Hyperthyroidism

February 3, 2014 Dr. Kela Henry

Hyperthyroidism is a disorder of the thyroid gland which results in excess thyroid hormone production. When there is too much thyroid hormone produced, the metabolic functions of the body speed up. This is why hyperthyroidism is also known as overactive thyroid disease, as opposed to hypothyroidism, which is underactive thyroid disease. This article will focus on hyperthyroidism, which affects approximately 1.3% of the population and women much more than men (by a 5:1 ratio).

The thyroid is a butterfly shaped gland located in the front part of the neck, and its parts consist of two lobes and an isthmus. If you visualize looking directly a butterfly on a tree trunk, the wings represent the lobes of the gland and the body the isthmus. Symptoms of hyperthyroidism can include the following: fast or irregular heartbeat, nervousness, tremors, increased sweating, weight loss, diarrhea, fatigue, increased appetite, anxiety, hair loss, lighter and less frequent menstrual cycles, sensation of "feeling hot all the time," or enlargement of the gland (called a goiter). The majority of patients are cured with appropriate treatment. However, if hyperthyroidism goes untreated, it becomes worse and can lead to more serious complications like heart failure, atrial fibrillation, osteoporosis, fevers, and delirium.

There are several causes of hyperthyroidism: Graves' disease, thyroiditis, hyperfunctioning nodules, and medication. By far, the most common cause is Graves' disease, which is an autoimmune problem. What this means is that in patients with Graves ' disease, the immune system actually attacks the gland, causing it to release too much thyroid hormone into the circulation, which then leads to symptoms. Normally the immune system cells only attack foreign substances like viruses, bacteria, and parasites. In Graves' however, the immune system mistakes normal thyroid tissue for a foreign substance. An additional symptom that patients with Graves' may experience is exophthalmos, a condition which causes the eyes to bulge, creating a "bug eye"

appearance. With thyroiditis, a viral infection causes the thyroid gland to become inflamed and produce excess hormone. In the case of hyperfunctioning nodules, one or more lumps (nodules) in the gland increases in size and starts producing extra hormone on its own. If the dosage of medication used to treat underactive thyroid disease (hypothyroidism) is too high, this leads to hyperthyroidism by disrupting the normal feedback cycle in the body that would otherwise keep the levels normal.

The diagnosis of hyperthyroidism is made with simple blood tests along with physical examination. There are several treatments available, and which one is selected depends on the cause of the hyperthyroidism and certain patient characteristics like age, allergies, pregnancy status, severity of the disease, etc. The common oral medications used are methimazole (brand name Tapazole) and propylthiouracil (PTU), which work by reducing the gland's output of thyroid hormone. Radioactive iodine is taken orally to destroy either the gland as a whole or the abnormally functioning part. Afterward the thyroid is permanently underactive, which is treated lifelong with thyroid hormone replacement. After receiving this treatment it is advisable to stay away from infants and children for 3-4 days and sleep in a separate bed from a partner in order to avoid exposing them to the radiation. Beta blockers (medicines with names like propranolol and atenolol) are prescribed to reduce the abnormal heart rate, tremors and nervousness until the hormone levels return to normal. Surgery to remove the gland is also an option, especially for patients with large goiters. As with the radioactive iodine treatment, the patient will need to take lifelong thyroid supplementation afterward.

While hyperthyroidism is not as common as diabetes or high blood pressure, it does occur with enough frequency that I routinely screen for it when patients come in for physicals. There also appears to be a genetic link, as many patients have family members with some form of a thyroid disorder. For many patients their hormone levels return to normal within 3-6 months of proper treatment.