

As you may recall from a previous write up on hypothyroidism, thyroid disease occurs when the thyroid gland produces too much hormone (hyperthyroidism) or too little hormone (hypothyroidism). Sometimes an acute illness may cause thyroid hormones levels to be abnormal but the issue resolves when the illness is over. This article will focus on the overactive thyroid also known as hyperthyroidism.

To refresh our minds, the thyroid gland is a small gland located in the front of the neck about the mid-portion, which is normally not visible or felt. It is a butterfly-shaped gland with its two wings (lobes) connected by a small bridge-like tissue called the isthmus. When it becomes enlarged for various reasons (some of which will be addressed in the article), it is called a goiter.

What does the thyroid do in the body?

The thyroid gland produces hormones that regulate the body's metabolism. The major hormones are thyroxine (T4) and triiodothyronine (T3). Like many other glands in the body, hormone production by the thyroid is under the control of the pituitary gland located in the brain. The pituitary gland produces Thyroid Stimulating Hormone (TSH). TSH production is in turn regulated by another hormone from the hypothalamus called Thyrotropin Releasing hormone (TRH).

The hormones produced by the thyroid gland regulate body temperature and are involved in the metabolism of proteins, carbohydrates, and fats in the body. Thyroid hormones are extremely important for proper growth and development in infancy. The hormones also contribute to optimal function of muscles, the menstrual cycle, and mood. Calcitonin also produced by the thyroid is involved in the regulation of calcium metabolism.

The most basic nutrients required for proper production of thyroid hormones are iodine and tyrosine. This is the reason why iodide is added to table salt to ensure sufficient availability of iodine.

How does hyperthyroidism present?

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I would love to drive home the presentation of hyperthyroidism with a short story. Ms. Jane is a nice lady who is known for always wanting to be on the move. She has a small stature and wore a size 6 for a long while. People loved her stature and complemented her a lot. Little did many realize she was trying hard to gain some weight since she migrated to the United States. She ate several times a day without gaining a pound, and more often than not she was always hungry. In fact, there were times she lost a few pounds unintentionally. Winter was her best season. She was unable to put up with a lot of things from others to the point of being irritable. She would snap at people and it got to a stage many felt she was rude. When she looked at you it was as if she was staring at you. One day, someone who had known her for over five years suddenly put together her behavioral pattern. Out of nowhere, this person suggested, "you are so impatient and irritable, you had better check your thyroid out." Ms. Jane had full-blown hyperthyroidism over the years. Her so called impatience, intolerance, weight loss, and stare were caused by hyperthyroidism. Only God knows how many people Ms. Jane had offended with her behavior, unfortunately this was borne out of her undiagnosed medical condition.

As you may recall, thyroid hormone controls the body's metabolism. When you have excessive amounts, it causes increase in metabolism which may present as:

Weight loss despite adequate food intake

Hunger

Excessive sweating and sometimes inability to tolerate heat; such people feel hot/uncomfortable when others are feeling cold

Nervousness with or without irritability

Hand shaking (Tremor)

Stimulation of the intestine causing frequent loose stool especially at night

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Stimulation of the heart causing rapid (palpitations) and/or irregular heart beat (atrial fibrillation)

Bulging eyes (exophthalmous)

Sometimes tiredness, muscle ache, and problems with sleeping

Neck swelling corresponding to the location of the thyroid gland (goiter)

What causes hyperthyroidism?

Too much raw materials: Excessive iodine will lead to production of more thyroid hormone

Loss of normal control: If a part of the gland produces excess hormone and does not respond to the normal control mechanism effected by TSH (autonomous nodule) or in the case of cancer

Increased size of the gland (goiter)

Excess control hormone: If TSH is increased (such as the case of a pituitary tumor), tumors that produce TSH-like substances (some tumors of the testes and ovaries)

Inflammation: Causing release of hormones

How is hyperthyroidism diagnosed?

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It takes a simple blood test that can be done in your doctor's office. Blood taken from the thyroid hormones (TSH, T4, T3, free thyroxine index) is the initial test done. Based on the results, additional testing may be required. Usually there will be need to have an ultrasound done if enlargement of the gland is suspect.

Treatment of hyperthyroidism

There are anti-thyroid medications such as propylthiouracil and methimazole. Radioactive iodine can be given to shrink the cells (ablation) of the gland. This can be later complicated by hypothyroidism. Sometimes surgery may be required (thyroidectomy). If the heart is going too fast, medications that slow down the heart (beta blockers) may be prescribed.

Take Home Message

Hyperthyroidism can be screened for if you have any of the symptoms described above.

Untreated hyperthyroidism can lead to severe complications, including damage to the heart.

Dr. Oluwatoyosi Dairo can be reached at **Amazing Medical Services at 110-16 Sutphin Blvd, Jamaica, NY 11435** or by phone at **718-526-7600**.

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