



## HYPOTHYROIDISM

# Should women with subclinical hypothyroidism receive thyroid hormone replacement prior to and during pregnancy?

### BACKGROUND

Overt hypothyroidism occurs when the TSH level is increased and the free thyroxine level (FT<sub>4</sub>) is low. This can cause severe symptoms and is associated with an increased incidence of infertility, miscarriage and other adverse outcomes in those women who are trying to conceive or those who are already pregnant. It is clear that overt hypothyroidism should be treated with thyroid hormone replacement- usually levothyroxine. Subclinical hypothyroidism occurs when the TSH level is increased but the FT<sub>4</sub> level remains within the normal range. This is a milder form of the hypothyroidism and may not need to be treated in the absence of pregnancy. Controversy exists whether the subtle abnormalities of thyroid function in subclinical hypothyroidism are truly associated with infertility and miscarriage and whether treatment with thyroid hormone reduces these events. Additionally, the definition of subclinical hypothyroidism differs between the non-pregnant and pregnant state. The former is diagnosed when the TSH is above 4.5-5.0 mIU/L, whereas it is well accepted that a TSH greater than 2.5 mIU/L is diagnostic of subclinical hypothyroidism during the first trimester of pregnancy. In this study, the Practice Committee of the American Society for Reproductive Medicine reviewed the evidence and developed guidelines for treating subclinical hypothyroidism in women with a history of infertility and miscarriage.

### THE FULL ARTICLE TITLE

Practice Committee of the American Society for Reproductive Medicine. Subclinical hypothyroidism in the infertile female population: a guideline. *Fertil Steril* 2015;104:545-53.

### SUMMARY OF THE STUDY

In developing their recommendations, the authors performed a systematic literature search of English

language studies examining overt and subclinical hypothyroidism in pregnancy which were published between 1966-2014. The quality of each study was evaluated using standardized criteria. Based upon their review the authors concluded that there was insufficient evidence that subclinical hypothyroidism is associated with infertility when using a TSH in the range of 2.5-4.0 mIU/L; however, there was fair evidence that TSH levels greater than 4.0 mIU/L was associated with miscarriage. There was also fair evidence that treatment of subclinical hypothyroidism with thyroid hormone replacement when TSH levels are greater than 4.0 mIU/L is associated with improved pregnancy rates and decreased miscarriage rates. But there was limited evidence to support treatment with thyroid hormone when TSH levels prior to pregnancy are only between 2.5 and 4 mIU/L. In this setting, management options include either monitoring levels and treating when exceeds TSH >4 mIU/L, or treating with levothyroxine to maintain TSH <2.5 mIU/L.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Despite the fact that there were very few published randomized controlled trials available for the authors to base their recommendations, this study may help guide physicians in treating their patients with subclinical hypothyroidism who are either attempting to become pregnant or are in the first trimester of pregnancy. These guidelines suggest thyroid hormone replacement in women with TSH levels >4 is associated with improved pregnancy rates and decreased miscarriage rates.

— Philip Segal, MD

### ATA THYROID BROCHURE LINKS

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

### ABBREVIATIONS & DEFINITIONS

**Hypothyroidism:** a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.

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



## **HYPOTHYROIDISM**, continued

**Overt Hypothyroidism:** clear hypothyroidism an increased TSH and a decreased T<sub>4</sub> 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.

**Randomized Controlled Trial:** is a type of clinical study where the people being studied are randomly allocated one or other of the different treatments. This type of trial is considered the gold standard clinical studies.

