

TOPIC: ISLETS OF LANGERHANS
CLASS: B.SC PART -III (HONS.)
PAPER- V
GROUP – B

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Disorders of Pancreas:

- ▣ (i) **Diabetes mellitus (Hyperglycemia):**
- ▣ The most common endocrine disorder of the pancreas is the diabetes mellitus, now recognized to exist in two forms – insulin-dependent and non-insulin-dependent.
- ▣ The insulin-dependent diabetes mellitus (IDDM) is caused by a failure of the Beta-cells to produce adequate amount of insulin
- ▣ while the non-insulin-dependent diabetes mellitus (NIDDM) appears to involve failure of insulin to facilitate the movement of glucose into cells.

- ❑ In both disorders the blood glucose concentration is elevated above the normal range.
- ❑ Some of the glucose is excreted in the urine, and water follows the glucose, causing excessive urination and dehydration of body tissues.
- ❑ This causes excessive thirst (polydipsia).
- ❑ The cells are unable to utilize glucose and other carbohydrates for energy production.
- ❑ They utilize their proteins for it.
- ❑ The person becomes very weak.
- ❑ Degradation of fats increases, producing ketone bodies (ketosis).
- ❑ The latter are acidic and poisonous.
- ❑ Blood cholesterol level rises.
- ❑ Healing power is impaired.

- ▣ Administration of insulin lowers the blood-glucose level.
- ▣ It gives relief to the patient.
- ▣ A tendency towards non-insulin-dependent diabetes appears to be inherited as an autosomal recessive characteristic.

- ▣ **(ii) Hypoglycemia:**

- ▣ It occurs when the blood glucose level falls below normal.

- ▣ Theoretically, it may be caused by an excess of insulin, a deficiency of glucagon, or a failure of the secretion of the two hormones to completely regulate the blood sugar.

- ▣ Some individuals have been found to have few or no Alpha cells and thus are deficient in glucagon,
- ▣ whereas others produce excess quantities of insulin usually because of a tumour of the beta cells.
- ▣ The presence of excess insulin is more correctly referred to as hyperinsulinism.
- ▣ Symptoms of hypoglycemia include weakness, profuse sweating, irritability, confusion, unconsciousness and convulsions.
- ▣ It needs urgent intake of sugar or glucose.