



THYROID AND PREGNANCY

Effects of detection and treatment of hypo- and hyperthyroidism in pregnancy

WHAT IS THE STUDY ABOUT?

Thyroid disease during pregnancy may be associated with a number of complications including miscarriage, preterm delivery, brain abnormalities in the children and postpartum thyroid inflammation in the mother. There are known risk factors for developing thyroid disease during pregnancy, including: a family history of autoimmune thyroid disease, presence of a goiter, signs and symptoms of thyroid disease, known thyroid dysfunction, history of type 1 diabetes mellitus or other autoimmune diseases, prior neck irradiation, or previous miscarriages or preterm deliveries. Pregnant women with these known risk factors are easily screened for thyroid disease with blood tests of TSH and thyroid peroxidase antibody (TPO AB, a marker of autoimmune thyroid disease). However, screening all pregnant women for the presence of thyroid disease regardless of risk factors is controversial and is not currently done on a routine basis. This study was designed to compare screening for thyroid disease in pregnant women with known risk factors for thyroid disease (case-finding group) as compared to screening all pregnant women for thyroid disease (universal screening group).

THE FULL ARTICLE TITLE:

Negro et al. Universal screening versus case finding for detection and treatment of thyroid hormonal dysfunction during pregnancy. *J Clin Endocrinol Metab* 2010. doi:10.1210/jc.2009-2009.

WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to determine the impact of universal screening for thyroid dysfunction on adverse outcomes in pregnant women.

WHO WAS STUDIED?

The study group included a total of 4562 women without a history of thyroid disease who were in their first trimester of pregnancy and attending pregnancy programs in Italy.

HOW WAS THE STUDY DONE?

The women were randomized into two groups: a case-finding group and the universal screening group. Within each group, women were divided into high risk (one or

more thyroid risk factors) or low risk (no risk factors). All women had blood tests for FT₄, TSH and TPO AB done.

Case-finding group: The blood tests in the high risk women were done immediately and, if they were abnormal, the women were treated according to guidelines. The blood tests in the low risk women were frozen and done after the pregnancy.

Universal screening group: The blood tests in all of the women were done immediately and if they were abnormal, the women were treated according to guidelines. Both groups were compared in regards to pregnancy outcomes.

WHAT WERE THE RESULTS OF THE STUDY?

Approximately 20% of women in both groups were classified as high risk.

Case-finding group: High risk patients: 95% had normal thyroid function, 4.4% were hypothyroid and 0.4% were hyperthyroid. Those with thyroid disease were treated. Low risk patients: 98% had normal thyroid function, 1.9% were hypothyroid and 0.2% were hyperthyroid. These latter patients were not treated because their blood was not analyzed until after delivery.

Universal screening group: 97% had normal thyroid function, 2.8% had hypothyroidism and 0.4% had hyperthyroidism. All patients with thyroid disease in this group were treated.

In the entire study, 59.5% of the women had no adverse outcomes, 25.6% had one, 6.6% had two and 3.5% had four or more. There was no difference in overall adverse outcomes between the Case Finding and Universal Screening groups. An adverse event was not significantly different for the women in the high risk as compared to the low risk universal-screening group (as all of those with abnormal results were treated), but it was higher for the low risk case-finding group, since those with hypothyroidism or hyperthyroidism were not detected or treated during the pregnancy.

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HOW DOES THIS COMPARE WITH OTHER STUDIES?

This represents the first prospective, randomized trial to compare case-finding with universal screening in the detection of thyroid disease in pregnant women.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

While universal screening did not result in a decrease in overall adverse outcomes, it did identify and allow treatment of thyroid dysfunction in a group of women with no thyroid risk factors which resulted in a significant

decrease in adverse outcomes in that group. The study also confirms that case-finding alone fails to detect the majority of pregnant women with thyroid disease. Further analysis needs to be performed to see if universal screening for thyroid disease in pregnancy is cost-effective.

— Glen Braunstein, MD

ATA THYROID BROCHURE LINKS

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

ABBREVIATIONS & DEFINITIONS

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.

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