Graves' Disease

Graves' disease, also known as **toxic diffuse goiter**, is an autoimmune disorder that is the most common cause of hyperthyroidism in the United States, a condition in which the thyroid gland produces excessive hormones. The disease is named after Sir Robert Graves, who first described the condition in the early 19th century.

Causes

Normally, the immune system protects the body from infection by identifying and destroying bacteria, viruses and other potentially harmful foreign substances. But in autoimmune diseases, the immune system attacks the body's own cells and organs. With Graves' disease, the immune system makes an antibody called **thyroid-stimulating immunoglobulin (TSI)** — sometimes called **TSH (thyroid stimulating hormone) receptor antibody** — that attaches to thyroid cells. TSI mimics TSH and stimulates the thyroid to make too much thyroid hormone. Sometimes the TSI antibody instead blocks thyroid hormone production, leading to conflicting symptoms that may make correct diagnosis more difficult. In some patients, swelling of the muscles and other tissues around the eyes may develop, causing eye prominence, discomfort or double vision.

Exactly why the immune system begins to produce these antibodies is unclear. Like other autoimmune diseases, this condition tends to affect multiple family members. It is much more common in women than in men and tends to occur in younger patients.

Signs & Symptoms

Common signs and symptoms of Graves' disease include the following:

- Anxiety
- Irritability
- Difficulty sleeping
- Fatigue
- A rapid or irregular heartbeat
- A fine tremor of your hands or fingers

- An increase in perspiration or warm, moist skin
- Sensitivity to heat
- Weight loss, despite normal eating habits
- Enlargement of your thyroid gland (goiter)
- Change in menstrual cycles
- Erectile dysfunction or reduced libido
- Frequent bowel movements or diarrhea

Graves' ophthalmopathy (GO) - a condition associated with Graves' disease that occurs when cells from the immune system attack the muscles and other tissues around the eyes, resulting in inflammation and a buildup of tissue and fat behind the eye socket, causing the eyeballs to bulge out. In rare cases, inflammation is severe enough to compress the optic nerve that leads to the eye, thus causing vision loss.

Graves' dermopathy - a small number of people with Graves' disease also experience thickening and reddening of the skin on their shins or tops of feet.

Diagnosis

Health care providers can sometimes diagnose Graves' disease based only on a physical examination and a medical history. Blood tests and other diagnostic tests, such as the following, then confirm the diagnosis.

Tests

TSH (Thyroid – Stimulating Hormone or Thyrotropin) Test: An increased TSH level in the blood is the most accurate indicator of primary (non-pituitary) hypothyroidism. Production of this pituitary hormone is increased when the thyroid gland even slightly underproduces thyroid hormone.

T_3 and T_4 test - another blood test used to diagnose Graves' disease measures T_3 and T_4 levels. In making a diagnosis, health care providers look for below-normal levels of TSH, normal to elevated levels of T_4, and elevated levels of T_3.

Radioactive iodine uptake (RAIU) - this test measures the amount of iodine the thyroid collects from the bloodstream. High levels of iodine uptake can indicate Graves' disease.

Thyroid scan - this scan shows how and where iodine is distributed in the thyroid. With Graves' disease the entire thyroid is involved, so the iodine shows up throughout the gland. Other causes of hyperthyroidism such as nodules—small lumps in the gland—show a different pattern of iodine distribution.

Treatment

Graves' disease is often diagnosed and treated by an endocrinologist—a doctor who specializes in the body's hormone-secreting glands. People with Graves' disease have three treatment options: radioiodine therapy, medications and thyroid surgery. Radioiodine therapy is the most common treatment for Graves' disease in the United States.