

DISEASES OF THYROID

HYPERTHYROIDISM

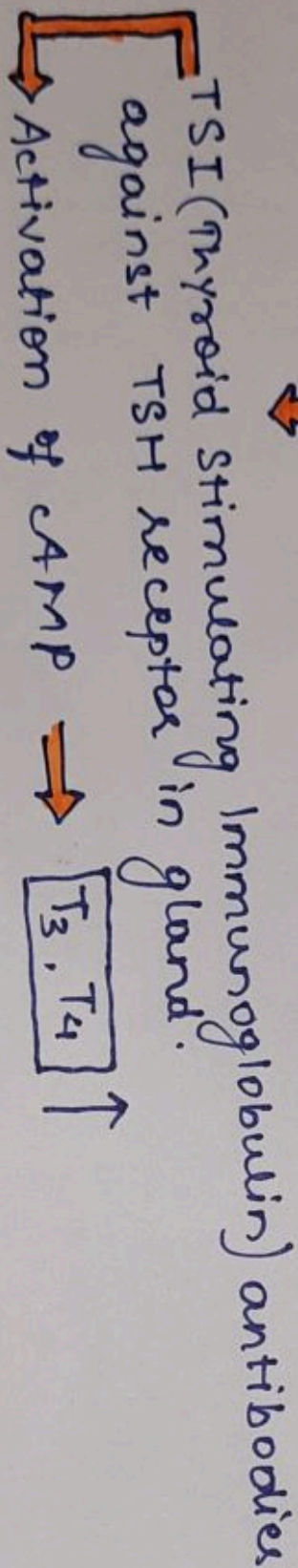
↑ of size of thyroid gland to 2-3 times than normal

GRAVE'S DISEASE

THYROID ADENOMA

* Grave's Disease :-

- ⇒ Most common form of Hyperthyroidism
- ⇒ Autoimmune disease

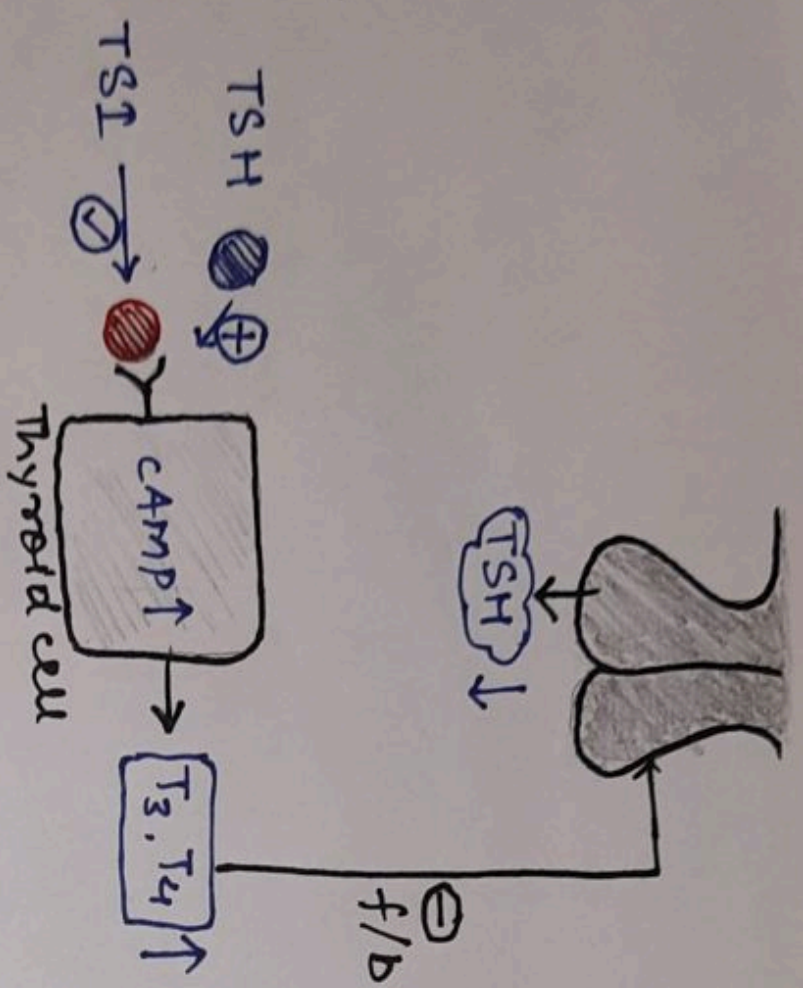


- ⇒ TSI → Prolonged stimulating effect on thyroid gland (≈ 12 hrs)

TSH → Normal stimulating effect (≈ 1 hr)

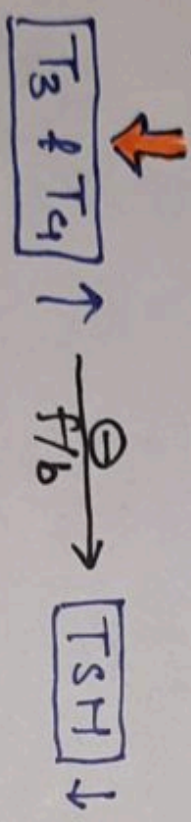
⇒ Effects seen :-

- T_3 & T_4 ↑
- TSH ↓



* Thyroid Adenoma :-

- ⇒ Occasional cause of hyperthyroidism
- ⇒ Tumor of thyroid tissue



Symptoms of hyperthyroidism :-

- High state of excitability
- Intolerance to heat
- ↑ sweating
- Extreme fatigue, but inability to sleep
- Mild to extreme weight loss
- ↑ diarrhoea
- Muscle weakness
- Tremors of hand
- ① Most people with hyperthyroidism develops

Better to learn in comparison with hypothyroidism.

Exophthalmos

Exophthalmos:-

→ Some degree of protrusion of eyeball

Due to :-

- Edematous swelling of retroorbital tissue
- Degenerative changes in extraocular muscle

Severe

- * Stretching of optic nerve → vision damage
- * Eyelids don't close completely → Eyes dry, irritated & infected
- ulceration of cornea.

(Blinking & sleeping)

* Diagnostic test for hyperthyroidism :-

→ conc. of TSH measured by Radioimmunoassay
(TSH ↓ in hyperthyroidism)

→ BMR :- (+30 to +60 ↑ in hyperthyroidism)

→ conc. of TSI measured by R14.
(Increased in Graves Disease)
(Normal in thyroid Adenoma)

* Treatment of hyperthyroidism :-

→ Surgical removal of most of thyroid gland.

Pre-operative therapy

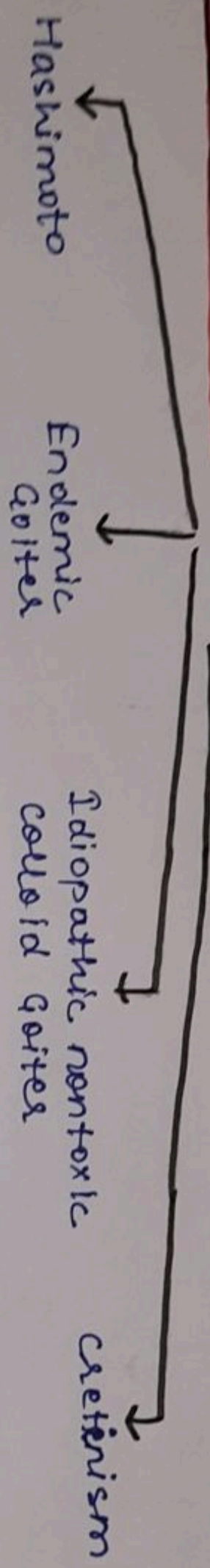
• Propylthiouracil → BMR normal
(for several weeks)

• Iodide intake ↑ → size & Blood supply of gland ↓
(1-2 weeks)



Operation

HYPOTHYROIDISM



* Hashimoto Disease :-

Antibody against thyroid gland

↓
Autoimmune thyroiditis
(Thyroid inflammation)

↓
Progressive Detatiation & finally fibrosis of gland

↓ OR ⊖ of Thyroid hormones
(T_3 & T_4)

* Endemic Goiter :-

Iodine Absence (In certain Regions)

↓
 T_3 & T_4 decreased

↓
No negative feedback to TSH

↓
[TSH] ↑

↓
But absence of I leads to
no production of T_3 + T_4 .

↓
Thyroglobulins ↑ by follicular cells

↓
Glands enlargement
(10-20 times)

Dietary intake of Iodine:
Normal Requirement :-

50mgm of Iodine
per year.

* Idiopathic Nontoxic Colloid Goiter :-

Idiopathic Reasons (No Iodine def.)



Thyroid gland enlargement.

Idiopathic Reasons may be :-

- Defective Iodide trapping mechanism
- Defect in peroxidase system
- Defect in coupling
- Defect in deiodinase enzyme
- Goitrogenic substances intake in food.
 - ↳ substances having propylthiouracil type antithyroid activity.

* Cretinism :-

→ Extreme hypothyroidism during fetal life / infancy / childhood.

→ Body growth & Mental growth retarded.

→ Types → Congenital :- congenital absence of thyroid gland.

→ Failure of thyroid gland to produce thyroid hormone due to genetic defect of gland.

→ Endemic cretinism :- lack of iodine in diet.

→ Birth (Normal appearance)

↓
D/t already present thyroid hormone of mother.

After few weeks (sluggishness, phys. & mental growth ↓)

→ Skeletal growth more inhibited than soft tissue growth



Obese, stocky & short appearance

→ Sometimes tongue enlargement → Difficulty in swallowing ⇒ Choking & Breathing

Symptoms of Hypothyroidism:-

- Sluggishness (inactiveness)
- Intolerance to cold
- ↓ sweating
- ↑ sleep
- weight gain
- constipation
- muscle sluggishness

- ⊙ Myxedema
- ⊙ Athetosis

Myxedema:- D/+ total lack of thyroid hormone.

- ⇒ Bagging under eyes
- ⇒ swelling of face

Reason

Hyaluronic acid ↑
Chondroitin sulfate ↑
→ in tissue gel ⇒ in interstitial space
∴ cell nature ⇒ immobile.
Non pitting edema.

Better to learn in comparison with hyperthyroidism.

Atherosclerosis in hypothyroidism :-

Thyroid hormone $\xrightarrow{\ominus}$ cholesterol, phospholipid

$\therefore$ Decrease in thyroid hormone $\rightarrow \uparrow$ in cholesterol $\rightarrow$ Atherosclerosis.

* Diagnostic test for hypothyroidism :-

$\rightarrow$ conc. of Thyroid hormone is low.

$\rightarrow$ BMR :- (-30 to -50 $\downarrow$ in hypothyroidism).

* Treatment of hypothyroidism :-

$\rightarrow$ Oral ingestion of thyroxine tablets.

SUMMARY OF DISEASES OF THYROID

Grave's disease

Thyroid Adenoma

Hypertthyroidism

Special feature
Exophthalmos



Normal Thyroid Hormone



Hashimoto

Endemic Goiter

Idiopathic Nontoxic
Colloid Goiter

Hypothyroidism

Myxedema
Atherosclerosis

Cretinism
in childhood.

HYPERTHYROIDISM

Gen. features

- High state of excitability
- ↑ BMR
- weight loss
- Intolerance to heat

Sleep

- ↓ sleep

Muscle

- Muscle weakness

Skin

- ↑ sweating

Heart

- ↑ Heart Rate
- ↑ Cardiac Output
- ↑ Force of contraction

Menstruation

- Oligomenorrhea
- Amenorrhea

GI Effect

- Diarrhea

HYPOTHYROIDISM

- Sluggishness

- ↓ BMR

- weight gain

- Intolerance to cold.

- ↑ sleep.

- Sluggishness

- ↓ sweating

- ↓ Heart Rate

- ↓ Cardiac Output

- ↓ Force of contract?

- Polymenorrhea

- Menorrhagia

- Constipation