



## THYROID AND PREGNANCY

### Graves' disease and pregnancy

#### BACKGROUND

Hyperthyroidism in young women of reproductive age is most commonly caused by Graves' disease. Graves' disease is an autoimmune disorder wherein the individual's immune system makes antibodies that get confused and attack the thyroid and turn it on. These antibodies stimulate the thyroid gland to produce excess thyroid hormone causing hyperthyroidism. It is known that immune function varies during and after pregnancy. Studies have shown that immune function is suppressed during pregnancy, presumably to allow the mother's immune system to "tolerate" the developing baby, and rebounds after delivery during the post-partum period. Autoimmune disorders can improve during pregnancy and get worse in the post-partum period due to changes in the immune system. This study was done to examine the incidence of hyperthyroidism, presumed to be due to Graves' disease, during and around pregnancy in a population and compare to the incidence patterns of other autoimmune disorders.

#### THE FULL ARTICLE TITLE

Andersen SL et al. Hyperthyroidism incidence fluctuates widely in and around pregnancy and is at variance with some other autoimmune diseases: A Danish population based study. *J. Clin. Endocrinol Metab.* 100: 1164-1171. 2015.

#### SUMMARY OF THE STUDY

This study was a population based study of Danish women in a national registry. These investigators included all women (403,958) who gave birth to a child in Denmark between 1999 and 2008. They examined the incidence of hyperthyroidism in women 2 years before and 2 years after their first pregnancy. Hyperthyroidism was determined by review of prescriptions for anti-thyroid medications using the National Danish Prescription Register. The authors presumed the prescription for anti-thyroid medications in these women were indicative of Graves disease in this population since the most common cause of hyperthyroidism in women in this age group is Graves' disease and the first choice for treatment of Graves' disease in Denmark is anti-thyroid medications.

Thus, these investigators used prescriptions filled for anti-thyroid medications as a surrogate indicator of Graves' disease. They also examined the incidence of two other autoimmune disorders: rheumatoid arthritis and inflammatory bowel disease. Hyperthyroidism was found around pregnancy in 3673 women (0.9%) with a calculated incidence rate of 65 women per 100,000 per year. They noted a peak in incidence within the first trimester of pregnancy and 7-9 months following delivery. The lowest incidence of hyperthyroidism was in the 3rd trimester and highest incidence (3.8 times the rest of the study time), was in the post partum period. This pattern was not seen in the incidence of rheumatoid arthritis or inflammatory bowel disease.

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

The authors concluded that the incidence of Graves' disease varies before, during and after pregnancy. Two peaks of increased incidence were observed, one in the first trimester and the second, larger peak post-partum. The higher rates of post-partum hyperthyroidism seen, presumably due to Graves' disease, are consistent with studies demonstrating exacerbation of autoimmune disorders in this time frame.

This study is important for patients in that it provides information to increase awareness of both patients and health care providers of the higher incidence of hyperthyroidism in early pregnancy and post-partum. Patients with Graves' disease or those at risk for autoimmune thyroid disease should be aware of the potential exacerbations during these times and consequently be watchful for signs and symptoms of hyperthyroidism.

—Whitney Woodmansee MD

#### ATA THYROID BROCHURE LINKS

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

Graves' disease: <http://www.thyroid.org/what-is-graves-disease>



## THYROID AND PREGNANCY, continued

### 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).

**Graves' disease:** the most common cause of hyperthyroidism in the United States. It is caused by antibodies that attack the thyroid and turn it on.

**Hyperthyroidism:** a condition where the thyroid gland is overactive and produces too much thyroid hormone. Hyperthyroidism may be treated with antithyroid meds (Methimazole, Propylthiouracil), radioactive iodine or surgery.

**Autoimmune disorders:** A diverse group of disorders that are caused by antibodies that get confused

and attack the body's own tissues. The disorder depends on what tissue the antibodies attack. Graves' disease and Hashimoto's thyroiditis are examples of autoimmune thyroid disease. Other Autoimmune disorders include: type I diabetes mellitus, Addison's disease (adrenal insufficiency), vitiligo (loss of pigment of some areas of the skin), systemic lupus erythematosus, pernicious anemia (B12 deficiency), celiac disease, inflammatory bowel disease, myasthenia gravis, multiple sclerosis, and rheumatoid arthritis.

**Antibodies:** proteins that are produced by the body's immune cells that attack and destroy bacteria and viruses that cause infections. Occasionally the antibodies get confused and attack the body's own tissues, causing autoimmune disease.