

CLINICAL THYROIDOLOGY FOR PATIENTS



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THYROID CANCER

Perchnetate thyroid scanning is a low-cost and widely available option for patients who require thyroid imaging before Radioactive Iodine therapy

After surgery for thyroid cancer, many patients are treated with Radioactive Iodine. Prior to this treatment, a thyroid scan is often performed to document how much normal thyroid tissue is remaining. Perchnetate is another isotope that can be used to image thyroid tissue. The present study examines the effectiveness of perchnetate in performing scan in thyroid cancer patients prior to Radioactive Iodine therapy.

Kueh SS et al. Role of tc-99m perchnetate for remnant scintigraphy post-thyroidectomy. Clin Nucl Med 2010;35:671-43

THYROID CANCER

Care should be taken in interpreting blood thyroglobulin levels in thyroid cancer

Thyroglobulin levels are now the major tool to track the treatment and recurrence of thyroid cancer and thyroglobulin levels are generally directly related to the amount of cancer present. The major limitation to this is the presence of anti-thyroglobulin antibodies which occur in ~25% of thyroid cancer patients and which make the thyroglobulin measurement inaccurate. These antibodies are easily detected in routine testing. However, there can be other antibodies that can possibly affect the measurement of thyroglobulin, including heterophile antibodies (antibodies directed against foreign proteins but interfering in the thyroglobulin assays). These antibodies usually cause measurements that are higher than the actual level. This study was performed to determine if heterophile antibodies were common enough to be a concern.

Verburg FA et al. Heterophile antibodies rarely influence the measurement of thyroglobulin and thyroglobulin antibodies in differentiated thyroid cancer patients. Horm Metab Res 2010. 10.1055/s-0030-1254132 [doi]5

THYROID HORMONE AND PREGNANCY

Transient hypothyroxinemia may affect brain development in preterm infants

Thyroid hormone is very important for normal brain development during pregnancy. When a baby is born prematurely, thyroid

hormone levels are frequently lower than normal for a period of time then increase back to the normal range (transient hypothyroxinemia). This study was done to correlate the thyroid hormone levels in babies with transient hypothyroxinemia with brain development at the age of 5 years to determine if there were any abnormalities.

Delahunty C et al. Levels of neonatal thyroid hormone in preterm infants and neurodevelopmental outcome at 5½ years: Millennium Cohort Study. J Clin Endocrinol Metab 2010. jc.2010-0743 [pii];10.1210/jc.2010-0743 [doi].....7

THYROID AND BONE

Thyroid Hormone Levels and Bone Density in Men

It is known that thyroid hormones affect bone metabolism and that individuals with hyperthyroidism have a lower bone mineral density than people whose thyroid hormones are normal. It is unclear if this relationship remains in patients whose thyroid hormone levels are in the normal range. This study looked at the relationship between bone mineral density and the levels of thyroid hormone in patients whose TSH levels were within the normal range to see if individuals whose thyroid hormones were in the upper part of the normal range might have lower bone mineral density than those in the lower part of the normal range.

Kim et al. The association between serum thyrotropin (TSH) levels and bone mineral density in healthy euthyroid men. Clin Endocrinol (Oxf) 2010;73:396-403. doi.1111/j.1365-2265.2010.03818.x.....8

THYROID AND PREGNANCY

TSH concentration is increased and FT₄ is decreased in pregnancies resulting in miscarriage or fetal death

It is clear that an underactive thyroid (hypothyroidism) has been associated with an increased risk of miscarriage and fetal death. It is unclear at what level of hypothyroidism the risk of miscarriage starts to increase. This study compared the TSH and T₄ levels in the women whose pregnancy ended in miscarriage or fetal death with the TSH and T₄ levels in women who had a live birth.

Ashoor G et al. Maternal thyroid function at 11 to 13 weeks of gestation and subsequent fetal death. Thyroid. 2010; 20(9):989-993.....10

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Clinical Thyroidology for Patients

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CLINICAL THYROIDOLOGY FOR PATIENTS

A publication of the American Thyroid Association

VOLUME 3 • ISSUE 10 • OCTOBER 2010

EDITOR'S COMMENTS

Welcome to *Clinical Thyroidology for Patients*. This publication is a collection of summaries of the top articles from the recent medical literature that cover the broad spectrum of thyroid disorders. *Clinical Thyroidology for Patients* is published on a monthly basis and includes summaries of research studies that were discussed in the previous month's issue of *Clinical Thyroidology*, a publication of the American Thyroid Association for physicians. This means that you, the patients, are getting the latest information on thyroid research and treatment almost as soon as your physicians. The **Calendar of Events** highlights educational forums and support groups that are organized around the country by members of the **Alliance for Thyroid Patient Education**. The Alliance member groups consist of: the *American Thyroid Association*, the *Graves' Disease Foundation*, the *Light of Life Foundation* and *ThyCa: Thyroid Cancer Survivors Association*.

In this issue, studies ask the following questions:

- Are there other types of thyroid imaging studies that may be helpful in patients with thyroid cancer?
- Do antibodies affect measurement of thyroglobulin levels in thyroid cancer patients?
- Should we be concerned with transiently low thyroid hormone levels in preterm infants?
- Is there a correlation between thyroid hormone levels and bone density in men?
- Is there an association between thyroid hormone levels in the normal range and miscarriage?

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

— Alan P. Farwell, MD

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



THYROID CANCER

Pertechnetate thyroid scanning is a low-cost and widely available option for patients who require thyroid imaging before Radioactive Iodine therapy

WHAT IS THE STUDY ABOUT?

Following initial surgery for thyroid cancer, there is almost always a small amount of residual thyroid tissue remaining. Many patients are treated with Radioactive Iodine to destroy any remaining thyroid cancer cells as well as this remaining thyroid tissue. Prior to the Radioactive Iodine treatment, a thyroid scan using a small amount of Radioactive Iodine is often performed to document how much normal thyroid tissue is remaining. There is some concern that this small amount of Radioactive Iodine may interfere with the larger dose of Radioactive Iodine. Pertechnetate is another isotope that can be used to image thyroid tissue. The present study examines the effectiveness of pertechnetate in performing scan in thyroid cancer patients prior to Radioactive Iodine therapy.

THE FULL ARTICLE TITLE:

Kueh SS et al. Role of tc-99m pertechnetate for remnant scintigraphy post-thyroidectomy. Clin Nucl Med 2010;35:671-4.

WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to examine the effectiveness of pertechnetate in performing scans in thyroid cancer patients prior to Radioactive Iodine therapy.

WHO WAS STUDIED?

The study group included 70 patients with thyroid cancer who were treated with Radioactive Iodine between 1995 and 2006 at the Royal North Shore Hospital Department of Nuclear Medicine in Sydney, Australia.

HOW WAS THE STUDY DONE?

The patients underwent whole body scanning using pertechnetate 3 to 6 weeks following total thyroidectomy. The patients were treated with Radioactive Iodine within a week after the pertechnetate scan. A post-Radioactive iodine Whole Body Scan was performed following the treatment and this scan was compared to the pertechnetate scan.

WHAT WERE THE RESULTS OF THE STUDY?

Of the 70 patients, 2 (3%) had negative post-Radioactive Iodine scans. Both of these patients also had negative pre-treatment pertechnetate scans. Of the remaining 68 patients, 55 (81%) were positive for at least one site on the pertechnetate scan, 6 (9%) had equivocal uptake and 7 (10%) had negative scans. A total of 54 of the 55 positive pertechnetate scans (98%) showed uptake that correlated with at least one site on the post-ablation ¹³¹iodine scan. One patient (2%) had uptake at different sites, though both the pertechnetate and post-Radioactive Iodine scan were positive. All six equivocal pertechnetate scans were also positive on the post-Radioactive Iodine scan. Thus, all of the positive or equivocal pertechnetate scans were associated with a positive post-Radioactive Iodine scan.

HOW DOES THIS COMPARE WITH OTHER STUDIES?

Previous studies have demonstrated that low-dose Radioactive Iodine scans have a relatively low sensitivity for identifying residual thyroid tissue and can interfere with the effectiveness of the high-dose Radioactive Iodine treatment. This study suggests that the pertechnetate scans are more effective in identifying residual thyroid tissue and do not interfere with Radioactive Iodine treatment.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study supports the use of pertechnetate, an inexpensive and readily-available radioactive imaging agent, for pretreatment scanning following initial surgery for thyroid cancer.

— Frank Craz, MD

ATA THYROID BROCHURE LINKS

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

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THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

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

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

Pertechnetate thyroid scan — pertechnetate is another radioactive substance that is taken up by the thyroid in a similar fashion to iodine and that can be used to image thyroid tissue.



THYROID CANCER

Care should be taken in interpreting blood thyroglobulin levels in thyroid cancer

WHAT IS THE STUDY ABOUT?

Thyroglobulin is the major protein produced by functioning thyroid cells, both normal and cancerous. In patients with thyroid cancer, thyroglobulin can be used as a cancer marker after all of the normal thyroid tissue is removed by thyroidectomy and radioactive iodine therapy. Indeed, blood thyroglobulin levels are now the major tool to track the treatment and recurrence of thyroid cancer; thyroglobulin levels are generally directly related to the amount of cancer present. The major limitation to this is the presence of anti-thyroglobulin antibodies which occur in ~25% of thyroid cancer patients and which make the thyroglobulin measurement inaccurate. These antibodies are easily detected in routine testing. However, there can be other antibodies that can possibly affect the measurement of thyroglobulin, including heterophile antibodies (antibodies directed against foreign proteins but interfering in the thyroglobulin assays). These antibodies usually cause measurements that are higher than the actual level. These antibodies are not usually measured and it is not known how common they are. This study was performed to determine if heterophile antibodies were common enough to be a concern.

FULL ARTICLE TITLE:

Verburg FA et al. Heterophile antibodies rarely influence the measurement of thyroglobulin and thyroglobulin antibodies in differentiated thyroid cancer patients. *Horm Metab Res* 2010. 10.1055/s-0030-1254132 [doi]

WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to determine if heterophile antibodies occur frequently enough to be a concern in routine clinical assays for thyroglobulin.

WHO WAS STUDIED?

Blood was collected from 201 thyroid cancer patients in Germany, Switzerland and The Netherlands as well as another 52 control patients who did not have thyroid cancer.

HOW WAS THE STUDY DONE?

All blood samples were divided in half. Part was run in routine assays for thyroglobulin and anti-thyroglobulin antibodies and the other part was first incubated for one hour in test tubes that contained substances that blocked heterophile antibodies and then run in the same routine assays.

WHAT WERE THE RESULTS OF THE STUDY?

In only 2 of the 201 (1%) thyroid cancer patients blood tests was there a difference between the routine assays and the assays after the serum was incubated. In neither of these two patients was the difference great enough to affect clinical management. In all the testing performed, there was a difference in only 0.4% of tests.

HOW DID THIS COMPARE WITH OTHER STUDIES?

Higher percentages of heterophile antibody interference have been found in other studies. The current study suggests that antibody interference may be lower than suggested by previous studies, but this interference may still be present in a few patients.

WHAT ARE THE IMPLICATIONS OF THIS AND THE OTHER STUDIES?

While antibodies to thyroglobulin may cause problems when following thyroglobulin levels in thyroid cancer patients, it does not appear that heterophile antibodies are a problem. However, it is always a consideration when the thyroglobulin level does not correlate with the clinical status of the patient.

— Henry Fein MD

ATA THYROID BROCHURE LINKS

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

Thyroid Function Tests: http://thyroid.org/patients/patient_brochures/function_tests.html

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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.


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.

Heterophile antibodies — antibodies directed against foreign proteins that may interfere with hormone assays. These antibodies often cause hormone measurements that are much higher than the actual levels.



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THYROID HORMONE AND PREGNANCY

Transient hypothyroxinemia may affect brain development in preterm infants

WHAT IS THE STUDY ABOUT?

Thyroid hormone is very important for normal brain development. During the third trimester of pregnancy, the baby gets thyroid hormone from the mother as well as its' own thyroid. When a baby is born prematurely, thyroid hormone levels are frequently lower than normal for a period of time then increase back to the normal range (transient hypothyroxinemia). It is unclear whether the effect of this period of low thyroid hormone levels has any effect on the baby's brain development. This study was done to correlate the thyroid hormone levels in babies with transient hypothyroxinemia with brain development at the age of 5 years to determine if there were any abnormalities.

THE FULL ARTICLE TITLE:

Delahunty C et al. Levels of neonatal thyroid hormone in preterm infants and neurodevelopmental outcome at 5½ years: Millennium Cohort Study. *J Clin Endocrinol Metab* 2010. jc.2010-0743 [pii];10.1210/jc.2010-0743 [doi]

WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to correlate the thyroid hormone levels in babies with transient hypothyroxinemia with brain development at the age of 5 years to determine if there were any abnormalities.

WHO WAS STUDIED?

The study group included 178 preterm infants age <34 weeks old and 100 full term infants >37 weeks old.

HOW WAS THE STUDY DONE?

In the hospital, thyroid hormone levels were assessed on day 7, 14 or 28 by using the serum thyroxine (T₄) level. Transient hypothyroxinemia was defined by a level of T₄ <10th percentile. The children were examined using specific tests (McCarthy Scale) and three psychologists were trained in the use of these scales and administered them on a regular basis over approximately 5 ½ years.

WHAT WERE THE RESULTS OF THE STUDY?

For all tests, a significantly higher proportion of infants with hypothyroxinemia as compared with normal

infants scored in the bottom 5% of values. Infants with hypothyroxinemia had significantly lower testing scores in verbal skills and in general brain developmental scores.

HOW DOES THIS COMPARE WITH OTHER STUDIES?

Other studies have found that having severe hypothyroxinemia in preterm infants can cause problems in brain development at a later age. There are conflicting studies as to the benefit of treating infants with thyroid hormone.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that it is important to identify transient hypothyroxinemia in all infants because it can have significant long term effects on the child. Whether or not this should be treated with thyroid hormone is unclear and will require further clinical trials.

— Heather Hofflich, MD

ATA THYROID BROCHURE LINKS

Thyroid Function Tests: http://thyroid.org/patients/patient_brochures/function_tests.html

Hypothyroidism: http://thyroid.org/patients/patient_brochures/hypothyroidism.html

ABBREVIATIONS & DEFINITIONS

Thyroxine (T₄) — the major hormone secreted by the thyroid gland. Thyroxine is broken down to produce Triiodothyronine which causes most of the effects of the thyroid hormones.

Transient hypothyroxinemia — temporary decrease in the blood level of thyroxine (T₄) after delivery in preterm infants, followed by the return of normal levels in the absence of any treatment.



THYROID AND BONE

Thyroid Hormone Levels and Bone Density in Men

WHAT IS THE STUDY ABOUT?

It is well established that thyroid hormones affect bone metabolism. Bone turnover is increased in hyperthyroidism and decreased in hypothyroidism. This suggests that individuals with hyperthyroidism have a lower bone mineral density than people whose thyroid hormones are normal. This lower bone mineral density probably places hyperthyroid patients at a greater risk for osteoporotic fractures of the spine, hips and wrists. Conversely, individuals with hypothyroidism may have a higher bone density and thus be at lower risk for osteoporotic fractures. While these relationships are established in patients with thyroid hormone levels outside of the normal range, it is unclear if the relationship remains in patients whose thyroid hormone levels are in the normal range. This study looked at the relationship between bone mineral density and the levels of thyroid hormone in patients whose TSH levels were within the normal range to see if individuals whose thyroid hormones were in the upper part of the normal range might have lower bone mineral density than those in the lower part of the normal range.

THE FULL ARTICLE TITLE:

Kim et al. The association between serum thyrotropin (TSH) levels and bone mineral density in healthy euthyroid men. *Clin Endocrinol (Oxf)* 2010;73:396-403. doi.1111/j.1365-2265.2010.03818.x

WHAT WAS THE AIM OF THE STUDY?

The aim of the study was to determine if there is a relationship between thyroid hormone levels and bone mineral density in individuals without thyroid disease.

WHO WAS STUDIED?

The study group was selected from a study population of 2000 Korean men undergoing a routine health screening program. A total of 1478 men were eligible for the study because they had normal thyroid stimulating hormone (TSH) levels, were not taking medications that affected the thyroid gland and did not have illnesses that could affect bone metabolism.

HOW WAS THE STUDY DONE?

The patients had an extensive history and physical examination, underwent a panel of blood tests and had

bone mineral density measurements made of their lumbar spine and the hip. The serum TSH level was used as the primary measure of thyroid function. The analysis took into account several of the other variables that can affect bone metabolism such as body mass index, smoking and drinking history and age.

WHAT WERE THE RESULTS OF THE STUDY?

After adjusting for smoking and drinking habits, there was a significant association between bone mineral density in the spine and the serum TSH. A low normal TSH was associated with a lower bone mineral density than did a high normal TSH. This association was not statistically significant for the hip after the results were adjusted for the independent effects of smoking and drinking on the bone. More individuals in the lowest 20% of normal TSH levels had osteopenia or osteoporosis of the spine than individuals in the highest 20% of normal TSH levels. Thus, there is an increased likelihood of lower bone mineral density in the spine of men with low normal TSH levels.

HOW DOES THIS COMPARE WITH OTHER STUDIES?

This is consistent with two similar studies carried out in women. One prior study that included men failed to show a relationship between TSH levels within the normal range and bone mineral density levels.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that a low normal TSH level in men is associated with a lower bone mineral density in the spine than men with high normal TSH levels. Despite these findings, it is unknown whether these findings translate into an increased risk for spinal fractures. As a result of this study, it is reasonable to counsel men with low normal TSH values about maintaining bone health with adequate calcium and Vitamin D intake.

— Glenn Braunstein, MD

ATA THYROID BROCHURE LINKS

Thyroid Function Tests: http://thyroid.org/patients/patient_brochures/function_tests.html

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THYROID AND BONE, continued

ABBREVIATIONS & DEFINITIONS

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

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

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.

Bone Mineral Density (BMD) — this is usually measured in the lumbar (lower) spine and the hip and the results give information as to the strength

of the bone and the risk of fractures. The results are expressed as T scores, which as standard deviations from the average bone density in a person in their 20s, when bone mass is the highest. A T score of -1 to -2.5 is termed Osteopenia and a T score >2.5 is termed Osteoporosis.

Osteoporosis — a decrease in bone mineral density in which the individual is at a significantly increased risk for fractures with little or no trauma or force. This occurs with a bone mineral density T score of >-2.5. The areas at highest risk for osteoporotic fractures are the wrist, spine and hip.

Osteopenia — a decrease in bone mineral density in which the individual is at a slightly increased risk for fractures with little or no trauma or force. This occurs with a bone mineral density T score between -1 and -2.5. The areas at highest risk for osteoporotic fractures are the wrist, spine and hip.



THYROID AND PREGNANCY

TSH concentration is increased and FT₄ is decreased in pregnancies resulting in miscarriage or fetal death

WHAT IS THE STUDY ABOUT?

Maintaining normal thyroid function in the mother during pregnancy is very important. It is clear that an underactive thyroid (hypothyroidism), where both the TSH is increased and the T₄ level is decreased, has been associated with an increased risk of miscarriage and fetal death. However, the association of miscarriage with mild hypothyroidism where the T₄ is normal and only the TSH is increased (subclinical hypothyroidism) has been less clear. Thus, it is unclear at what level of hypothyroidism the risk of miscarriage starts to increase. This study compared the TSH and T₄ levels in the women whose pregnancy ended in miscarriage or fetal death with the TSH and T₄ levels in women who had a live birth.

THE FULL ARTICLE TITLE:

Ashoor G et al. Maternal thyroid function at 11 to 13 weeks of gestation and subsequent fetal death. *Thyroid*. 2010; 20(9):989-993.

WHAT WAS THE AIM OF THE STUDY?

The aim of the study was to compare the TSH and T₄ levels in the women whose pregnancy ended in miscarriage or fetal death with the TSH and T₄ levels in women who had a live birth.

WHO WAS STUDIED?

A total of 202 women with a pregnancy that ended in miscarriage or fetal death were included in the study. All women were carrying only one child at the time they were consented to be enrolled in the study. Thyroid function tests of these 202 women whose pregnancy ended in fetal death were compared to 4318 women with normal pregnancies. Data from the 4318 women with normal pregnancies were collected as part of an earlier study by these investigators.

HOW WAS THE STUDY DONE?

Women presenting between 11 and 13 weeks gestation for their first medical visit during pregnancy were recruited to participate in the study. Basic information about the patients was obtained and blood samples for TSH, free T₃, Free T₄ and anti-thyroid antibodies were collected. There were a total of 202 women with pregnancies that ended in fetal loss/miscarriage. The thyroid function blood tests of these women that were collected between 11 and 13

weeks gestation were compared with results from women in which the pregnancy did not end in fetal loss.

WHAT WERE THE RESULTS OF THE STUDY?

The main results of this study are that the average TSH level was higher and the average Free T₄ level was lower in the women who suffered a fetal loss as compared to women with a live birth. In both cases, the mean Free T₄ and TSH levels were in the normal range. These results suggest there is a progression of risk of miscarriage as the TSH increases and the FT₄ decreases and that the mothers do not need to have abnormal values to be at risk. There were no differences in the presence of anti-thyroid antibodies between groups.

HOW DOES THIS COMPARE WITH OTHER STUDIES?

Several studies have shown that hypothyroidism in the mother is associated with reduced fertility and increased risk for miscarriages. There are conflicting studies about whether mild hypothyroidism is associated with fetal loss. This is the first study to show a risk for miscarriage with thyroid levels in the normal range.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests there is a progression of risk of miscarriage and fetal loss as the TSH increases and the FT₄ decreases and that the mothers do not need to have abnormal values to be at risk. It is unclear if treating patients with thyroid hormone would alter this risk. Further, since the patients in this study had normal thyroid function, it is unclear what parameters would be used to suggest treatment with thyroid hormone.

— Whitney Woodmansee, MD

ATA THYROID BROCHURE LINKS

Thyroid and Pregnancy: http://thyroid.org/patients/patient_brochures/pregnancy.html

Thyroid Function Tests: http://thyroid.org/patients/patient_brochures/function_tests.html

Hypothyroidism: http://thyroid.org/patients/patient_brochures/hypothyroidism.html

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THYROID AND PREGNANCY, continued

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.

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 (T₄) — the major hormone secreted by the thyroid gland. Thyroxine is broken down to produce

Triiodothyronine (T₃) which causes most of the effects of the thyroid hormones. Levothyroxine is the available medication to replace thyroid hormone.

Pregnancy Loss — Generally, this term refers to stillbirth and/or miscarriage. The term fetal loss is also used in this setting.

Miscarriage — this occurs when a baby dies in the first few months of a pregnancy, usually before 22 weeks of pregnancy.

Fetal death — this occurs when a baby dies later in pregnancy (usually after 22 weeks of pregnancy) before delivery.



ATA Alliance for Thyroid Patient Education

GOAL

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

WHO WE ARE

AMERICAN THYROID ASSOCIATION

www.thyroid.org

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

Find a Thyroid Specialist: www.thyroid.org

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

e-mail: thyroid@thyroid.org

ATA Mission: The ATA leads in promoting thyroid health and understanding thyroid biology.

ATA Vision: The ATA is the leading organization focused on thyroid biology and the prevention and treatment of thyroid disorders through excellence and innovation in research, clinical care, education, and public health.

ATA Values: The ATA values scientific inquiry, clinical excellence, public service, education, collaboration, and collegiality.

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

GRAVES’ DISEASE FOUNDATION

www.ngdf.org

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

e-mail: Gravesdiseasefd@gmail.com

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

LIGHT OF LIFE FOUNDATION

www.checkyourneck.com

email: info@checkyourneck.com

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

THYCA: THYROID CANCER SURVIVORS’ ASSOCIATION, INC.

www.thyca.org

Phone (toll-free): 877 588-7904

e-mail: thyca@thyca.org

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

