

**THYROID AND PREGNANCY****Low TSH levels early on in pregnancy may be normal****BACKGROUND**

Thyroid hormone is essential for the normal development of the baby during pregnancy. During the first half of pregnancy, the presence of thyroid hormones in the developing baby is entirely dependent on the mother since the baby's thyroid does not begin to function until the 2nd trimester. Abnormal thyroid function in the mother during pregnancy may increase the risk of miscarriage and other pregnancy complications. The American Thyroid Association has published several guidelines for the detection and management of thyroid problems during pregnancy. Thyroid hormone levels in the mother do change during pregnancy. This study examined these changes to determine the normal ranges of thyroid hormones during pregnancy.

THE FULL ARTICLE TITLE

Laurberg P et al Dynamics and predictors of serum TSH and fT_4 reference limits in early pregnancy: a study within the Danish National Birth Cohort. *J Clin Endocrinol Metab* 2016;101:2484-92. Epub April 26, 2016.

SUMMARY OF THE STUDY

Pregnant women under study were part of the Danish National Birth Cohort, in which participants had their first pregnancy visit in a general practice, including the sampling of blood to be stored deep-frozen at the Danish National Biobank. About 50% of Danish pregnant women were invited; 60% of these women agreed to participate. The pregnancy included in the present study was the woman's first pregnancy recorded in the DNBC, with the delivery of a single child. Gestational age at birth had to be in the 25-to-45-week range. Women were interviewed before gestational week 30 with regard to smoking during the pregnancy, prepregnancy alcohol intake, and prepregnancy BMI. Information was also available by linking to Danish nationwide health registers and Statistic Denmark for population characteristics. Among the 71,706 women who fulfilled the criteria, 8605 were selected as a 12% random sample. Of this sample, 6671 healthy participants with normal thyroid function initially were included in the study.

TSH levels decreased gradually at weeks 5 to 6 to the lowest point at weeks 9 to 12 (range 0.07 - 3.28 mU/L). This is followed by a rise back to an intermediate value at weeks 15 to 19 (range 1.29 - 3.29 mU/L). The largest changes occurred at the lower end of the range as the lower limit of TSH was 0.37 at weeks 5 to 6, 0.059 at weeks 10 to 11 and 0.11 at weeks 13 to 19. Serum fT_4 changes were the reverse of those of TSH, but much less pronounced. The authors considered two phases with relatively stable TSH levels: (a) a normal TSH period corresponding to gestational weeks 5 to 6, during which non-pregnant reference TSH and fT_4 values are appropriate, and (b) a low TSH period, corresponding to weeks 9 to 12 with TSH reference limit values lower and fT_4 reference limit values slightly higher than non-pregnant levels. In general, the low range of TSH was higher in obese women. Smoking did not affect TSH values, but the fT_4 was slightly higher in nonsmoking pregnant women.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This article clearly shows that TSH values vary significantly during the first trimester of pregnancy. Changes encompass two stable periods, the normal TSH one at the very beginning of pregnancy and the low TSH one at weeks 9 to 12. This is followed a partial return of TSH to the initial values. This is important for the evaluation of thyroid function in women during pregnancy and clearly shows that a low TSH can be normal early on in pregnancy and should not be treated.

— Alan P. Farwell, MD, FACE

ATA THYROID BROCHURE LINKS

Thyroid Disease and Pregnancy:

<http://www.thyroid.org/thyroid-disease-pregnancy/>

Thyroid Function Tests:

<http://www.thyroid.org/thyroid-function-tests/>



THYROID AND PREGNANCY, continued

ABBREVIATIONS & DEFINITIONS

Body-mass index (BMI): a standardized measure of obesity calculated by dividing the weight in kilograms by the square of the height. A normal BMI is 18.5-24.9, overweight is 25-30 and obese is >30.

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

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.

