Definition, etiopathogenesis, clinical manifestations, nonpharmacological and pharmacological management of the diseases associated with Endocrine System

Diabetes Mellitus (Dm)

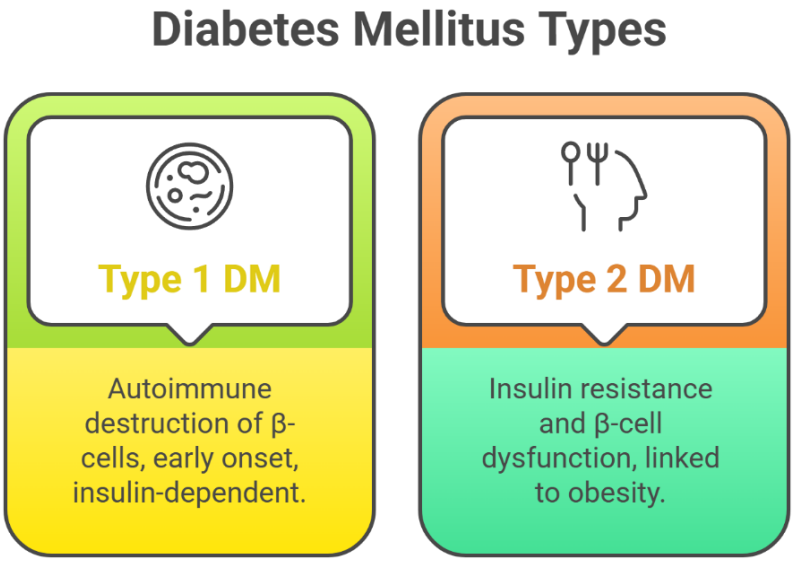
Definition:

- DM is a group of metabolic disorders characterized by chronic hyperglycemia due to defects in insulin secretion, insulin action, or both.

Types:

- **Type 1 DM**: Autoimmune destruction of β-cells → absolute insulin deficiency
- **Type 2 DM**: Insulin resistance + relative insulin deficiency
- **Gestational DM**
- **Secondary DM** (due to pancreatitis, drugs, endocrinopathies)

Etiopathogenesis:



Type 1 DM:

- Autoimmune destruction of pancreatic β-cells (HLA-DR3, DR4)
- Onset usually in children/adolescents
- Requires lifelong insulin therapy

Type 2 DM:

- Insulin resistance in peripheral tissues (muscle, liver, adipose)

Copyright © 2025 by Engacy Learning Private Limited. All rights reserved. Reproduction or distribution without written consent is strictly prohibited.

- Relative β-cell dysfunction
- Associated with obesity, sedentary lifestyle, genetics

Clinical Manifestations:

- Polyuria
- Polydipsia
- Polyphagia
- Weight loss (especially in type 1)
- Fatigue
- Blurred vision
- Frequent infections
- Poor wound healing

Complications:

- **Acute**: DKA (type 1), HHS (type 2)
- **Chronic**:
  - **Microvascular**: Retinopathy, nephropathy, neuropathy
  - **Macrovascular**: Coronary artery disease, stroke, PAD

Nonpharmacological Management:

- **Medical nutrition therapy (MNT)**: Low glycemic index, balanced carbohydrates
- Regular physical activity (150 minutes/week)
- Weight management
- Self-monitoring of blood glucose (SMBG)
- Education and counseling

Pharmacological Management:

Type 1 DM:

- **Insulin therapy (lifelong)**:
  - Basal-bolus regimen (long-acting + short-acting insulin)
  - Insulin pumps

Type 2 DM:

- **Oral hypoglycemics:**

Copyright © 2025 by Engacy Learning Private Limited. All rights reserved. Reproduction or distribution without written consent is strictly prohibited.

- **Biguanides**: Metformin (first-line)
- **Sulfonylureas**: Glipizide, Glimepiride
- **DPP-4 inhibitors**: Sitagliptin, Linagliptin
- **SGLT2 inhibitors**: Empagliflozin, Dapagliflozin (also CV protective)
- **Thiazolidinediones (TZDs)**: Pioglitazone
- **α-glucosidase inhibitors**: Acarbose

➢ **GLP-1 receptor agonists**: Exenatide, Liraglutide (injectable)

➢ **Insulin**: Added when oral agents fail

Hypothyroidism

Definition:

- A condition in which the thyroid gland fails to produce sufficient thyroid hormones (T3, T4), leading to slowed metabolism.

Etiopathogenesis:

- **Primary causes** (most common):
  - Hashimoto’s thyroiditis (autoimmune)
  - Iodine deficiency
  - Post-surgical or post-radioiodine therapy
- **Secondary causes**:
  - Pituitary or hypothalamic disorders (rare)

Clinical Manifestations:

- Fatigue
- Weight gain
- Cold intolerance
- Constipation
- Dry skin
- Depression
- Bradycardia
- Puffy face, periorbital edema

Copyright © 2025 by Engacy Learning Private Limited. All rights reserved. Reproduction or distribution without written consent is strictly prohibited.

- Menstrual irregularities
- Hoarseness
- Slow reflexes

Severe form: Myxedema

Nonpharmacological Management:

- Adequate iodine intake
- Regular monitoring of TSH levels
- **Lifestyle**: Diet, avoiding goitrogens (raw cabbage, soy in large amounts)

Pharmacological Management:

- **Levothyroxine** (T4 replacement therapy) – lifelong
- Dose adjusted based on TSH levels
- Taken on empty stomach, early morning

Hyperthyroidism

Definition:

- A condition where there is excess production of thyroid hormones (T3, T4), leading to increased basal metabolic rate.

Etiopathogenesis:

- Graves’ disease (autoimmune, most common)
- Toxic multinodular goiter
- Thyroid adenoma
- Thyroiditis
- Excessive thyroid hormone intake

Clinical Manifestations:

- Weight loss despite increased appetite
- Heat intolerance
- Palpitations, tachycardia
- Nervousness, anxiety
- Tremors

Copyright © 2025 by Engacy Learning Private Limited. All rights reserved. Reproduction or distribution without written consent is strictly prohibited.

First Hope

FREE PREVIEW

Click here to visit our website

PHARMACY PREMIUM NOTES

Complete subject and semesters are available on FirstHope app only.

Scan or click here

Click here to get the app >

Available on Google Play

JOIN THE FIRSTHOPE COMMUNITY

Join our Telegram channel

Click here to join Telegram >

Scan or click here

@FirstHopeNotes

Instagram

@firsthope.official

Click here to follow >

YouTube channel

FirstHope-Pharmacy / Live streams

Click here to watch >

WhatsApp channel

Follow FirstHope on WhatsApp

Click here to join >

FirstHope website

firsthope.co.in

Click here to visit >

B.Pharm / D.Pharm / M.Pharm / Pharm.D

Preview notes. Complete subjects and semesters in the FirstHope app.