



## PREGNANCY AND THYROID DISEASE

# What are the best approaches for diagnosing the etiology of thyrotoxicosis following delivery?

### BACKGROUND

Approximately 5-10% of women will develop thyroid dysfunction during the first year after delivery of a baby. This includes both an increase in thyroid hormone levels (thyrotoxicosis) as well as hypothyroidism. The most common cause of thyrotoxicosis in the postpartum period is postpartum thyroiditis, which is an autoimmune process characterized by inflammation of the thyroid gland by antibodies that attach and try to destroy the thyroid gland. This can lead to “leaking” of thyroid hormone from the damaged thyroid gland, causing transient thyrotoxicosis which resolves on its’ own in a few months without specific thyroid therapy. Indeed, as the gland is depleted of thyroid hormone, many women with postpartum thyroiditis develop hypothyroidism. While the majority of cases of postpartum thyrotoxicosis are from thyroiditis, Graves’ disease may also develop after delivery. In Graves’ disease, also an autoimmune disease, antibodies attack and stimulate the thyroid gland. Graves’ disease does require specific thyroid therapy.

While both Graves’ disease and postpartum thyroiditis lead to thyrotoxicosis, their management and long term outcomes are quite different. Consequently, differentiating the etiologies of postpartum thyroid dysfunction is a priority. Unfortunately, this is not an easy task as a radioactive iodine uptake, a key test used to differentiate between thyroiditis and Graves’ disease, cannot be performed while patients are breastfeeding. The goal of the current study was to examine the usefulness of other factors in differentiating between the different causes of postpartum thyrotoxicosis such as: 1) levels of thyroid stimulating antibodies, 2) thyroid blood flow on neck ultrasound and 3) the time of onset of hyperthyroidism after delivery.

### THE FULL ARTICLE TITLE

Ide A et al Differentiation of postpartum Graves’ thyrotoxicosis from postpartum destructive thyroiditis using

antithyrotropin receptor antibodies and thyroid blood flow. *Thyroid* 2014;24:1027-31.

### SUMMARY OF THE STUDY

The authors reviewed the charts of 42 patients who developed thyrotoxicosis within 1 year of delivery from January 2010 to July 2012. They found that all of the patients with postpartum Graves but none of the patients with postpartum thyroiditis tested positive for thyroid stimulating antibodies. Similarly, most patients with Graves (83.3%) had high thyroid blood flow on neck ultrasound, whereas all of the patients with postpartum thyroiditis had low thyroid blood flow. Finally, 12 of 14 patients (85.7%) in whom thyrotoxicosis developed at 3 months postpartum or earlier had thyroiditis and all 11 patients (100%) in whom thyrotoxicosis developed at 6.5 months or later had Graves’ disease.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

These results demonstrate that early onset of thyrotoxicosis within 3 months after delivery of a baby is usually the result of thyroiditis, whereas later onset after 6.5 months is almost certainly from Graves’ disease. Between 3 and 6.5 months the etiology of postpartum thyrotoxicosis could be either Graves’ or thyroiditis. In this situation measuring thyroid stimulating antibody levels and thyroid blood flow on neck ultrasound can help differentiate the two.

— Phillip Segal, MD

### ATA THYROID BROCHURE LINKS

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

Postpartum Thyroiditis: <http://www.thyroid.org/postpartum-thyroiditis>



## **PREGNANCY AND THYROID DISEASE**, continued

### **ABBREVIATIONS & DEFINITIONS**

**Thyrotoxicosis:** the clinic syndrome resulting from elevated levels of circulating  $T_3$  and/or  $T_4$ . Hyperthyroidism is the cause of most cases of thyrotoxicosis, with the remainder caused by thyroiditis or overdosing on thyroid medication.

**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.

**Postpartum thyroiditis:** an inflammation of the thyroid in women who have just delivered a baby. The inflammation first causes mild hyperthyroidism for 1-3 months after delivery. This is followed by hypothyroidism starting 4-6 months after delivery. The hypothyroidism resolves and normal thyroid function returns 12–18 months after delivery in most women. While many women have both the hyperthyroid and the hypothyroid phase, some women may only have one or the other.

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

**Thyroid stimulating antibodies:** antibodies present in the blood of patients with Graves' disease that are directed against the TSH receptor, often causing stimulation of this receptor with resulting hyperthyroidism.

**Thyroid Ultrasound:** a common imaging test used to evaluate the structure of the thyroid gland. Ultrasound uses soundwaves to create a picture of the structure of the thyroid gland and accurately identify and characterize nodules within the thyroid. Ultrasound is also frequently used to guide the needle into a nodule during a thyroid nodule biopsy.