PREGNANCY AND GRAVES’ DISEASE

Treatment and Management of Hyperthyroidism in Pregnancy

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Learn about the current views regarding treating Graves' disease in patients diagnosed with Graves' disease or who develop hyperthyroidism during pregnancy.

Graves’ disease

Women with Graves' disease, a condition of autoimmune hyperthyroidism, have special concerns during pregnancy. Besides ensuring that their own thyroid hormone levels are adequate, during the first trimester they must also produce sufficient hormone for their baby's needs.

Concerns

Changes in estrogen and progesterone levels related to pregnancy also affect thyroid hormone levels, usually lowering them as pregnancy progresses. This makes regular monitoring of thyroid levels and regular adjustments to anti-thyroid drug (ATD) doses essential.

Immune function also changes in pregnancy and must be considered. Thyroid antibodies, which are usually increased dramatically in women who have had radioiodine ablation, can pass from the maternal to the fetal blood circulation causing transient conditions of hyperthyroidism. High doses of anti-thyroid drugs can also cross the fetal circulation contributing to fetal hypothyroidism. This article addresses these concerns and describes the latest findings on treating hyperthyroidism in women who have Graves' disease or who develop hyperthyroidism during pregnancy.

Treatment

Experts agree that the best approach is to treat Graves' disease and bring thyroid hormone levels into control before pregnancy occurs. The goal here is to bring patients to a euthyroid state in which their FT4 level falls into the normal or reference range.

A low TSH level doesn't mean that the patient is still hyperthyroid. Using anti-thyroid drugs, propylthiouracil (PTU) is the preferred medication because it is less likely to cross the placental barrier. With PTU, the dose is usually lowered after the first 6-8 weeks at which time patients are kept on a maintenance dose of 50-150 mg PTU daily. The lowest PTU dose needed to keep FT4 within the top 1/3 of the reference range is recommended and doses of 200 mg PTU daily or less are considered safe.
When Graves’ develops during pregnancy

For patients who develop hyperthyroidism during pregnancy, experts often withhold treatment unless FT4 becomes moderately elevated. For instance, using a range of 0.8-2.0 ng/dl, many physicians do not treat hyperthyroidism if levels are below 2.5 ng/dl or higher in patients without symptoms of hyperthyroidism. Since thyroid hormone levels begin to fall in the second half of pregnancy, and thyroid hormone levels are often falsely elevated in early pregnancy due to increased binding proteins, this is considered a safe approach.

A general rule is that while euthyroidism is the goal, thyroid hormone levels that are slightly decreased have graver consequences than thyroid hormone levels that are slightly increased. When hyperthyroidism develops during pregnancy, diagnostic tests and treatments requiring the use of radioiodine cannot be used. Thyroid antibody tests are used to determine if hyperthyroidism is autoimmune.

Stimulating TSH receptor antibodies

Levels of stimulating TSH receptor antibodies (TSI) should also be checked with blood tests in early pregnancy and again in the last trimester. In about 1 percent of cases where women have elevated TSI levels, these antibodies can cross through the placental membrane causing temporary conditions of hyperthyroidism. Knowing that TSI levels are elevated, physicians can provide adequate fetal monitoring to detect and treat fetal goiter, increased heart rate or other signs of hyperthyroidism. For women on ATDs, this monitoring is also used to detect drug-induced temporary hypothyroid conditions.

Thyroid Function in Pregnancy

In early pregnancy, thyroid hormone levels rise to support the mother's needs and they may be falsely elevated because of changes related to increased estrogens. The hormone beta HCG, which increases in pregnancy, is very similar to TSH and can cross-react with TSH, helping to increase thyroid hormone levels.

Consequently, TSH levels fall in early pregnancy and are considered normal unless they fallow below 0.1 mu/L. Symptoms in early pregnancy are also similar to those of hyperthyroidism, such as feeling hot, excessive sweating, emotional excitement, anxiety, nervousness, nausea, vomiting or a racing heart. Symptoms that suggest hyperthyroidism rather than pregnancy include a heart rate increased more than 100 beats per minute and weight loss.

Untreated, maternal hyperthyroidism is associated with premature labor, miscarriage, congenital malformations and premature labor. Untreated, maternal hyperthyroidism can also lead to heart problems and thyroid storm.
Hyperthyroidism that develops or worsens during pregnancy is usually treated with PTU although in patients intolerant of PTU, methimazole may be used. If thyroidectomy surgery is required it is safely performed only during the second trimester.

**Immune system changes**

In addition, the immune system may also become stimulated by fetal tissue although immune function typically slows down after the first trimester as it supports the growing fetus. The immune system of the fetus remains immature until about the second year of life. Consequently, it doesn't produce antibodies well and autoimmune diseases do not usually develop in infancy.

Transient conditions caused by placental transfer of thyroid antibodies cause temporary conditions that persist for a few months until the antibodies are broken down and excreted by the body. In the United States, unless the parent refuses testing, all newborns are tested for thyroid function so that congenital conditions and transient conditions are diagnosed early.

**Late Pregnancy and Postpartum Period**

In the second half of pregnancy, HCG levels fall and estrogen levels rise. The immune system slows down. Consequently, thyroid hormone levels fall. Most women on PTU are able to reduce their ATD, and about 1/3 of all patients on PTU are able to stop their meds completely. Many women with Graves' disease experience spontaneous remission at this time. Of those, a small number will experience a return of symptoms or conditions of postpartum thyroiditis during the postpartum period, the period up to the first year after childbirth. Additional studies show that used appropriately PTU can be safely used while breastfeeding.

**Resources:**

Thyroid Disease in Women, New York Thyroid Center at Columbia University


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