

PHB



Dr. Arvind Kumar Gupta
(M.Pharm, PDCR, PGDMM & Ph.D)
GATE 2003 Qualified with 97.2 percentile
Dr. S. N. Dev College of Pharmacy
Shamli (U.P.)

OFFICE: BUILDING No. 3/314, OFFICE-1, GAUSHALA ROAD, SHAMLI DISTRICT SHAMLI (U.P.) – 247776

Mobile: +91-9719638415

Email: arindrkgit@gmail.com

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Chapter– 4 Endocrine System

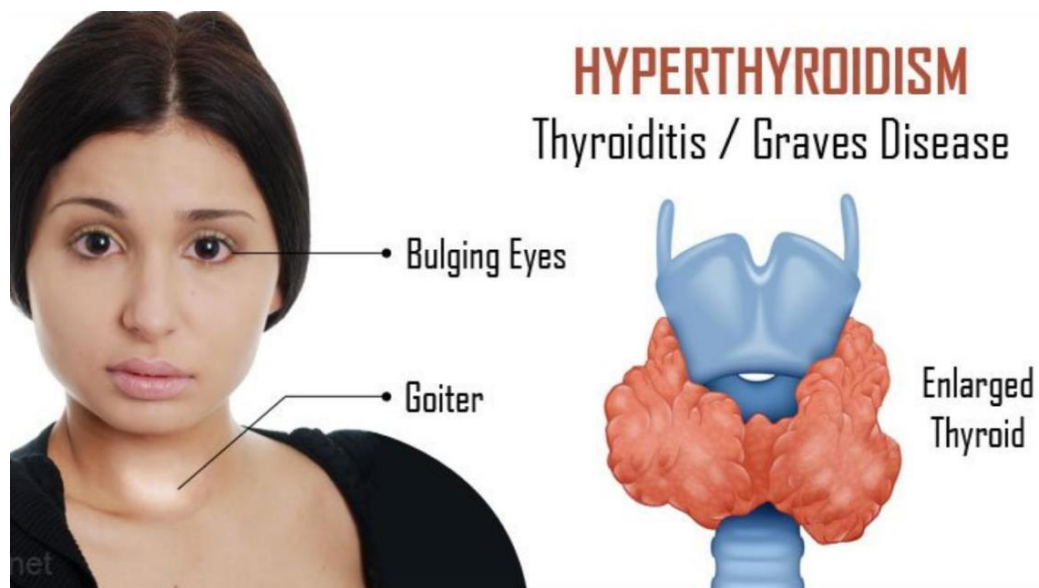
Topic: HYPERTHYROIDISM

4.1

Introduction

The thyroid is a gland located at the front of your neck. It produces two important hormones as tetraiodothyronine (T4) and triiodothyronine (T3). These hormones maintain bodily functions such as metabolism, heart rate, respiration, and digestion. Hyperthyroidism or overactive thyroid occurs due to the overproduction of these hormones.

Although hyperthyroidism can be serious if left untreated, most people respond well once it is diagnosed and treated.



4.2

Etiopathogenesis

- Hyperthyroidism can be caused by many diseases.
- Three main diseases which causes hyperthyroidism are:
 - ❖ Grave's disease
 - ❖ Toxic multinodular goiter
 - ❖ Toxic adenoma.
- Less frequent causes of hypothyroidism are – hypersecretion of pituitary TSH [Thyroid Stimulating Hormone] by a pituitary tumor, hypersecretion of TRH thyroiditis, metastatic tumors of the thyroid, congenital hyperthyroidism in newborn of mother etc.

4.3


Clinical manifestations

Signs and Symptoms of Hyperthyroidism: Some common signs and symptoms of hypothyroidism are

- ❖ Sudden weight loss
- ❖ Rapid heartbeat or tachycardia
- ❖ Sweating
- ❖ Irregular heartbeat
- ❖ Palpitations
- ❖ Heat sensitivity
- ❖ Nervousness
- ❖ Mood swings
- ❖ Shaking
- ❖ Irregular periods
- ❖ Altered bowel patterns
- ❖ An enlarged thyroid gland (goiter)
- ❖ Fatigue
- ❖ Skin thinning
- ❖ Difficulty sleeping

4.4

Test for Detection

 Diagnosis of Hyperthyroidism			
Diagnostic test	Methodology	Results	Interpretation
Physical Examination	<ul style="list-style-type: none"> • Shaking in your fingers • Overactive reflexes • Changes in eye Warm, moist skin. Pulse rate	If these signs are present	Hyperthyroidism indicated (further confirmation by blood test)
Blood Test	Measure thyroxine and thyroid-stimulating hormone (TSH) level	High levels of thyroxine and low or nonexistent amounts of TSH	Overactive thyroid confirmed
Radioiodine uptake test	Oral dose of radioactive iodine is given to check how much will collect in your thyroid gland. You'll be checked after four, six or 24 hours	High uptake of radioiodine	Indicate Hyperthyroidism
Thyroid scan	Radioactive isotope injected into the vein on the inside of your elbow or sometimes into a vein in your hand. Special camera produces an image of your thyroid gland.	Enlarged or out of position thyroid	Indicate Hyperthyroidism or tumor formation
Thyroid ultrasound.	High-frequency sound waves to produce images of the thyroid. (note: no exposure to radiation)	Thyroid nodules detected	Indicate Hyperthyroidism

4.5

Health-Related Complications of Hyperthyroidism

Hyperthyroidism can lead to a number of complications:

- **Eye Problems:** People suffering from Graves' ophthalmopathy develop eye problems. These problems include light sensitivity, bulged, red, and swollen eyes, and blurred vision. If left untreated, it can cause vision loss.
- **Heart Problems:** Heart issues are among the most serious complications of hyperthyroidism. These include an elevated heart rate, stroke, and congestive heart failure - a condition in which your heart can't fulfill your blood requirements due to poor circulation.
- **Graves' Dermopathy:** Sometimes, people with Graves' disease develop Graves' dermopathy. This condition affects the skin, causing redness and swelling on the shins and feet.
- **Brittle Bones:** Untreated hyperthyroidism can make your bones weak and brittle (osteoporosis). The strength of your bones depends on the amount of Ca^{+2} and other minerals. Too much thyroid hormone is produced if it affects the body's ability to deposit calcium into your bones.
- **Thyrotoxic Crisis:** Hyperthyroidism can also lead to the risk of a thyrotoxic crisis. In this condition, you feel severe sudden symptoms such as fever, a rapid pulse, and delirium. If this occurs, consult your doctor as soon as possible.

4.6

Home Remedies for Hyperthyroidism

- **Proper Diet:** Proper diet with an adequate amount of calcium and sodium is helpful in preventing hyperthyroidism. Suggest a healthy diet, nutritional supplements, and exercise.
- **Certain Vitamins:** Hyperthyroidism can also cause osteoporosis. In this condition, your bones become weak and thin. Your doctor may tell you about the quantity of vitamin D and calcium to take each day.

Classification of Drugs: Treatment Options

1. Symptom relief medications
2. Anti Thyroid Drugs - ATD
 - Methimazole, Carbimazole
 - Propylthiouracil (PTU)
3. Radio Active Iodine treatment - RAI Rx.
4. Thyroidectomy - Subtotal or Total (Surgical)
5. NSAIDs and Corticosteroids - for SAT