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

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Chapter 2 (c)
Endocrine System Disorders
IMPORTANT Questions

Q1. Define Diabetes ? Write etiopathogenesis, clinical manifestations, pharmacological management, and non-pharmacological management.

Ans.

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

Q2. What is Hypothyroidism ? Give etiopathogenesis, clinical manifestations, pharmacological management, and non-pharmacological management.

Ans.

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

Q3. What is Hyperthyroidism ? Give etiopathogenesis, clinical manifestations, pharmacological management, and non-pharmacological management.

Ans.

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 .