

**THYROID AND PREGNANCY****Higher TSH values before pregnancy are associated with adverse pregnancy outcomes****BACKGROUND**

Thyroid hormone has an important role in brain development of the baby during pregnancy. It is clear that overt hypothyroidism (increased TSH levels and low thyroid hormone levels) in the mother, especially early in pregnancy, can affect the baby's brain development or cause other problems with the pregnancy. It is not clear if subclinical hypothyroidism (increased TSH levels and normal thyroid hormone levels) would have similar adverse effects. Previous studies that have been done on this topic have shown mixed results.

In the current study, the authors studied the effect of subclinical hypothyroidism detected before pregnancy on complications of pregnancy.

THE FULL ARTICLE TITLE

Chen S et al. Preconception TSH levels and pregnancy outcomes: a population-based cohort study in 184,611 women. *Clin Endocrinol (Oxf)*. March 25, 2017 [Epub ahead of print].

SUMMARY OF THE STUDY

Between 2010 and 2012, 248,501 patients were enrolled in this study in 30 different provinces in China. A free exam is offered in rural china to couples planning pregnancy within 6 months. Before pregnancy, health related information and a blood test for TSH were obtained. In the study period, 194,154 pregnancies occurred, but subjects with pregnancy loss or twin and triple pregnancies and with TSH (obtained before pregnancy) level less than 0.48 and more than 10 mIU/l were excluded from the study. A total of 184,611 pregnant women who had a TSH level between 0.48 to 10 mIU/l before pregnancy were selected. These patients were divided into 3 groups: TSH level of 0.48 to 2.49 mIU/L (considered normal),

TSH 2.5-4.29 mIU/L and TSH 4.3-10 mIU/L. The rate of pregnancy complications like miscarriage, premature delivery and caesarean delivery, as well as birth weight of their newborn compared between these groups.

The results showed, as compared with mothers with a TSH 0.48-2.49 mIU/L, mothers with a TSH level between 2.50 to 4.29 mIU/L prior to pregnancy were more likely to have a miscarriage, premature delivery, vaginal delivery assisted with forceps and vacuum while mothers with TSH level between 4.3 to 10 mIU/L had higher rate of miscarriage, loss of pregnancy in second half of pregnancy, premature delivery, cesarean section and large infants.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that higher TSH levels before pregnancy, even when they are borderline high, may be associated with a higher rate of miscarriage, pregnancy loss, cesarean section and large infants. The connection between a TSH level before pregnancy and complications of pregnancy has not been studied in such a large scale before. What is not clear is whether treating mothers with higher TSH levels would have any effect on these results, so more studies should be done to evaluate this possibility. However, this study suggests that women with borderline high TSH level should have subsequent TSH testing in the beginning of pregnancy and be referred for treatment if necessary.

— Shirin Haddady, MD

ATA THYROID BROCHURE LINKS

Pregnancy and Thyroid Disease: <https://www.thyroid.org/thyroid-disease-pregnancy/>

Thyroid Function Tests: <https://www.thyroid.org/thyroid-function-tests/>

ABBREVIATIONS & DEFINITIONS

Overt Hypothyroidism: clear hypothyroidism an increased TSH and a decreased T₄ level. All patients with overt hypothyroidism are usually treated with 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.

**THYROID AND PREGNANCY**, 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.

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

Thyroid Awareness Monthly Campaigns

The ATA will be highlighting a distinct thyroid disorder each month and a portion of the sales for Bravelets™ will be donated to the ATA. The month of **August** is [Thyroid and Pregnancy Awareness Month](#) and a bracelet is available through the [ATA Marketplace](#) to support thyroid cancer awareness and education related to thyroid disease.

