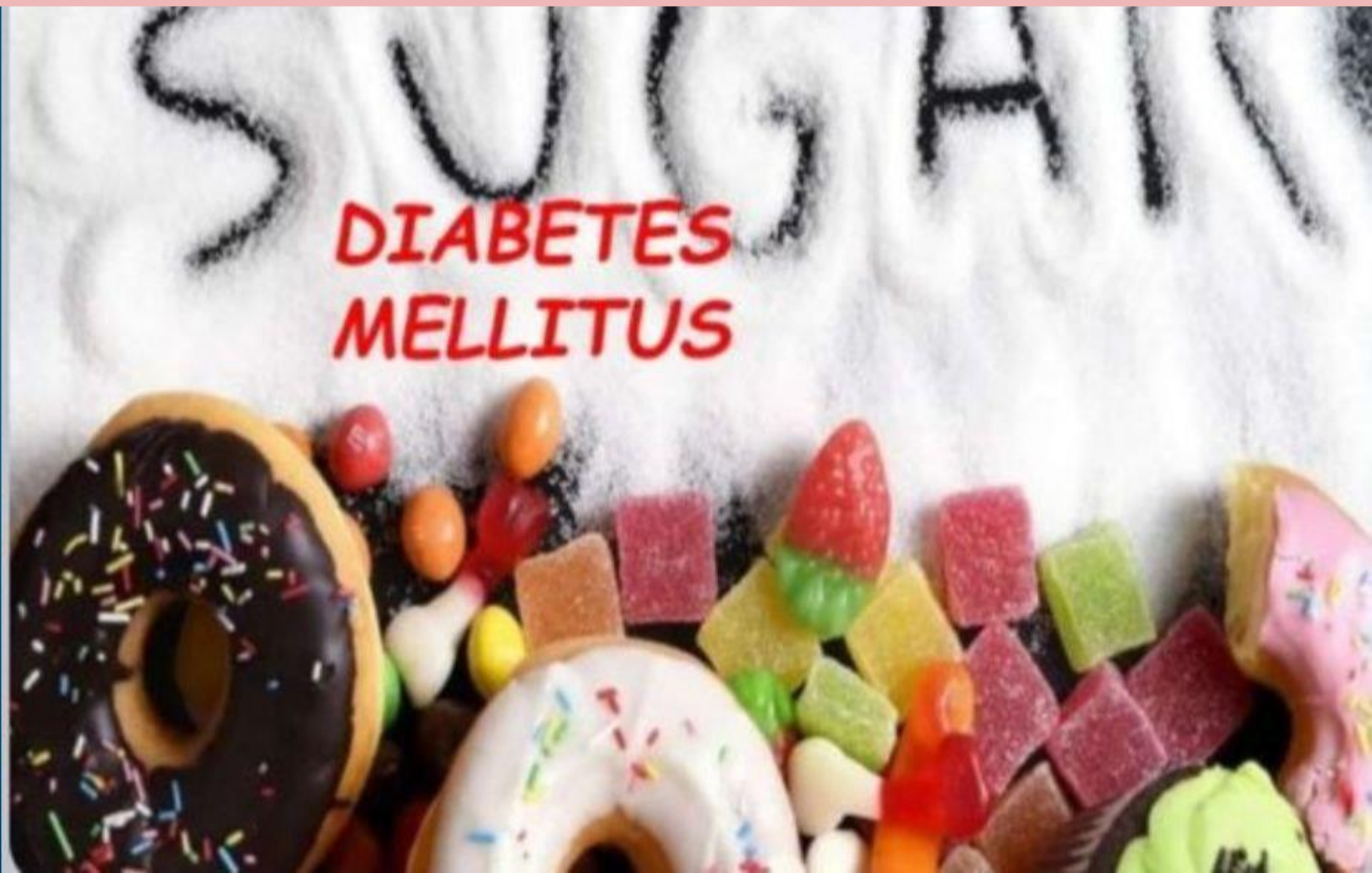
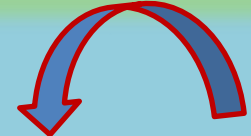
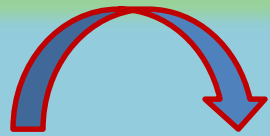


Management of patients with systemic disease (part 1)



Pancreas :is a mixed exocrine-endocrine gland that produces both digestive enzymes and hormones. It is composed of two major types of tissues.



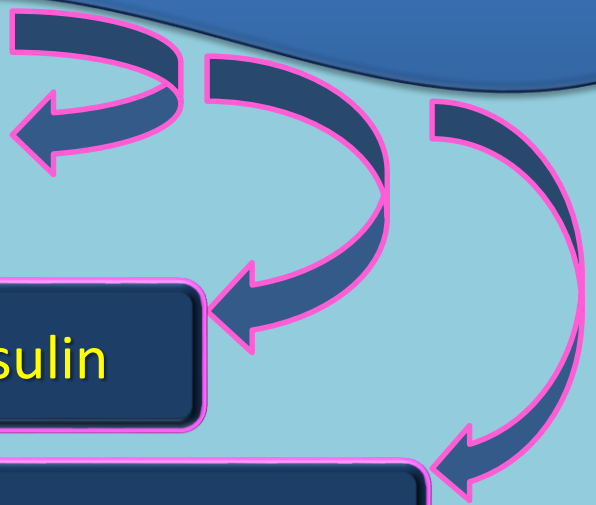
1- The acini, which secrete digestive juices into the duodenum

2- The islets of Langerhans, contain:

alpha cell: secretes glucagon

beta cells: secretes insulin

delta cells: secretes somatostatin



Glucose

Glucose is needed by cells for growth, maintenance and energy. In order for glucose to go across the cellular membrane it needs insulin to be bound to special cellular receptors. Once glucose enters cells, it is phosphorylated and can not diffuse out of cells and then be either used for energy production or converted to a storage compounds (glycogen and fat).

Insulin

- ✪ insulin: is released into the blood by beta cells, found in the islets of langerhans in the pancrease, in response to rising levels of blood glucose typically after eating.
- ✪ Insulin is a principle hormone that regulates uptake of glucose from the blood into most cells . Therefore deficiency of insulin or insulin resistance plays a central role in all forms of diabetes mellitus.

Normal Glucose Homeostasis

In healthy adults, fasting blood glucose levels are regulated within a range of 70 to 99 mg/dL, and maintained by specific hormones such as:



insulin



glucagon

Insulin, is known to reduce blood glucose levels by accelerating transport of glucose into insulin-sensitive cells and conversion it to storage compounds by **glycogenesis** (conversion of glucose to glycogen) and **lipogenesis** (fat formation).

Glucagon, which also plays a central role in glucose homeostasis, is produced in response to low normal glucose levels or **hypoglycemia** and acts to increase glucose levels by accelerating **glycogenolysis** and promoting **gluconeogenesis**.

Diabetes mellitus: is a chronic systemic disorder of glucose metabolism, resulting from defects in insulin secretion, insulin action or both.

Classification of diabetes mellitus

Type 1 diabetic: (β -cell destruction, usually leading to absolute insulin deficiency)

Type 2 diabetic: secretory defect with insulin resistance

Gestational diabetic: occurs during pregnancy

Type 1 diabetic (Insulin-Dependent Diabetes Mellitus) As the name indicates, the patients are totally dependent on exogenous insulin therapy.

The diagnosis of type 1 diabetic may be made at any age, but it usually manifests in childhood, adolescence or early adulthood, which means that a majority of the patients with type 1 diabetic are diagnosed before the age of twenty. This type 1 of diabetic account for 10 to 15 % of all cases of DM (Beers *et al*, 2006).



Type 1 Diabetic Mellitus

★ Only about 30 percent of the risk for type 1 diabetes is **genetically determined**, while the rest may be related to:

A- Environmental factors such as: - viral infection (enterovirus & retrovirus infection).

B – Nutritional factor (specially cow's milk proteins, have been suggested as possible causes of autoimmune reactions which destroy insulin-producing cells in the Langerhans islets of the pancreas .

C - Immune mediated

D – Idiopathic

Type 2 diabetic (Non Insulin-Dependent Diabetes Mellitus)

Begins with **insulin resistance** a condition in which cells fail to respond to insulin properly.

The risk factors for type 2 diabetes mellitus include:

- a) family history
- b) being overweight
- c) high intake of dietary fat

General complication of diabetic

1- The Vascular complication :

A- Microvascular complecation include:

Retinopath - nephropathy - neuropathy.

B- Macrovascular complication include :

cardiovascular problem, ischemic heart disease

2- other problems:

diabetic foot, oral health, vision, hearing, limited joint mobility and mental health

Oral Manifestations of Diabetes Mellitus

Taste alterations

Burning Mouth

Halitosis with smell of fruit or acetone

Periodontal disease

dental caries

Xerostomia

Delayed wound healing

Oral ulcers

Oral candidiasis

Diagnosis of diabetes

1. Classic symptoms of diabetes mellitus
(increased urination-increased thirst-unexplained weight loss)
and **Random plasma glucose** ≥ 200 mg/dL

2. Fasting plasma glucose test:
glucose level 110 to 125 mg/dL or above

3. Oral glucose tolerance test

Diagnosis of diabetes

3. Oral glucose tolerance test :

Its more sensitive, but it is less convenient .

Its requires fasting for at least 8 hours before the test. The plasma glucose level is measured immediately before and 2 hours after a person drinks a liquid containing **75 grams** of glucose dissolved in water. If the blood glucose level is **140 - 199** 2 hours after drinking the liquid, **the person has a form of pre-diabetes .**

and if glucose level is **200 mg/dL or above**, confirmed by **repeating** the test on another day, means a person has **diabetes**



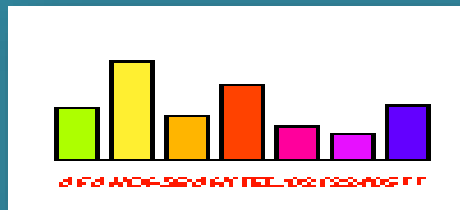
HbA_{1c}

Glycated hemoglobin

reflects average plasma glucose over the previous 2–3 months in a single measure which can be performed at any time of the day and does not require any special preparation such as fasting. These properties have made it the gold standard for assessing glycaemic control in people.

HbA_{1c}

- 1- HbA_{1c} < (5.7)% Normal.
- 2- HbA_{1c} (5.7-6.4)% good controlled.
- 3- HbA_{1c} > (6.5)% moderated controlled.
- 4- HbA_{1c} > 8% poor controlled.



Management in the dental clinic

✓ Medical history: Take history and assess glycemic control at initial appointment, by:

✓ Glucose levels

✓ Frequency of hypoglycemic episodes

✓ Medication, dosage and times.

✓ Consultation

1. Scheduling of visits:

Morning appointment and do not be with peak activity.

2. Diet: Ensure that the patient has eaten normally and taken medications as usual

3. Blood glucose monitoring: Measured before beginning.

4. Prophylactic antibiotics: To get the establishment of infection.

5. During treatment: The most common complication of DM occur are: Hypoglycemic.

Hyperglycemia

MANAGEMENT OF SYNCOPE:

Treat the underlying cause

Immediate symptomatic therapy includes:

- Recognition of unconsciousness

- “Shake & shout”

- Check for protective reflexes

Management

- Position victim-supination

- Assess & open airway-head tilt, chin lift

- Airway patency, breathing, circulation-look, listen & feel

- Artificial ventilation & cardiac massage cardiopulmonary resuscitation

Thank you

