



## THYROID AND PREGNANCY

### Thyroid hormone replacement in pregnancy

#### WHAT IS THE STUDY ABOUT?

Thyroid hormone is essential for a baby to develop normally during pregnancy. For at least the first half of pregnancy, the fetus gets thyroid hormone from the mother. Development of the fetus may be harmed if the mother is hypothyroid during this time. It is known that women who are treated with levothyroxine for hypothyroidism before pregnancy often must increase their thyroid hormone replacement by 20-40% to keep their thyroid hormone levels within the normal range. Most physicians measure the levels of thyroid stimulating hormone (TSH) early in pregnancy and adjust the dose of levothyroxine accordingly. Sometimes this results in the patient becoming transiently hypothyroid before the dose is increased. This study examined whether increasing the thyroid hormone dose by two or three tablets a week as soon as the patient was found to be pregnant could keep the TSH levels within the normal range during pregnancy.

#### THE FULL ARTICLE TITLE:

Yassa et al. Thyroid hormone early adjustment in pregnancy (The THERAPY Trial). *J Clin Endocrinol Metab* 2010; May 12 [Epub ahead of print].

#### WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to determine whether increasing the thyroid hormone dose by two or three tablets a week as soon as the patient was found to be pregnant could keep the TSH levels within the normal range during pregnancy.

#### WHO WAS STUDIED?

The study group included 60 women with previously diagnosed hypothyroidism on stable doses of levothyroxine for at least 6 weeks. All women had a normal TSH before starting the study and becoming pregnant.

#### HOW WAS THE STUDY DONE?

The women were randomly assigned to take either two (Saturday and Wednesday) or three (Monday, Wednesday and Friday) extra tablets a week of levothyroxine once pregnancy was confirmed, resulting in a 29% or 43% increase in their weekly dose of levothyroxine. Blood TSH levels were checked every 2 weeks until 20 weeks of pregnancy and once more at 30 weeks. The levothyroxine dose was adjusted as necessary at 4, 8, 12, 16, 20 and

30 weeks to keep the TSH levels between 0.01 and 2.5 mIU/L for patients with thyroid cancer and between 0.05 and 5.0 mIU/L in patients without thyroid cancer.

#### WHAT WERE THE RESULTS OF THE STUDY?

A total of 48 women completed the protocol. The miscarriage rate (16.6%) was the same as the expected rate for this age group of pregnant women. During the middle third of pregnancy, 8% of the women who took two extra tablets had a high TSH (>5 mIU/ml) and 32% had a low TSH (<0.5 mIU/ml), while 4% of the women who took three extra tablets had a high TSH and 65% had a low TSH. The major factor that predicted excessive suppression of the TSH was a dose of levothyroxine of at least 100 µg per day before pregnancy. The study authors concluded that an increase of two levothyroxine tablets at the time pregnancy is confirmed significantly reduces the risk of hypothyroidism occurring in the mother during the first trimester. They recommend checking the serum TSH levels every 4 weeks through the second trimester.

#### HOW DOES THIS COMPARE WITH OTHER STUDIES?

Other studies have shown that the dose of levothyroxine must be increased during pregnancy. This study provides a simple, practical method to achieve the desired TSH concentration to keep the mother from becoming hypothyroid during the pregnancy.

#### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

It is important to avoid hypothyroidism in the mother because it can lead to problems with the pregnancy as well as developmental defects in the fetus. Because women who are hypothyroid and on stable doses of levothyroxine before pregnancy require more thyroid hormone early in pregnancy, the technique for increasing the dose described here—taking two extra tablets per week as soon as pregnancy is diagnosed—should help decrease hypothyroid-related pregnancy disorders.

— Glen Braunstein, MD

#### ATA THYROID BROCHURE LINKS

**Thyroid and Pregnancy:** [http://thyroid.org/patients/patient\\_brochures/pregnancy.html](http://thyroid.org/patients/patient_brochures/pregnancy.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.

**Levothyroxine:** the major hormone produced by the thyroid gland and available in pill form as Levoxyl™, Synthroid™, Levothroid™ and generic preparations.

**Thyroxine (T<sub>4</sub>):** 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.

**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.