



## THYROID AND PREGNANCY

# Low free thyroid hormone levels and positive TPO antibodies are risk factors for premature delivery in women

### BACKGROUND

Premature birth of a child is defined as delivery before 37 weeks of a pregnancy. A full term pregnancy is considered to be 40 weeks. Premature delivery is associated with an increased risk of infant death as well as other potential health problems that may occur later in life. The cause of premature birth is not always known but scientists have investigated a number of potential risk factors, including thyroid status. Severe hypothyroidism and hyperthyroidism during pregnancy have been associated with premature birth, but results have been conflicting on milder forms of thyroid problems. Thyroid problems are frequently caused by autoimmune thyroid disease where antibodies get confused and attack the thyroid. TPO antibodies are a marker of autoimmune thyroid disease. This study investigated the relationship between thyroid function, positive TPO antibodies and risk of premature birth.

### THE FULL ARTICLE TITLE

Korevaar TI et al. Hypothyroxinemia and TPO-antibody positivity are risk factors for premature delivery: the Generation R Study. *J Clin Endocrinol Metab*. September 13, 2013 [Epub ahead of print].

### SUMMARY OF THE STUDY

This study is part of a larger study known as the large “Generation R Study” population that is being conducted in Rotterdam, The Netherlands. This study examined the association between thyroid blood tests with a woman’s risk for delivering her baby prematurely. Serum TSH, free

and total T<sub>4</sub> and TPO antibodies were measured in 5971 pregnant women. The women were followed throughout pregnancy and the relationship between thyroid lab test results and duration of pregnancy were determined. Overall, 5% of women had premature delivery, 4.4% had a spontaneous premature delivery and 1.4% had a very premature delivery (less than 34 weeks of pregnancy). Women with both an elevated TSH during pregnancy and positive TPO antibodies demonstrated an increased risk of premature delivery compared to women with normal TSH levels. Low free T<sub>4</sub> levels with a normal TSH and positive TPO antibodies were also associated with an increased risk of all categories of premature birth. The relationship between positive TPO antibodies and premature delivery was independent of thyroid hormone and TSH levels.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

As seen in prior studies, increased TSH levels in the mother were associated with increased risk of premature birth. In addition, this study suggests that decreased FT<sub>4</sub> levels and positive TPO antibodies are also associated with an increased risk of premature birth. These results suggest that screening women for thyroid disease in early pregnancy should be considered

—Whitney Woodmansee MD

### ATA THYROID BROCHURE LINKS

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

### ABBREVIATIONS & DEFINITIONS

**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).

**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.

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

**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.