

Hyperthyroidism [Graves' disease]

Ms. Kiran Dwivedi

ABSTRACT

Hyperthyroidism is an endocrine disorder in which tissue is exposed to excessive circulating thyroid hormone. Graves's disease is the most common cause of this syndrome, followed by toxic multinodular goiter and solitary hyperfunctioning nodule.

Keywords: Hyperthyroidism, Graves's disease, Thyrotoxicosis, Ophthalmopathy

Introduction

Hyperthyroidism is the 2nd most common endocrine disorder, and Graves' disease is the most common which results from an excessive output of thyroid hormones due to abnormal stimulation of the thyroid gland by circulating immunoglobulin.

Definition

Hyperthyroidism is a set of disorders involving excess thyroid hormone secretion (T_3 and T_4) by the thyroid gland, which leads to the hypermetabolic condition of thyrotoxicosis.

The term thyrotoxicosis refers to the physiological effects or clinical hypermetabolic syndrome, resulting from excess circulating levels of T_3 , T_4 , or both.

Prevalence

- Hyperthyroidism is the most common in women between ages 20 and 40 but men can also develop this condition (5:1 ratio).
- The prevalence of hyperthyroidism is approximately 1.3%, which increases to 4 to 5% in older women.

Causes and Risk Factors

- Graves' Disease or Toxic diffuse Goiter- Graves' disease is the most common cause, is an autoimmune disorder in which antibodies produced by the immune system which stimulate the thyroid to produce too much thyroid hormone.
- Thyroiditis – it is the inflammation of the thyroid, which causes a destructive release of preformed thyroid hormone.
- Toxic Multinodular Goiter (Plummer's disease) - it occurs more commonly in the elderly, especially with long-standing goiter.
- Toxic adenoma:-it is single or occasionally multinodular goiter of follicular cells that secrete functioning and independent of TSH.
- Excess iodine intake.

Risk factor

- **Age;** hyperthyroidism can occur at any age. Common age 60 & old. Graves' disease occurs in menages 40-60 years old.
- **Gender:** women are more prone than men.
- **Genetic Factors:** family history of Graves disease.
- **Ethnic Background and;** Japanese ancestry are at higher risk of history. This may be attributed to a diet of highly saltwater fish, which are rich sources of iodine

Diagnosis

History collection

Physical history

The ophthalmologic examination thyroid gland is enlarged, it is soft and may pulsate; a thrill may be felt & a bruit heard over thyroid arteries.

Laboratory tests show decreases in Serum TSH, increased Free T_4 & an increase in radioactive iodine uptake.

TSH stimulation Test.

Radioactive iodine uptake.

Treatment

- **Radioactive iodine.** Taken by mouth, radioactive iodine is absorbed by thyroid gland, where it causes the gland to shrink. Symptoms usually subside within several months. In weeks or months, excess radioactive iodine will disappear.
- **Anti-thyroid medications.** It includes Methimazole (Tapazole) and Propylthiouracil. In weeks or months symptoms will improve but treatment will continue longer.
- **Beta blockers.** Although these drugs are usually used to treat high blood pressure and don't affect thyroid levels, they can manage symptoms of hyperthyroidism such as a tremor, rapid heart rate, and palpitations.
- **Surgery (Thyroidectomy).** Thyroidectomy is the surgical method. After surgery, levothyroxine will need to maintain normal amounts of thyroid hormone for lifelong.
- Parathyroid glands were also removed, and medication was to keep blood calcium levels normal.

¹Nursing Tutor, Department of Obstetrics and Gynecology Faculty of Nursing Rama University, Mandana, Kanpur

Graves' Ophthalmopathy

Rituximab (Rituxan) and Teprotumumab — are two drugs for treatment of Graves' Ophthalmopathy.

- **Orbital decompression surgery**-This surgery, removes the bone between the eye socket and the sinuses — the air spaces next to the eye socket.
- **Surgery of Eye Muscle.** - Scar tissue after surgery,make eye muscle to be short.

Complication

A thyroid location crisis (thyrotoxicosis crisis) is a rare but serious complication of hyperthyroidism.

Symptoms of thyroid storm include:

- High fever — 104 degrees Fahrenheit - 106degree Fahrenheit.
- Rapid heart rate (tachycardia)>140 beats per minute.
- Feeling agitated, irritable, and anxious.
- Delirium, congestive heart failure, and loss of consciousness.

Ophthalmopathy is not prevented by Gravess' disease and can also it can cause the following complications:

- Bulging eyes.
- Vision loss.
- Double vision.
- Light sensitivity.

Conclusion

Hyperthyroidism means releasing too much thyroxine hormone, which cause thyroid disorder. Weight loss, rapid or irregular, heartbeat, sweating irritability is unusual symptoms.

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