

Understanding Childhood Graves' Disease

Childhood Graves' disease, or simply Graves' disease, affects how the thyroid gland works. This handout will explain Graves' disease and its causes and symptoms. It will also tell you how we diagnose and treat Graves' disease.

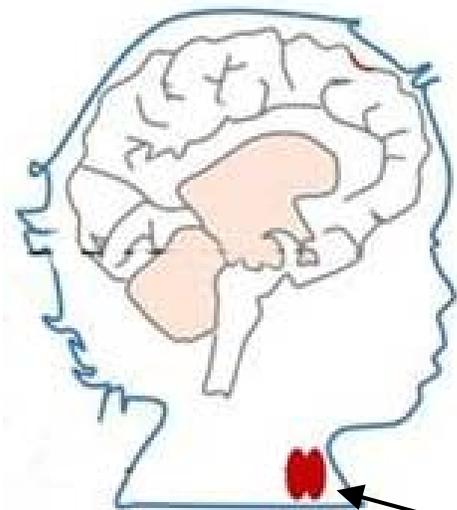
WHAT IS GRAVES' DISEASE?

Graves' disease (also called hyperthyroidism) is a condition that causes your thyroid to make more thyroid hormone than your body needs. Thyroid hormone controls how your organs work and plays an important role in controlling body temperature. In girls, it also controls menstrual cycles (monthly periods).

WHAT IS THE THYROID GLAND?

The thyroid gland is a small, butterfly-shaped gland in the front of the neck. It makes the thyroid hormones called **triiodothyronine (T3)** and **thyroxine (T4)**. The thyroid changes T4 into T3, which is the more active thyroid hormone.

T4 and T3 have important jobs in the body. They help regulate growth and brain development, heart rate, body temperature and digestion. They also help control the way many of your organs work and control girls' monthly periods.



The thyroid gland

WHAT CAUSES GRAVES' DISEASE?

Graves' disease is caused by your child's body mistakenly making antibodies that attack the thyroid gland. These antibodies cause the thyroid gland to make more thyroid hormone than your child's body needs.

WHAT ARE THE SYMPTOMS OF GRAVES' DISEASE?

If your child has Graves' disease, he or she might have some of these symptoms:

- A **goiter** (a mound caused by an enlarged thyroid gland) on his or neck
- Bulging eyes
- Nervousness or crankiness
- Shaky hands
- Doing poorly in school or having poor handwriting
- Fast or irregular heartbeat
- Frequent bowel movements
- Not sleeping well
- Not tolerating heat (feeling too hot)
- Growing very quickly
- Losing weight despite having a larger appetite
- Irregular periods in girls

HOW DO WE DIAGNOSE GRAVES' DISEASE?

If we think your child has Graves' disease based on his or her symptoms, we will have your child get a **blood test** to check the levels of thyroid hormones in your child's blood.

Sometimes, we will also have your child get a **thyroid uptake study** (also called a radioactive iodine study or technetium uptake study). A thyroid uptake study measures how well your child's thyroid is working. We will talk with you about which tests your child should have.

HOW DO WE TREAT GRAVES' DISEASE?

There are 3 main treatments for Graves' disease. We will talk with you about which treatment is best for your child.

- **Medications**

We usually treat Graves' disease with medication first. There are 2 types of medications, which are beta blockers and antithyroid medications. Each one works differently, so we will talk with you about which one is best for your child and how long your child should take the medication.

The first type of medication is called a **beta blocker**. Beta blockers are used to treat faster heart rate or increased blood pressure. They typically do not affect how much thyroid hormone the thyroid releases.

The second type of medication is called **methimazole**. Methimazole is used to control how much thyroid hormone the thyroid releases. Children can usually take methimazole with little trouble, but it can have rare, but possibly serious side effects. Minor (less serious) side effects include a metallic taste in the mouth, allergic reactions with rashes and itching and joint pain. Major (rare, but serious) side effects include liver problems, rash and a lower numbers of white blood cells in the body. This can lower your child's ability to fight off infections.

- **Radioactive iodine therapy**

For this treatment, your child will take a pill that contains **iodine-131** (also called I-131), which destroys the thyroid without destroying other parts of your child's body. He or she will come back to the doctor's office the next day so we can make sure the I-131 worked properly.

If your child has radioactive iodine therapy, he or she will need to take thyroid hormone replacement medication for the rest of his or her life. We will talk with you about this. Some medical studies show that radioactive iodine therapy might make eye diseases associated with Graves' disease worse. This is usually a less common problem in children.

- **Surgery to remove the thyroid gland**

We usually refer children to have thyroid surgery only if medication and radioactive iodine therapy did not work. It's important to understand any risks or complications of the surgery. We will talk with you about any risks or complications. We will also discuss referring you to an experienced thyroid surgeon for your child's thyroid surgery

WHAT IS THE LONG-TERM OUTLOOK FOR GRAVES' DISEASE?

After your child receives the right treatment, he or she should live a healthy life. In some children who take medication for Graves' disease, it's possible to stop treatment after a few years, but there is always a risk that Graves' disease will come back.

Radioactive iodine treatment and surgery considered **definitive treatment** (treatments that are considered the best choice after all other treatments do not work well). With these treatments, your child will need to take thyroid hormone replacement for the rest of his or her life. We will talk with you about this.

Other **autoimmune diseases** (diseases in which the body mistakenly attacks healthy cells) can happen with Graves' disease. These other autoimmune diseases include type 2 diabetes, Addison's disease, vitiligo, alopecia and lupus.

Rev. 9/2016

Pediatric Endocrine and Diabetes Center

Mass General Hospital for Children
55 Fruit Street, Suite 6C
Boston, MA 02114

www.massgeneralforchildren.org/endocrine

For more information please call

617-726-2909