WELCOME

TO

This is an Education Platform

We provide Free PDF Notes and Videos Classes for Pharmacy Students

Web Site http://www.fdspharmacy.in/

You tube https://www.youtube.com/c/FDSpharmacy

What app https://chat.whatsapp.com/IzSgXtFEvhS4LN5xhUgq5z

Telegram https://t.me/Fdspharmacy

Face book https://www.facebook.com/615501075383l3/

E-mail fdspharmacyinfo@gmail.com

Diploma in Pharmacy 2nd Year
Pharmacotherapeutics
Chapter 2 (c) : Endocrine System Disorders

Chapter 2 (c)

Endocrine System Disorders

- Endocrine system is defined as the complex glandular structure (cell modification or aggregation) which secrete the hormones and neurotransmitter in the body and regulate the body physiology and major participate in the defensive mechanism of the body.
- Hormones are non-nutrient chemicals which act as intercellular messengers and are produced in trace amounts. Most hormones enter interstitial fluid and then the bloodstream. In endocrine system we have discussed about two types of glands.
    1. Exocrine glands—Exocrine glands secrete their products (enzymes) into ducts, that carry the secretions into body cavities, into the lumen of an organ, or to the outer surface of the body. Exocrine glands include sudoriferous (sweat), sebaceous (oil), mucous, and digestive glands
    2. Endocrine gland—Endocrine glands secrete their products (Hormone) into the interstitial fluid surrounding the secretory cells rather than into ducts. From the interstitial fluid, hormones diffuse into blood capillaries and blood carries them to target cells throughout the body. It is depending upon the heart for distribution of products.

Clinical consideration

- When the hormonal secretion impaired due to any reason include external as well as internal reason leads to disease like-
    - Diabetes mellitus.
    - Hashimoto thyroiditis.
    - Grave‟s disease
    - Polycystic ovarian.
    - Hypothyroidism.
    - Hyperthyroidism

Diabetes

- Diabetes Mellitus is a inherited or acquired disease occurs due to defect in insulin secretion or insulin action or both , in which blood sugar level is high for long time.
- It is also called Hyperglycemia.
- Diabetes means pass through , and mellitus means sweet,
- So we can say abnormal passing of sugar through blood or urine is called Diabetes mellitus.

Normal range of blood sugar level

	normal people	diabetes patients target
Before meals	72-99 mg/dl	80-130mg /dl
2 hours after meals	less than 140/ mg/dl	less than 180mg/dl

Types of Diabetes

- **Type 1 Diabetes :** This type of diabetes occurs due to severe reduction in production of Insulin because of autoimmune destruction of beta cells of Pancreas . This occurs in younger age usually . (before 35-40 years)
- **Type 2 diabetes :** This type of diabetes occurs due to the resistances to the action of Insulin . Or cells do not respond to insulin . This occurs in older age usually .
- **Gestational Diabetes :** During pregnancy , placenta generate hormones that alter the function of insulin.

Etiology

1) Type 1 Diabetes :

- Autoimmune destruction of beta cells of pancreas.
- Any disease in pancreas
- Age
- Genetic factors
- Beta blockers and Thiazide drugs if used for long term

2) Type 2 Diabetes

- Insulin does not function properly.
- Resistances to insulin function
- Obesity.
- lack of physical activity
- Genetic factors

Pathogenesis

Type 1 diabetes	Type 2 Diabetes
Immune attack on beta cells ↓	Poor response of cells to insulin ↓
Severe decrease in insulin production ↓	Decrease function of Insulin ↓
Increase blood sugar level ↓	Increase blood sugar level ↓
Type 1 Diabetes Mellitus	Type 2 Diabetes Mellitus

Clinical Manifestations

- Presence of sugar in urine
- Increase thirst
- Increase frequency of urination
- Extreme hunger
- Fatigue
- Blurred vision
- Headache
- Frequent infection
- Delay in healing of cuts and wounds
- Itchy skins

Non Pharmacological managements

- Physical Activity
- Diet (should avoid carbohydrates , salt in excess amount)
- Should avoid Sweats

Pharmacological managements

- **Type 1 diabetes :** It is insulin dependent , insulin is administered to treat this type of diabetes .
- **Type 2 diabetes**
  - **Hypoglycemic agents**
    - Sulfonylurea : they stimulate the release of insulin from pancreas , : Tolbutamide ,chlorpropamide , glibenclamide
    - Biguanides : prevent liver from production of glucose , : metformin , phenformin
    - α Glucosidaese Inhibitors : it prevent the absorption of carbohydrates form intestine : Acarbos , miglitol

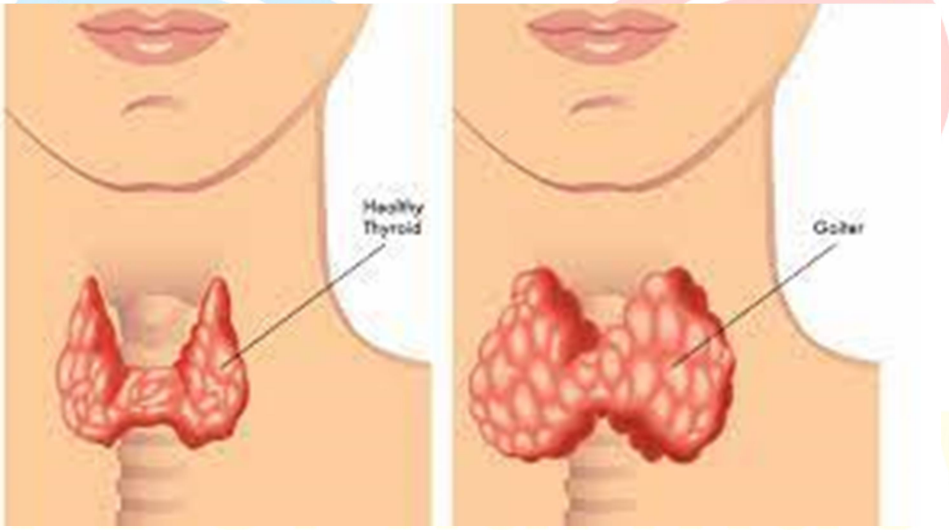
Thyroid Disorder (Hypo and hyperthyroidism)

→ The thyroid gland, usually located below and anterior to the larynx, consists of two bulky lateral lobes connected by a relatively thin isthmus.

→ The thyroid is divided by thin fibrous septae into lobules composed of about 20 to 40 evenly dispersed follicles, lined by a cuboidal to low columnar epithelium.

Hypothyroidism

→ Lake of Thyroid Hormones (TH) in blood circulation about 20% to 40 % which slow down the metabolism is called Hypothyroidism.



Etiology :

➢ There are two types of etiology of Hypothyroidism , primary (Problem in thyroid gland) , secondary (problem in Pituitary gland)

Primary :

- Autoimmune disorder
- Dietary iodide deficiency.
- Anti-thyroid drugs
- Lithium therapy
- Radioactive iodine (RAI) uses.

Secondary :

- low secretion of TSH.
- Damage of pituitary gland.

Pathogenesis of Hypothyroidism

Primary or secondary causes
Autoimmune disorder ↓
decreased production of TH ↓
lake of TH in blood ↓
Hypothyroidism ↓

Clinical manifestation

- Constipation
- Depression
- Feeling tiredness
- high blood cholesterol level
- Dry skin
- Excessive forgetfulness
- Heavy and frequent menstrual cycle
- Tingling in hands
- Loss of sexual desire
- Gaining weight

Non Pharmacological Management

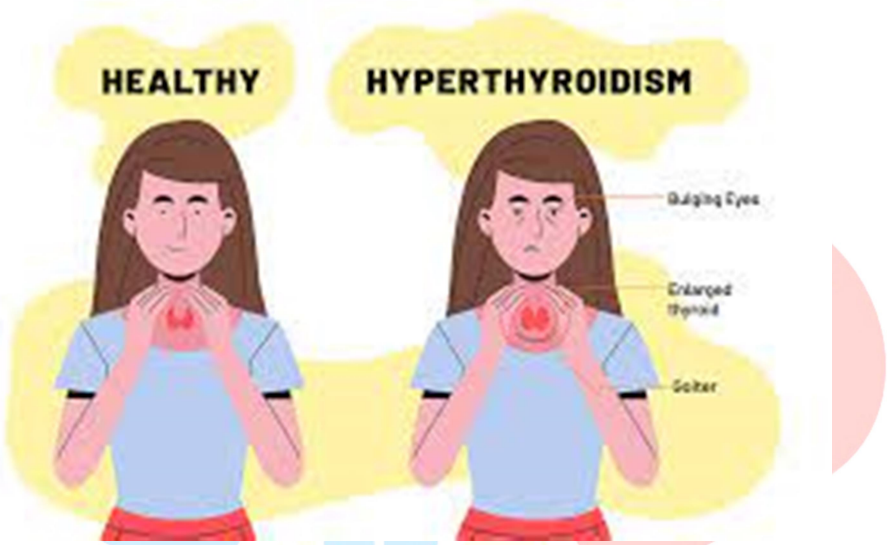
- Exercise
- Stress management
- Diet (Increase intake of foods , fruits , vegetables are rich in iodine , zinc , iron copper selenium , Vitamin A , D.

Pharmacological Management

- Levothyroxine (T_4)
- Liothyronine (T_3)
- Combination Of T_4 and T_3

Hyperthyroidism

→ A condition in which thyroid gland produces more Thyroid Hormones (TH) than requirement of the body is called Hyperthyroidism.



Etiology

- Graves 's Disease : It is an immune system disorder in which thyroid produce excess amount of Thyroid hormones.
- Infection of Thyroid gland.
- Excess consumption of Iodine
- Pituitary gland disorder

Pathogenesis of Hyperthyroidism

Thyroid gland disorder ↓
Increases production of TH ↓
High level of TH in Blood ↓
Hyperthyroidism ↓

Clinical Manifestation

- Weight Loss
- Increased appetite
- Changes in menstrual
- Restless
- Diarrhoea
- Excess sweating
- Sleep problems
- Swollen in thyroid gland etc.

Non Pharmacological Management

- Exercise
- Stress management
- Diet (decrease intake of foods , fruits , vegetables are rich in iodine , zinc , iron copper selenium , Vitamin A , D.

Pharmacological Management

- **Hormone Inhibitors :** Methimazole , Propylthiouracil .
- **Beta Blockers :** Propranolol (these drugs provide relief from hyperthyroid symptoms till the anti-thyroid drugs become effective .
- **Glucocorticoids :** They inhibit the conversion of T_4 to T_3 (T_3 is more power full Hormone)
- **Radioactive Iodine :** These drugs destroy thyroid cells and control thyroid hormones . the dosage of RAI should be given carefully , otherwise cause hypothyroid .

s

Hello

Friends

If you Get Any Help From This Notes / Videos

Next You Turn To Help Us

Please Contribute Some Amount To Our

FDSPharmacy Team

Phone pe 6398439940

Paytm 6398439940

Google Pay 6398439940

Amir Khan

Thank You

Keep Supporting