



## THYROID AND PREGNANCY

### Higher risk of birth defects in women treated with methimazole vs. propylthiouracil during pregnancy

#### BACKGROUND

Hyperthyroidism due to Graves' disease is relatively common in women of childbearing years. Because of this, women may become pregnant during medical therapy for Graves' disease or, less commonly, develop Graves' disease during pregnancy. The two most common medications for the treatment of hyperthyroidism are methimazole and propylthiouracil (PTU), with methimazole the drug of choice according to the recent American Thyroid Association (ATA) guidelines for the management of hyperthyroidism. Some studies have suggested that using methimazole during early pregnancy may be associated with extremely rare congenital problems in the newborn baby. Indeed, the ATA guidelines recommend switching from methimazole to PTU during the first half of pregnancy. This study is now the largest one ever done to closely examine the association of methimazole and PTU with congenital abnormalities.

#### THE FULL ARTICLE TITLE:

Yoshihara A et al. Treatment of Graves' disease with antithyroid drugs in the first trimester of pregnancy and the prevalence of congenital malformation. *J Clin Endocrinol Metab.* April 30, 2012 [Epub ahead of print]. doi: 10.1210/jc.2011-2860.

#### SUMMARY OF THE STUDY

This is a study based on the medical records over 10 years (1999-2010) of almost 6000 Japanese pregnant women with Graves' disease, the most common cause of hyperthyroidism. During the first trimester of pregnancy, 1426

women were treated with methimazole alone and 1578 with PTU alone; 2065 women were not hyperthyroid and received no medication. The overall rate of congenital abnormalities was 2.5% (152 of 5997 infants). The rate of congenital abnormalities in infants born to the women in the methimazole group was 4.1% (50 of 1231 infants) as compared with 1.9% (26 of 1399) in the PTU group and 2.1% (40 of 1906 infants) in the patients without hyperthyroidism. Thus, women who took methimazole during the first trimester of pregnancy had double the risk of birth defects, compared to women who took PTU or neither medication. Some of the birth defects included a skin disorder on the scalp and problems with development of the stomach and intestines.

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

This study confirms that methimazole use during the first trimester of pregnancy should be avoided if possible. PTU use is preferred, especially during the 1st trimester. Pregnant mothers with Graves' disease should consult with their physician to discuss the best treatment recommended for both mother and baby.

—Angela Leung, 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>

#### ABBREVIATIONS & DEFINITIONS

**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.

**Congenital:** a condition that exists at birth.

**Methimazole:** an antithyroid medication that blocks the

thyroid from making thyroid hormone. Methimazole is used to treat hyperthyroidism, especially when it is caused by Graves' disease.

**Propylthiouracil (PTU):** an antithyroid medication that blocks the thyroid from making thyroid hormone. Propylthiouracil is used to treat hyperthyroidism, especially in women during pregnancy.