Clinical THYROIDOLOGY FOR PATIENTS

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Subclinical hypothyroidism is a frequent finding in children and adolescents with type 1 diabetes

In the adult population, subclinical hypothyroidism has a prevalence of 10% and has been associated with abnormal cholesterol profiles and increased risk of atherosclerosis and cardiovascular disease. A few small studies have reported a prevalence of subclinical hypothyroidism of 1% in children and adolescents. The aim of this study is to evaluate the prevalence of subclinical hypothyroidism in children, adolescents and young adults with type 1 diabetes and the potential association of subclinical hypothyroidism with an abnormal lipid profile in these groups.

Denzer C et al. Subclinical hypothyroidism and dyslipidemia in children and adolescents with type 1 diabetes mellitus. Eur J Endocrinol. February 5, 2013 [Epub ahead of print].

HYPOTHYROIDISM 6
Childhood weight gain and obesity are associated with adult hypothyroidism and autoimmune thyroid disease

The thyroid hormones regulate the body's metabolic rate which is also involved in weight gain and loss. Hypothyroidism lowers the metabolic rate and can be associated with weight gain, as has been shown in many studies. This study was designed to examine the relationship between childhood weight gain and subsequent hypothyroidism and autoimmune thyroid disease in adults.

Ong KK et al on behalf of the Medical Research Council National Survey of Health Development Scientific Data Collection Teams. Childhood weight gain and thyroid autoimmunity at age 60-64 years: the 1946 British Birth Cohort Study. J Clin Endocrinol Metab. February 22, 2013 [Epub ahead of print].

THYROID CANCER. 8
Rising thyroid cancer rates are not related to socioeconomic status and access to medical care

The rates of thyroid cancer in the U.S. have been increasing over the past 30 years. This may be due the more frequent use of thyroid ultrasound in recent years, which can detect smaller nodules. Access to health care to obtain thyroid exams and ultrasound is likely associated with socioeconomic status (SES). To determine if SES is associated with the recent increases in incidence of thyroid cancer, this study compared thyroid cancer incidence trends between low- and high-SES counties in the United States during the past three decades.

Li N et al. Impact of enhanced detection on the increase in thyroid cancer incidence in the United States: review of incidence trends by socioeconomic status within the Surveillance, Epidemiology, and End Results registry, 1980-2008. Thyroid 2013;23:103-10. doi: 10.1089/thy.2012.0392. PMID: 23043274.

THYROID CANCER. 10
Thyroid cancer exhibits aggressive behavior in Graves' disease

There has been some controversy about the aggressiveness of thyroid cancer diagnosed in patients with active Graves' disease. This study investigates the long-term disease-specific mortality of thyroid cancer in patients with active Graves' disease as compared with thyroid cancer in patients who do not have Graves' disease and are not hyperthyroid.

Pellegriti G et al, Increased mortality in patients with differentiated thyroid cancer associated with Graves' disease. J Clin Endocrinol Metab 2013; 98:1014-21. Epub January 24, 2013.

THYROID CANCER. 11
Long-term surveillance with serum thyroglobulin might not be worthwhile in patients with very-low-risk thyroid cancer

Currently, most low risk patients are not treated with radioactive iodine. The stimulated serum thyroglobulin level in patients who have had thyroidectomy and radioiodine therapy allows a good estimation of persistent or recurrent cancer in patients, as no detectable thyroglobulin should be present in those who have been cured of cancer. The goal of this study was to determine the trend over time of serum thyroglobulin levels in patients with low-risk thyroid cancer who did not undergo radioactive iodine therapy.

Durante C, et al. Long-term surveillance of papillary thyroid cancer patients who do not undergo postoperative radioiodine remnant ablation: is there a role for serum thyroglobulin measurement? J Clin Endocrinol Metab 2012;97;2748-53.

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CLINICAL THYROIDOLOGY **FOR PATIENTS**
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EDITOR'S COMMENTS

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

We will be providing even faster updates of late-breaking thyroid news through Twitter at @thyroidfriends and on Facebook. Our goal is to provide you with the tools to be the most informed thyroid patient in the waiting room. Also check out our friends in the ATA 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:

- Is there an increased risk of hypothyroidism in children and adolescents with type 1 diabetes?
- Is childhood obesity associated with hypothyroidism in adulthood?
- Does socioeconomic status affect the diagnosis of thyroid cancer?
- Is thyroid cancer more aggressive in patients with Graves' disease?
- Is serum thyroglobulin the best test to follow thyroid cancer patients that have not been treated with radioactive iodine?

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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IN MEMORIAM

Dr. Boris Catz and Dr. Ernest Mazzaferri

In the past month, the thyroid world lost two giants that have contributed much to our understanding of thyroid diseases.

Dr. Boris Catz

February 15, 1923 – May 2, 2013

Dr. Boris Catz was a thyroid specialist and Clinical Professor Emeritus at the University of Southern California School of Medicine. He was a pioneer in the field of clinical endocrinology for more than 60 years and was widely recognized for his innovative treatments of myxedema coma and exophthalmos. Among his many accomplishments was his pioneering work with Samuel Perzik in the development of total thyroidectomy for the treatment of hyperthyroidism, cancer, multinodular goiter, and chronic thyroiditis not responsive to medical management. In addition, while collaborating with Franz Bauer, Dr. Catz was the first to recommend total thyroidectomy and treatment with radioactive iodine for exophthalmos and Graves' disease. The American Thyroid Association awarded him the Certificate of Distinguished Service in 2002.

Dr. Ernest Mazzaferri

September 27, 1936 – May 14, 2013

Dr. Ernest Mazzaferri was generally regarded as one of the world's experts on thyroid cancer and was an active participant in writing the American and European Guidelines for this disease. He spent most of his medical career at The Ohio State University, serving as division director of endocrinology from 1974-78, then chairman of internal medicine from 1984-1999, during which time the Department of Medicine grew five-fold. From 1978-1984, he was chairman of internal medicine at the University of Nevada-Reno, serving as acting dean from 1979-81. He published more than 160 peer reviewed articles, wrote more than 150 medical editorials, case studies, and abstracts, and edited or co-authored 53 medical text books. He won the prestigious Paul Starr Award from the American Thyroid Association in 2009 for his fundamental contributions to improving the care of patients with thyroid cancer. Dr. Mazzaferri served as president of the American Thyroid Association in 2005-06 and was a Committee or Panel Member on several occasions for the National Academy of Sciences and Institute of Medicine. He is a past editor of *Clinical Thyroidology for Patients* and was the inspiration to expand this journal beyond the once or twice a year publication to the monthly journal that it has become.

Our thoughts and prayers go out to the families of these wonderful individuals.

— Alan P. Farwell, MD

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HYPOTHYROIDISM

Subclinical hypothyroidism is a frequent finding in children and adolescents with type 1 diabetes

BACKGROUND

Subclinical hypothyroidism may represent the early stage of hypothyroidism, characterized by an increase in the TSH secretion from the pituitary gland in response to declining thyroid hormone levels within the normal range. The TSH will stimulate increased thyroid hormone release from the thyroid gland to maintain normal circulating T_3 and T_3 levels. In the adult population, subclinical hypothyroidism has a prevalence of 10% and has been associated with abnormal cholesterol profiles and increased risk of atherosclerosis and cardiovascular disease. A few small studies have reported a prevalence of subclinical hypothyroidism of 1% in children and adolescents. The prevalence of subclinical hypothyroidism in children with type 1 diabetes is not known. We know that type 1 diabetes by itself is associated with an increased risk for cardiovascular disease in adults. Therefore, early detection of other potentially modifiable cardiovascular risk factors associated with this disease is crucial. The aim of this study is to evaluate the prevalence of subclinical hypothyroidism in children, adolescents and young adults with type 1 diabetes and the potential association of subclinical hypothyroidism with an abnormal lipid profile in these groups.

THE FULL ARTICLE TITLE

Denzer C et al. Subclinical hypothyroidism and dyslipidemia in children and adolescents with type 1 diabetes mellitus. Eur J Endocrinol. February 5, 2013 [Epub ahead of print].

SUMMARY OF THE STUDY

A total of 22,747 patients from a large database for children and adolescents with type 1 diabetes established in Germany and Austria in 1995 were included in this study. All patients were younger than 25 years of age and had type 1 diabetes for more than 3 months. In this study, 19.2% of the children and adolescents had either anti-TPO and/or antithyroglobulin antibodies and 7.2% had subclinical hypothyroidism. There was a stepwise increase in the total cholesterol and low-density lipoprotein (LDL) cholesterol levels with rising TSH levels, starting with TSH levels in the high normal range between 2-4 mU/L. A minimal increase in body-mass index and high-density lipoprotein cholesterol with increasing TSH levels was also found.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In this large study of young patients with type 1 diabetes, there was a high prevalence of subclinical hypothyroidism and even higher prevalence of thyroid antibodies when compared to individuals without type 1 diabetes. This study supports the recommendation that all patients with type 1 diabetes should be screened periodically for subclinical hypothyroidism. In addition, monitoring of patients with thyroid antibodies for development of hypothyroidism would be advisable. Finally, the association between an increase in LDL cholesterol with an increase in TSH suggest a reason to treat subclinical hypothyroidism in these young patients. However, further studies are needed to investigate whether treatment with thyroid hormone will improve the lipid profile and cardiovascular risk in these patients.

— Alina Gavrila, MD

ATA THYROID BROCHURE LINKS

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

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

ABBREVIATIONS & DEFINITIONS

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

Subclinical hypothyroidism: a mild form of hypothyroidism where the only abnormal hormone level is an increased TSH. There is controversy as to whether this should be treated or not.

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HYPOTHYROIDISM, continued

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

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

Triiodothyronine (T_3): the active thyroid hormone, usually produced from thyroxine.

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

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

Type 1 Diabetes: diabetes caused by antibodies that destroy the insulin producing cells of the pancreas. Patients with this form of diabetes require insulin to control their blood sugar.

Low-density lipoprotein (LDL) cholesterol: accumulates in the wall of the blood vessels resulting in atherosclecrosis, also known as "bad cholesterol".

High-density lipoprotein (HDL) cholesterol: protects against atherosclerosis and heart disease, also known as "good cholesterol".

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HYPOTHYROIDISM

Childhood weight gain and obesity are associated with adult hypothyroidism and autoimmune thyroid disease

BACKGROUND

The thyroid hormones regulate the body's metabolic rate which is also involved in weight gain and loss. Hypothyroidism lowers the metabolic rate and can be associated with weight gain, as has been shown in many studies. Indeed, obesity is associated with increased levels of thyroid stimulating hormone (TSH) into the hypothyroid range which then decrease with weight loss. Also, there is some evidence that obese adults are more likely to have positive TPO antibodies than do normal weight adults. TPO antibodies indicate the presence of autoimmune thyroid disease which is the most common cause of hypothyroidism in the United States. This study was designed to examine the relationship between childhood weight gain and subsequent hypothyroidism and autoimmune thyroid disease in adults aged 60-64.

THE FULL ARTICLE TITLE

Ong KK et al on behalf of the Medical Research Council National Survey of Health Development Scientific Data Collection Teams. Childhood weight gain and thyroid autoimmunity at age 60-64 years: the 1946 British Birth Cohort Study. J Clin Endocrinol Metab. February 22, 2013 [Epub ahead of print].

SUMMARY OF THE STUDY

As part of the United Kingdom Medical Research national Council Survey of Heath and Development, 2547 women and 2815 men born during a single week in 1946 were followed until age 64. Birth weight and height and weight were measured at multiple time points. At ages 60 to 64, 3163 subjects were sent a survey with questions about thyroid disease and 2143 individuals underwent blood tests for TSH, free thyroxine (free T_3) and anti-TPO. The effect of being overweight or obese at age 14 and weight gain between 0 and 14 years on later thyroid status at age 60-64 was examined.

At ages 60-64, 10.9% of women and 2.3% of men were taking thyroid hormone supplementation (levothyroxine) and 11.5% of women and 3.3% of men had TPO antibodies. Women who were taking levothyroxine had higher body mass index and weight than women not taking thyroid hormone and had higher body weights at all time points beginning at age 6 years. Body weight also was higher in adult women who had TPO antibodies in their blood. Women who showed a greater weight gain between birth and age 14 also had an increased likelihood of levothyroxine use and for the presence of TPO antibodies at age 60-64. None of these associations were observed in men.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study showed that more rapid weight gain in childhood is associated with an increased risk for hypothyroidism and presence of autoimmune thyroid disease later in life in women, but not in men. However, childhood obesity at age 14 is associated with the occurrence of adult hypothyroidism in both sexes. Although this study has a number of limitations, it does suggest that the marked increase in overweight and obese children and adolescents in the United States may result in an increase in adult hypothyroidism and thyroid autoimmunity in the future.

— Glenn Braunstein, MD

ATA THYROID BROCHURE LINKS

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

Thyroid and Weight: http://www.thyroid.org/weight-loss-and-thyroid

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

Thyroiditis: http://www.thyroid.org/what-is-thyroiditis

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HYPOTHYROIDISM, continued

ABBREVIATIONS & DEFINITIONS

Autoimmune thyroid disease: a group of disorders that are caused by antibodies that get confused and attack the thyroid. These antibodies can either turn on the thyroid (Graves' disease, hyperthyroidism) or turn it off (Hashimoto's thyroiditis, hypothyroidism).

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

Levothyroxine (T_3): 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.

Thyroxine (T_3): the major hormone produced by the thyroid gland. T_3 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.

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

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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THYROID CANCER

Rising thyroid cancer rates are not related to socioeconomic status and access to medical care

BACKGROUND

Thyroid cancer is the fastest rising cancer in women. Indeed, the rates of thyroid cancer in the U.S. have been increasing over the past 30 years. The reason for this increase is largely unknown. Some believe that this is at least partly due to the more frequent use of thyroid ultrasound in recent years, which can detect smaller nodules not easily felt. Also, higher rates of thyroid cancer may be due to the more frequent use of thyroid biopsy of these smaller nodules over the last few decades. However, there has also been an increase in large cancers over the same time period. Access to health care to obtain thyroid exams and ultrasound is likely associated with socioeconomic status (SES). To determine if SES is associated with the recent increases in incidence of thyroid cancer, this study compared thyroid cancer incidence trends between low- and high-SES counties in the United States during the past three decades.

THE FULL ARTICLE TITLE

Li N et al. Impact of enhanced detection on the increase in thyroid cancer incidence in the United States: review of incidence trends by socioeconomic status within the Surveillance, Epidemiology, and End Results registry, 1980-2008. Thyroid 2013;23:103-10. doi: 10.1089/thy.2012.0392. PMID: 23043274.

SUMMARY OF THE STUDY

This study includes all of the U.S. cases of thyroid cancer reported to the Surveillance, Epidemiology and End Results 9 (SEER 9) database from 1980 to 2008. The SEER database contains cancer information on ~26% of the national population. The SES of these 49,819 thyroid cancer patients was looked at using information from the U.S. Census. The authors found that thyroid cancer rates have risen in the past 30 years without regard to whether patients lived near a big city or what the SES was of the county in which the patient lived.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The study shows us that the increasing rate of thyroid cancer in the U.S. is likely real and not a factor related to whether patients have good access to medical care or the level of their SES. However, these implications must be interpreted with caution. Only the information from about a quarter of the U.S. population is recorded in the SEER database and therefore it may not be truly representative of the entire nation. Also, the U.S. Census information provides socioeconomic data only by county, and, thus, is not applicable to an individual person. This study does suggest, however, that rising thyroid cancer rates are not affected by these factors.

— Angela M. Leung, MD, MSc

ATA THYROID BROCHURE LINKS

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

ABBREVIATIONS & DEFINITIONS

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

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

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.

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THYROID CANCER, continued

SEER: Surveillance, Epidemiology and End Results program, a nation-wide anonymous cancer registry generated by the National Cancer Institute that contains information on 26% of the United States population. Website: http://seer.cancer.gov/

Socioeconomic status (SES): an estimated measure of a person's or group's social and economic status compared to others in the general population. The information is based on income level, education and occupation.

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THYROID CANCER

Thyroid cancer exhibits aggressive behavior in Graves' disease

BACKGROUND

There has been some controversy about the aggressiveness of thyroid cancer diagnosed in patients with active Graves' disease. A previous study by the same authors reported that thyroid cancer is more aggressive and has a poorer prognosis in patients with Graves' disease. This study investigates the long-term disease-specific mortality of thyroid cancer in patients with active Graves' disease as compared with thyroid cancer in patients who do not have Graves' disease and are not hyperthyroid.

THE FULL ARTICLE TITLE

Pellegriti G et al, Increased mortality in patients with differentiated thyroid cancer associated with Graves' disease. J Clin Endocrinol Metab 2013; 98:1014-21. Epub January 24, 2013.

SUMMARY OF THE STUDY

A total of 21 patients with thyroid cancer and active Graves' disease were compared with 70 patients with thyroid cancer but without Graves' disease and with normal thyroid function. All patients underwent total thyroidectomy and were followed according to a standardized protocol. After a period of follow-up ranging from 50 to 364 months (average 166 months) patients were evaluated for persistent/recurrent cancer and overall survival. Persistent/recurrent cancer was significantly more common in patients with Graves' disease than in control patients. A total of 9 of 21 patients with Graves' disease (42.9%) had persistent/recurrent cancer as compared to only 9 of 70 control patients (12.9%). Disease specific mortality was also significantly higher in patients with Graves' disease (6 of 21, 28.6%) compared to the control group (2 of 70, 2.9%).

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The findings of this study suggest that patients with Graves' disease should be followed carefully for thyroid nodules and that those patients with thyroid cancer and active Graves' disease be treated more aggressively than those thyroid cancer patients without active Graves' disease.

— Frank Crantz, M.D., FACP, FACE

ATA THYROID BROCHURE LINKS

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

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

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

ABBREVIATIONS AND 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.

Graves' disease: the most common cause of hyperthyroidism in the United States. It is caused by antibodies that attack the thyroid and turn it on.

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

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THYROID CANCER

Long-term surveillance with serum thyroglobulin might not be worthwhile in patients with very-low-risk thyroid cancer

BACKGROUND

The usual treatment after a diagnosis of thyroid cancer is surgery to remove the entire thyroid. The decision to treat with radioactive iodine after surgery has markedly changed from the practice of treating almost all patients. Currently, most low risk patients are not treated with radioactive iodine. This change has implications in long-term follow up of patients. The stimulated serum thyroglobulin level in patients who have had thyroidectomy and radioiodine therapy allows a good estimation of persistent or recurrent cancer in patients, as no detectable thyroglobulin should be present in those who have been cured of cancer. It is unclear how useful serum thyroglobulin measurement is in patients that have not been treated with radioactive iodine. The goal of this study was to determine the trend over time of serum thyroglobulin levels in patients with low-risk thyroid cancer who did not undergo radioactive iodine therapy.

THE FULL ARTICLE TITLE

Durante C, et al. Long-term surveillance of papillary thyroid cancer patients who do not undergo postoperative radioiodine remnant ablation: is there a role for serum thyroglobulin measurement? J Clin Endocrinol Metab 2012;97;2748-53.

SUMMARY OF THE STUDY

In this retrospective multicenter study, the authors examined the records of 290 patients with low-risk thyroid cancer (median cancer size 4 mm) who were treated with total or near-total thyroidectomy, but were not given radioactive iodine and compared this cohort with a group of 495 patients who did receive radioactive iodine (median cancer size 12 mm). There was only 1 cancer recurrence observed and it was in the group that did not receive radioactive iodine. However, serum thyroglobulin levels were detectable in 5% of the patients who did not receive radioactive iodine and in 1% of the patients who did get treated with radioactive iodine. In 98.7% (77 of 78) of patients with a detectable serum thyroglobulin level, the level either declined or remained stable over time.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The authors argue that it is difficult to interpret the serum thyroglobulin levels in patients who have not had radioactive iodine after thyroidectomy and that neck ultrasound is more accurate to identify cancer recurrence. Based on this, they conclude that serum thyroglobulin may not be a reliable marker of cancer burden in patients who have not had radioactive iodine therapy. However, the important observation that the thyroglobulin level declined over time is consistent with the low risk of cancer recurrence in these patients. Further studies will help to sort out how best to monitor low risk cancer patients over the long-term.

— 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

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.

Total thyroidectomy: surgery to remove the entire thyroid gland.

Near-total thyroidectomy: removal of nearly all of each thyroid lobe, leaving only a small portion of the thyroid gland.

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.

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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ATA Alliance for Thyroid Patient Education

WELCOME

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

GOAL

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

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

WHO WE ARE (in alphabetical order)

AMERICAN THYROID ASSOCIATION

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

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

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

GRAVES' DISEASE AND THYROID FOUNDATION

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

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

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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.SM www.thyca.org

GRAVES' DISEASE & THYROID FOUNDATION

Thyroid Cancer Canada
Cancer de la thyroïde Canada

Light of Life Foundation checkyourneck.com

Thyroid Federation International