

# Diabetes

- \* Diabetes mellitus is a group of metabolic disorder in which there are high blood sugar levels over a prolonged period.
- \* symptoms of high blood sugar include frequent urination, increased thirst, increased hunger.
- \* Diabetes can cause many complications - ketoacidosis, heart disease, foot ulcers, chronic RF, damage to eyes.
- \* Diabetes is due to either pancreas not producing enough insulin or the cells of the body not responding properly to the insulin produced.

## Types

(1) insulin dependent diabetes mellitus (IDDM), also known as juvenile diabetes - characterized by the pancreas failure to produce enough insulin.

\* It represents a majority of cases of diabetes affecting children.

\* The cause is unknown.

(2) non-insulin dependent diabetes mellitus (NIDDM) It is due to combination of defective insulin secretion and insulin resistance or reduced insulin.

## Sensitivity.

- \* The primary cause is excessive body weight and not enough exercise.

## Signs & Symptoms.

- \* polyuria (increased urination)
- \* polydipsia (increased thirst)
- \* Polyphagia (increased hunger)
- \* Blurred vision, fatigue, itchy skin, slow healing of cuts
- \* Symptoms may develop rapidly in type 1 DM, while they usually develop much more slowly and may be absent in type 2 DM.

## Pathogenesis of DM

### ① Type-1 DM

Genetic predisposition

Environmental factor

↓  
Autoantigen form on insulin producing beta cells and circulate in the blood stream and lymphatics.

↓  
Processing and presentation of autoantigen by antigen presenting cells.

↓  
activation of T helper 1 lymphocytes.

↓  
activation of T helper 2 lymphocytes.

↓ IFN $\gamma$

Activation of macrophages with release of IL-1 and TNF $\alpha$

↓ IL-2

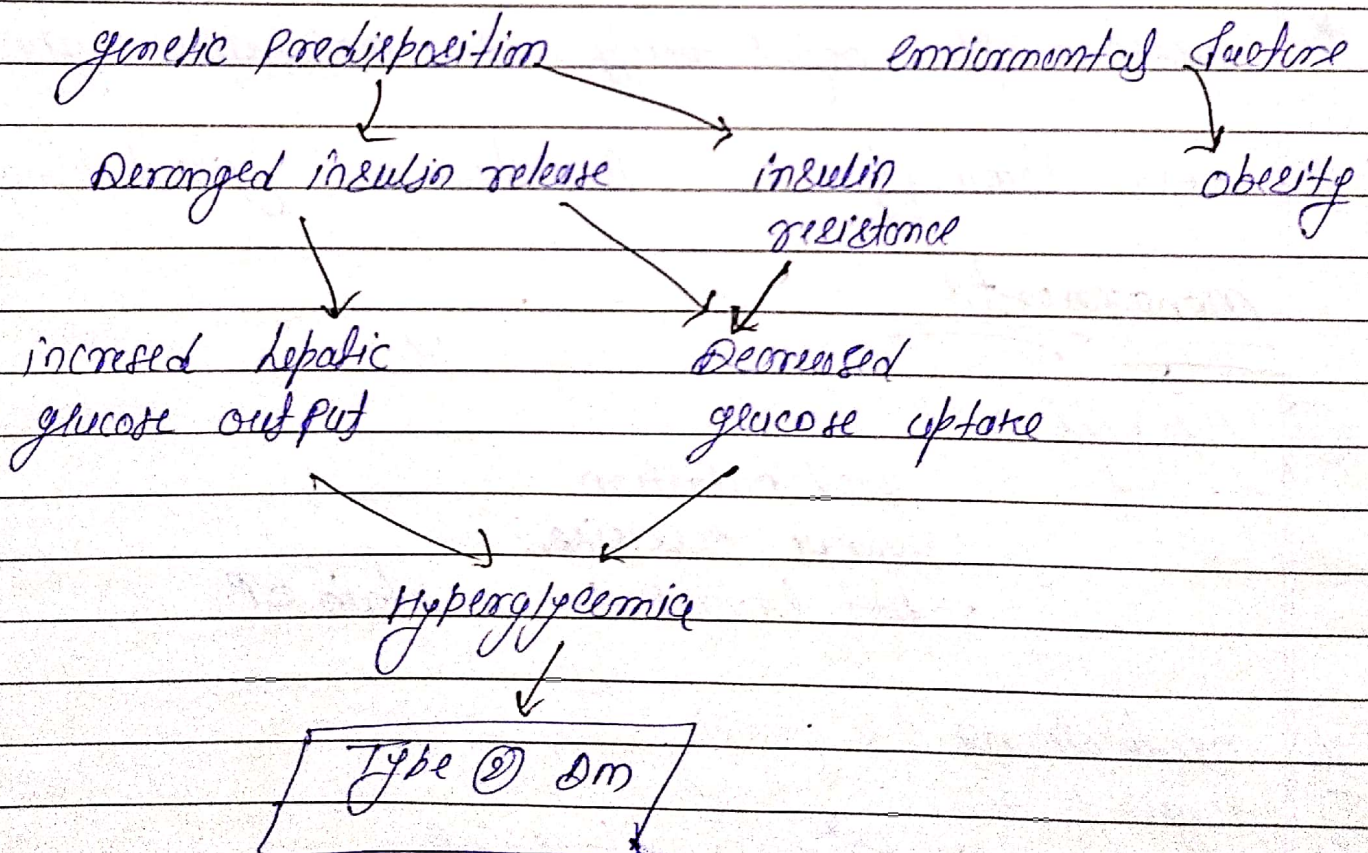
Activation of autoantigen specific T cytotoxic cells

↓ IL-4

Activation of B lymphocytes to produce islet cell auto antibodies and anti-AD65 antibodies

Destruction of beta cells with decreased insulin secretion

## Types - (2) DM



## Diagnosis =

- \* fasting plasma glucose level  $\geq 7.0$  mmol/l
- \* Plasma glucose  $> 11.1$  mmol/L (200mg/dL) two hours after a 75g oral glucose load as in glucose tolerance test.
- \* symptom of high blood sugar and casual plasma glucose  $> 11$  mmol/L (200mg/dL)
- \* glycated hemoglobin (HbA<sub>1c</sub>)  $\geq 48$  mmol/mol
- \* measure the body's ability to metabolize glucose
- \* most commonly done to check for gestational diabetes

## management

### (A) Lifestyle :-

- good nutrition
- regular exercise
- Diet control to maintain BP

### (B) medications

### (C) Surgery -

- Pancreas transplant
- Kidney transplantation
- weight loss surgery.