AMERICAN THYROID ASSOCIATION
ATA | Founded 1923

Clinical Thyroidology® for the Public

VOLUME 12 | ISSUE 9 | SEPTEMBER 2019

THYROID AND PREGNANCY

Does treatment with thyroid hormone improve fertility in women with normal thyroid function but positive thyroid peroxidase antibodies?

BACKGROUND

While miscarriage and preterm births occur in many pregnancies, the risks increase in women with thyroid problems due to both thyroid overactivity and thyroid underactivity. The presence of thyroid antibodies in patients with thyroid problems indicates autoimmune thyroid disease and is also associated with an increase in miscarriage rates and preterm birth. However, when woman have very mild thyroid abnormalities, the data is less clear, as studies do not show an increase in complications with mild thyroid underactivity or overactivity. Women who have positive thyroid peroxidase antibodies (TPO antibodies) and even mild hypothyroidism are routinely treated with thyroid hormone replacement. The question is whether treatment with thyroid hormone helps women who have positive TPO antibodies only and normal thyroid hormone levels. A previous study looked at thyroid hormone replacement in women undergoing assisted pregnancy and found no effect. This study looks at women who have a history of miscarriage and infertility to see if thyroid hormone replacement in TPO antibody positive women improves fertility.

THE FULL ARTICLE TITLE

DhillonSmith RK et al 2019 Levothyroxine in women with thyroid peroxidase antibodies before conception. N Engl J Med 380:1316–1325. Epub 2019 Mar 23. PMID: 30907987.

SUMMARY OF THE STUDY

Patients were recruited from almost 20,000 women in the UK from December 2011 through January 2016 who were 16-40 years of age with a history of prior miscarriage or infertility who were trying to get pregnant and were determined to have positive TPO antibody and normal thyroid hormone levels. They could not have a treated thyroid disorder, heart problems or be on medication know to effect thyroid function. A total of 952 women agreed to participate. Half of the women received a low dose of thyroid hormone (50 mcg levothyroxine) daily while the other half received a placebo pill. The study looked at live births after 34 weeks pf pregnancy, clinical pregnancy at 7 weeks and miscarriage before 24 weeks. The subjects were a good representation in that 44% were over age 35 yr, 65% had previous miscarriage and 45% were receiving infertility treatment. While all had normal thyroid function, 31% had a TSH in the high normal range (above 2.5 mIU).

There was no difference in any of the outcomes measured. Clinical pregnancy occurred in 57% of treated group and 58% of placebo group. Similarly, live births after 34 weeks was not different (37% in both groups). Neither age over 35, number of previous miscarriages or TSH above 2.5 made any difference in outcome analysis. There was no significant difference in in miscarriage rates (28% treated, 30% placebo), preterm birth before 34 weeks (4% both), birth weight or stillborn babies.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

It does not appear that treatment with thyroid hormone improves pregnancy outcome in women who have positive TPO antibodies and have normal thyroid function. Even though we know the presence of TPO antibodies does increase the risk for miscarriage and preterm birth, treatment with thyroid hormone does not seem to help when thyroid function is still normal. Since over-treatment with thyroid hormone also has potential risk for pregnancy outcomes, this suggests that women with normal thyroid function should not be given thyroid hormone in an attempt to improve pregnancy outcomes even when TPO antibodies are positive.

— Marjorie Safran, MD

ATA THYROID BROCHURE LINKS

Hyperthyroidism in Pregnancy: https://www.thyroid.org/hyperthyroidism-in-pregnancy/

THYROID AND PREGNANCY, continued

ABBREVIATIONS & DEFINITIONS

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.

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.

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.