these patients. The aim of this study was to examine cardiovascular risk factors, such as body weight and cholesterol levels, in hypopituitary patients with central hypothyroidism.

THE FULL ARTICLE TITLE

Klose M et al. Central hypothyroidism and its replacement have a significant influence on cardiovascular risk factors in adult hypopituitary patients. J Clin Endocrinol Metab. 2013;98:3802-10. Epub June 24, 2013; doi: 10.1210/jc.2013-1610.

SUMMARY OF THE STUDY

This study examined the records of 209 hypopituitary patients cared for at a single referral hospital in Denmark. All were also growth hormone deficient and were starting growth hormone replacement therapy at the start of the study. Patients were examined at baseline and at approximately 4.1 years after starting growth hormone therapy. At baseline patients were determined to be either TSH sufficient (euthyroid) or TSH deficient (central hypothyroidism). Those with central hypothyroidism were further divided according to baseline Free T_4 levels. Patients with central hypothyroidism and the lowest Free T_4 levels had higher BMI, fat mass and waist circumference and a less favorable cholesterol profile than those who were euthyroid. At follow up, an increase in free T_4 was associated improvements in BMI, waist circumference and HDL cholesterol, even controlling for changes associated with growth hormone therapy.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Like patients with primary hypothyroidism, those with central hypothyroidism have an worsening of cardiovascular risk factors, such as cholesterol levels and BMI. These risk factors are improved by treatment with thyroid hormone. Doctors caring for patients with central hypothyroidism should try to optimize thyroid hormone replacement therapy in hopes of potentially reducing cardiovascular risk factors.

— Whitney Woodmansee, MD

ATA THYROID BROCHURE LINKS

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

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

ABBREVIATIONS & DEFINITIONS

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

HYPOTHYROIDISM, continued

Euthyroid: a condition where the thyroid gland as working normally and producing normal levels of thyroid hormone.

Hashimotos thyroiditis: the most common cause of hypothyroidism in the United States. It is caused by antibodies that attack the thyroid and destroy it.

Pituitary gland: this endocrine gland sits at the base of the brain and secretes hormones that control thyroid and adrenal function, growth and reproduction. The pituitary gland secretes TSH to control thyroid function.

Hypopituitarism: decrease in function of the pituitary gland. Hypopituitarism can be partial (affecting the secretion of 1 or more hormones) or complete (panhypopituitarism, lack of secretion of all of the pituitary hormones. The symptoms of hypopituitarism depend on the gland system affected.

Growth Hormone: secreted by the pituitary, growth hormone works to regulate growth, especially during the growth spurt during childhood. Growth hormone works through a growth factor call insulin-like growth factor 1 (IGF-1)

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.

Body-mass index (BMI): a standardized measure of obesity calculated by dividing the weight in kilograms by the square of the height. A normal BMI is 18.5-24.9, overweight is 25-30 and obese is >30.

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HYPOTHYROIDISM

Patients with hypothyroidism who are taking levothyroxine doses of <125 mcg have more stable serum TSH levels than those on higher doses

BACKGROUND

Hypothyroidism occurs when the thyroid gland cannot produce enough thyroid hormone to meet the needs of the body. It is diagnosed by an elevated TSH level and low T_4 levels. Primary hypothyroidism is very common, particularly in women, and is reported to affect at least 5% of the US population. After diagnosis, treatment is usually begun with daily levothyroxine (L-T_4) pills with a goal of restoring the TSH level to the normal range and improving the symptoms of hypothyroidism. Thereafter, current guidelines recommend measuring the TSH level once or twice a year to ensure the L-T_4 dose is appropriate as some patients may require a dose adjustment. However, it is not clear if there are some patients where it may be safe to test the TSH levels less frequently. The purpose of the current study was to determine if there were any factors that could identify a subset of patients that could be monitored safely on a less frequent basis.

THE FULL ARTICLE TITLE

Pecina J et al Levothyroxine Dosage is Associated with Stability of TSH Values. Am J Med. December 2013. pii: S0002-9343(13)01021-8. doi: 10.1016/j.amjmed.2013.11.012 [Epub ahead of print].

SUMMARY OF THE STUDY

The authors studied 715 patients from the Department of Family Medicine of the Mayo Clinic in Rochester, Minnesota who, in 2006 had been a) diagnosed with hypothyroidism b) were taking L-T_4 replacement and c) had a normal TSH level. Those who were under 18 years old, were pregnant, had thyroid cancer or who were taking drugs such as amiodarone or lithium that interfere with thyroid function were excluded. Patients were followed for six years until December 31, 2012 and the authors measured how long it took for a patient to develop an abnormal TSH level.

The study found that the only risk factor for having an abnormal TSH level was the dose of L-T_4 that a patient was taking. Those taking more than 125 mcg of L-T_4 per day were much less likely to maintain normal TSH levels over time than those taking less than 125 mcg per day. At 1 year, 91% of the patients taking daily doses of 125 mcg or less continued to have a normal TSH, while only 73% of patients taking more than 125 mcg per day had normal TSH. At 2 years, 75% of patients on doses of 125 mcg or less continued to have TSH levels in the normal range, but only 45% of patients on more than 125 mcg/day had continued normal TSH values.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that hypothyroid patients on L-T_4 doses <125 mcg daily have more stable TSH levels than those on higher doses. This may be due to some residual thyroid function that can help maintain normal TSH levels ion patients on lower doses. Further, this study suggests that it may be safe to monitor TSH levels every 2 years instead of at least every year in patients who are taking less than 125 mcg of L-T_4 per day.

— Philip Segal, MD

ATA THYROID BROCHURE LINKS

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

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

ABBREVIATIONS & DEFINITIONS

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

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

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HYPOTHYROIDISM, continued

Levothyroxine ($L\text{-}T_4$): the major hormone produced by the thyroid gland and available in pill form as Synthroid™, Levoxyl™, Tyrosint™ 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.

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HYPERTHYROIDISM

Does a break in antithyroid drug treatment of hyperthyroidism lead to an increased risk of agranulocytosis?

BACKGROUND

The antithyroid drugs methimazole (MMI) and propylthiouracil (PTU) are used as one option to treat patients with hyperthyroidism, especially those with Graves' disease. The goal of antithyroid drug treatment is to treat for a defined period of time then stop to determine if the Graves' disease has gone into remission. If the hyperthyroidism returns, the antithyroid drugs are re-started. Agranulocytosis, a marked decrease in white blood cells which increases the risk for infection, is a rare complication of treatment with the antithyroid drugs. Most cases of agranulocytosis occur within 3 months of beginning therapy with these drugs. There has been speculation that re-starting therapy with these drugs in patients who have relapsed after the first course of antithyroid drug treatment may increase the risk or accelerate the onset of agranulocytosis. This study was designed to exam whether agranulocytosis is likely to occur faster in a patient who stops antithyroid drug therapy and then resumes at a later time in contrast to a patient who stays on the drug continuously.

THE FULL ARTICLE TITLE

Kobayashi S et al. Characteristics of Agranulocytosis as an Adverse Effect of Antithyroid Drugs in the Second or Later Course of Treatment. Thyroid. December 16, 2013 [Epub ahead of print]. Available at http://online.liebertpub.com/doi/abs/10.1089/thy.2013.0476.

SUMMARY OF THE STUDY

A total of 87 patients seen at the Ito Hospital in Tokyo between 1983 and 2012 were found to have agranulocytosis. After excluding patients with other possible causes, 67 patients were identified as having MMI or PTU-induced agranulocytosis. Of these, 35 developed it while on a continuous course of the drug, while 22 had gaps in therapy that ranged from 5 months to 22 years. On closer inspection, several of the latter patients were excluded because they did not fit the criteria for the study, leaving 14 patients with interrupted treatment.

There was no significant difference in the time to onset of agranulocytosis between the continuous or the interrupted groups. No agranulocytosis occurred in patients with 1-5 months of a "gap". None of the patients in the continuous treatment group who were exposed to the other drug developed side effects, whereas 9 of 10 patients in the "gap" group exposed to the other drug developed minor side effects. Thus, short term gaps (<5 months) did not appear to increase the rapidity of occurrence of agranulocytosis.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

After re-starting MMI or PTU therapy following a 5 or month gap, patients should be observed for agranulocytosis for the first 3 months, similarly to those who start these drugs for the first time. Patients should be aware of the signs and symptoms of agranulocytosis which include fever, fatigue or sore throat. If these occur they should notify their physician and have a white blood cell count measured before resuming MMI or PTU.

— Glenn Braunstein, MD

ATA THYROID BROCHURE LINKS

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

Graves' disease: http://www.thyroid.org/what-is-graves-disease

ABBREVIATIONS & DEFINITIONS

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

Methimazole (MMI): an antithyroid medication that blocks the thyroid from making thyroid hormone. Methimazole is used to treat hyperthyroidism, especially when it is caused by Graves' disease.

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HYPERTHYROIDISM, continued

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

Agranulocytosis: a marked decrease in the white blood cell count that causes a patient to be more likely to develop an infection. This is commonly associated with a fever and/or a sore throat.

White blood cells: the infection-fighting cells of the blood.

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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.

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

WHO WE ARE (in alphabetical order)

AMERICAN THYROID ASSOCIATION

www.thyroid.org
ATA Patient Resources: http://www.thyroid.org/patients/
Find a Thyroid Specialist: www.thyroid.org
Phone (toll-free): 1-800-THYROID
e-mail: thyroid@thyroid.org

ATA Mission: The ATA leads in promoting thyroid health and understanding thyroid biology.
ATA Vision: The ATA is the leading organization focused on thyroid biology and the prevention and treatment of thyroid disorders through excellence and innovation in research, clinical care, education, and public health.
ATA Values: The ATA values scientific inquiry, clinical excellence, public service, education, collaboration, and collegiality.

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

GRAVES' DISEASE AND THYROID FOUNDATION

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

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

continued on next page

AMERICAN THYROID ASSOCIATION
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ThyCa: Thyroid Cancer Survivors' Association, Inc.
www.thyca.org

GRAVES' DISEASE & THYROID FOUNDATION

Thyroid Cancer Canada
Cancer de la thyroïde Canada

Light of Life Foundation
checkyourneck.com

Thyroid Federation International

ATA Alliance for Thyroid Patient Education

Continued...

LIGHT OF LIFE FOUNDATION
www.checkyourneck.com
email: info@checkyourneck.com

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

THYCA: THYROID CANCER SURVIVORS' ASSOCIATION, INC.
www.thyca.org
Phone (toll-free): 877 588-7904
e-mail: thyca@thyca.org

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

THYROID CANCER CANADA
www.thyroidcancercanada.org
Phone: 416-487-8267
Fax: 416-487-0601
e-mail: info@thyroidcancercanada.org

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

THYROID FEDERATION INTERNATIONAL
http://www.thyroid-fed.org/
e-mail: tfi@thyroid-fed.org

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

AMERICAN THYROID ASSOCIATION FOUNDED 1923

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

GRAVES' DISEASE & THYROID FOUNDATION

Thyroid Cancer Canada
Cancer de la thyroïde Canada

Light of Life Foundation checkyourneck.com

Thyroid Federation International

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May 25th Thyroid Day

American Thyroid Association Supports *World Thyroid Day*

May 25, 2014

The American Thyroid Association (ATA) supports and celebrates the 7th Annual **World Thyroid Day, May 25, 2014.**

The American Thyroid Association, in cooperation with sister international thyroid societies, the European Thyroid Association (www.eurothyroid.com), the Asia & Oceania Thyroid Association (www.aothyroid.org), and the Latin American Thyroid Society (www.lats.org) , recognizes the 7th Annual World Thyroid Day, May 25, 2014. Established in 2008, World Thyroid Day highlights five major goals to:

- Increase awareness of thyroid health,
- Promote understanding of advances made in treating thyroid diseases,
- Emphasize the prevalence of thyroid diseases,
- Focus on the urgent need for education and prevention programs, and
- Expand awareness of new treatment modalities.

The thyroid gland, butterfly-shaped and located in the middle of the lower neck, produces hormones that influence every cell, tissue and organ in the body. The thyroid hormones regulate the body's metabolism—the rate at which the body produces energy from nutrients and oxygen—and affects critical body functions, such as energy level and heart rate.

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