

**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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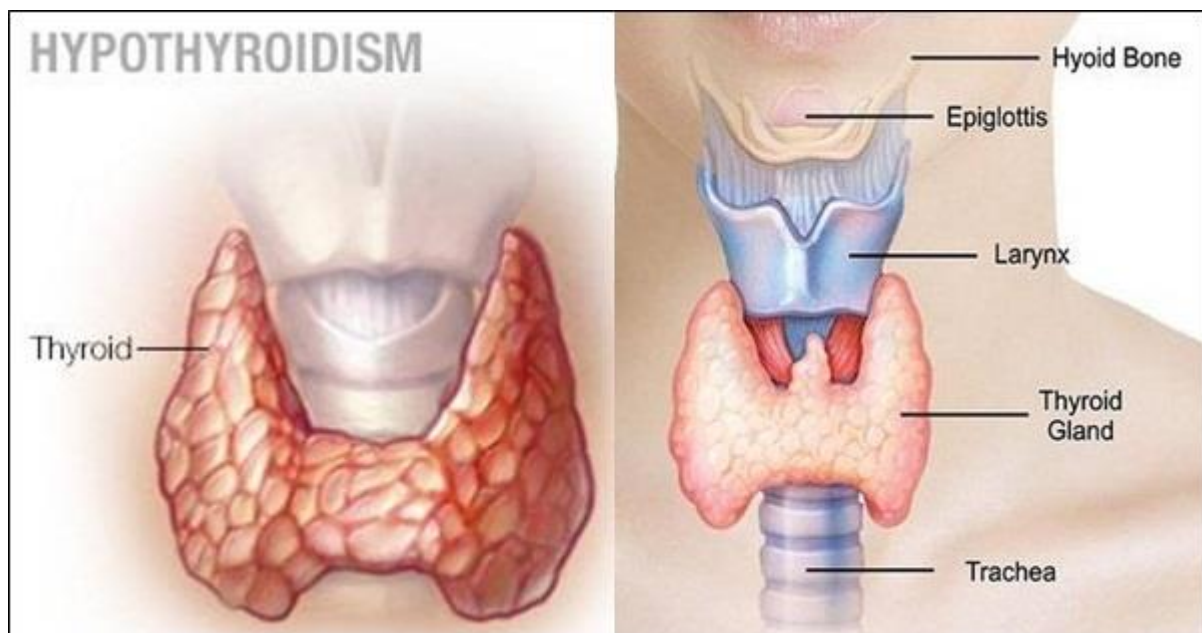
## Chapter– 4 Endocrine System

### Topic: HYPOTHYROIDISM

#### 4.1

#### Introduction

Hypothyroidism is a common condition where the thyroid doesn't create and release enough thyroid hormone into your bloodstream. This makes your metabolism slow down. Also called underactive thyroid, hypothyroidism can make you feel tired, gain weight and be unable to tolerate cold temperatures. The main treatment for hypothyroidism is hormone replacement therapy.



## 4.2

**Etiopathogenesis**

The most common cause of hypothyroidism is disease of the thyroid itself, primary hypothyroidism. The most common cause of primary hypothyroidism is chronic autoimmune thyroiditis (Hashimoto's disease), in which the thyroid is destroyed by antibodies or lymphocytes that attack the gland.

## 4.3

**Clinical manifestations**

**Signs and Symptoms of Hypothyroidism:** Some common signs and symptoms of hypothyroidism are

- ❖ Feeling tired (fatigue).
- ❖ Experiencing numbness and tingling in your hands.
- ❖ Having constipation.
- ❖ Gaining weight.
- ❖ Experiencing soreness throughout your body (can include muscle weakness).
- ❖ Having higher than normal blood cholesterol levels.
- ❖ Feeling depressed.
- ❖ Being unable to tolerate cold temperatures.
- ❖ Having dry, coarse skin and hair.
- ❖ Experiencing a decrease sexual interest.
- ❖ Having frequent and heavy menstrual periods.
- ❖ Seeing physical changes in your face (including drooping eyelids, as well as puffiness in the eyes and face).
- ❖ Having your voice becomes lower and hoarser.
- ❖ Feeling more forgetful (“brain fog”).

## Diagnostic tests

For patients suspected of having hypothyroidism, serum thyroid function (including thyroid-stimulating hormone [TSH], triiodothyronine [T3], and thyroxine [T4]) and thyroid antibody tests are performed.

Test	Normal range
TSH	0.4 – 4.0 mU/L
T4	0.6 – 1.6 ng/dL
T3	230 – 619 pg/dL
Thyroid antibody test	Negative

Results	Diagnosis
↓T3/T4, ↑TSH	Primary hypothyroidism
↓T3/T4, ↓TSH	Secondary hypothyroidism
Positive antibody	Hashimoto's disease

Source: Lewandowski 2015

## 4.5

## Health-Related Complications of Hyperthyroidism

Hypothyroidism that isn't treated can lead to other health problems, including:

- **Goiter.** Hypothyroidism may cause the thyroid gland to become larger. This condition is called a goiter. A large goiter may cause problems with swallowing or breathing.
- **Heart problems.** Hypothyroidism can lead to a higher risk of heart disease and heart failure. That's mainly because people with an underactive thyroid tend to develop high levels of low-density lipoprotein (LDL) cholesterol — the "bad" cholesterol.
- **Peripheral neuropathy.** Hypothyroidism that goes without treatment for a long time can damage the peripheral nerves. These are the nerves that carry information from the brain and spinal cord to the rest of the body. Peripheral neuropathy may cause pain, numbness and tingling in the arms and legs.
- **Infertility.** Low levels of thyroid hormone can interfere with ovulation, which can limit fertility. Some of the causes of hypothyroidism, such as autoimmune disorders, also can harm fertility.
- **Birth defects.** Babies born to people with untreated thyroid disease may have a higher risk of birth defects compared with babies born to mothers who do not have thyroid disease. Infants with hypothyroidism present at birth that goes untreated are at risk of serious physical and mental development problems. But if the condition is diagnosed within the first few months of life, the chances of typical development are excellent.
- **Myxedema coma.** This rare, life-threatening condition can happen when hypothyroidism goes without treatment for a long time. A myxedema coma may be triggered by sedatives, infection or other stress on the body. Its symptoms include intense cold intolerance and drowsiness, followed by an extreme lack of energy and then unconsciousness. Myxedema coma requires emergency medical treatment.

## 4.6

## Pharmacological managements

**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