

DIABETES

INTRODUCTION

→ Diabetes mellitus, is a group of metabolic diseases in which there are high blood sugar levels over a prolonged period.

→ Symptoms of high blood sugar include frequent urination, increased thirst, and increased hunger.

→ If untreated, diabetes can cause many complications like Diabetic ketoacidosis, non-ketotic hyperosmolar coma or Death.

Serious long-term complications include heart diseases, stroke, chronic kidney failure, foot ulcers and damage to the eyes.

* Diabetes is due to either the pancreas not producing enough insulin or the cells of the body not responding properly to the insulin produced.

TYPES

* There are three main types of diabetes mellitus.

- Type 1 DM
- Type 2 DM
- Gestational Diabetes.

TYPE 1 DM:- Results from the pancreas failure to produce enough insulin.

→ This form was previously referred to as "insulin dependent diabetes mellitus" (IDDM) or "juvenile diabetes."

*** TYPE 2 DM:-** Begins with insulin resistance, a condition in which cells fail to respond to insulin properly.

This form was previously referred to as "non insulin-dependent diabetes mellitus" (NIDDM) or "adult-onset diabetes."

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

GESTATIONAL DIABETES - It is the third main form and occurs in pregnant women without a previous history of diabetes.

COMPARISON OF TYPE 1 AND 2 DIABETES

FEATURE	TYPE 1	TYPE 2
Onset	Sudden	Gradual
Age at onset	Mostly in children	Mostly in Adults
Body size	Thin or Normal	Often obese
Ketoacidosis	Common	Rare
Autoantibodies	Usually present	Absent
Endogenous insulin	Low or Absent	Normal/decreased/ Increased
Concordance in Identical twins	50%	90%
prevalence	~10%	~90%

SIGNS AND SYMPTOMS :-

The classic symptoms of untreated diabetes are weight loss, polyuria (increased urination), polydipsia (increased thirst) and polyphagia (increased hunger).

Symptoms may develop rapidly (weeks or months) in type 1 DM, while they usually develop much more slowly and may be subtle or absent in type 2 DM.

In addition they also include

- Blurry vision
- Head ache
- Fatigue
- Itchy skin

Symptoms of Diabetes



Increased thirst.



Slow-healing cuts and sores.



Fatigue.



Blurred vision.



Frequent urination.



Unexplained weight loss.

slow healing of cuts.

Prolonged high blood glucose can cause glucose absorption in the lens of the eye, which leads to changes in its shape, resulting in vision changes.

A number of skin rashes that can occur in diabetes are collectively known as diabetic dermadromes.

Complications

All forms of diabetes increase the risk of long-term complications. These typically develop after many years (10-20).

Damage to blood vessels

Cardiovascular disease

Coronary artery disease

Stroke

Peripheral vascular disease

Diabetic retinopathy

Diabetic Nephropathy

Chronic kidney disease

Diabetic neuropathy

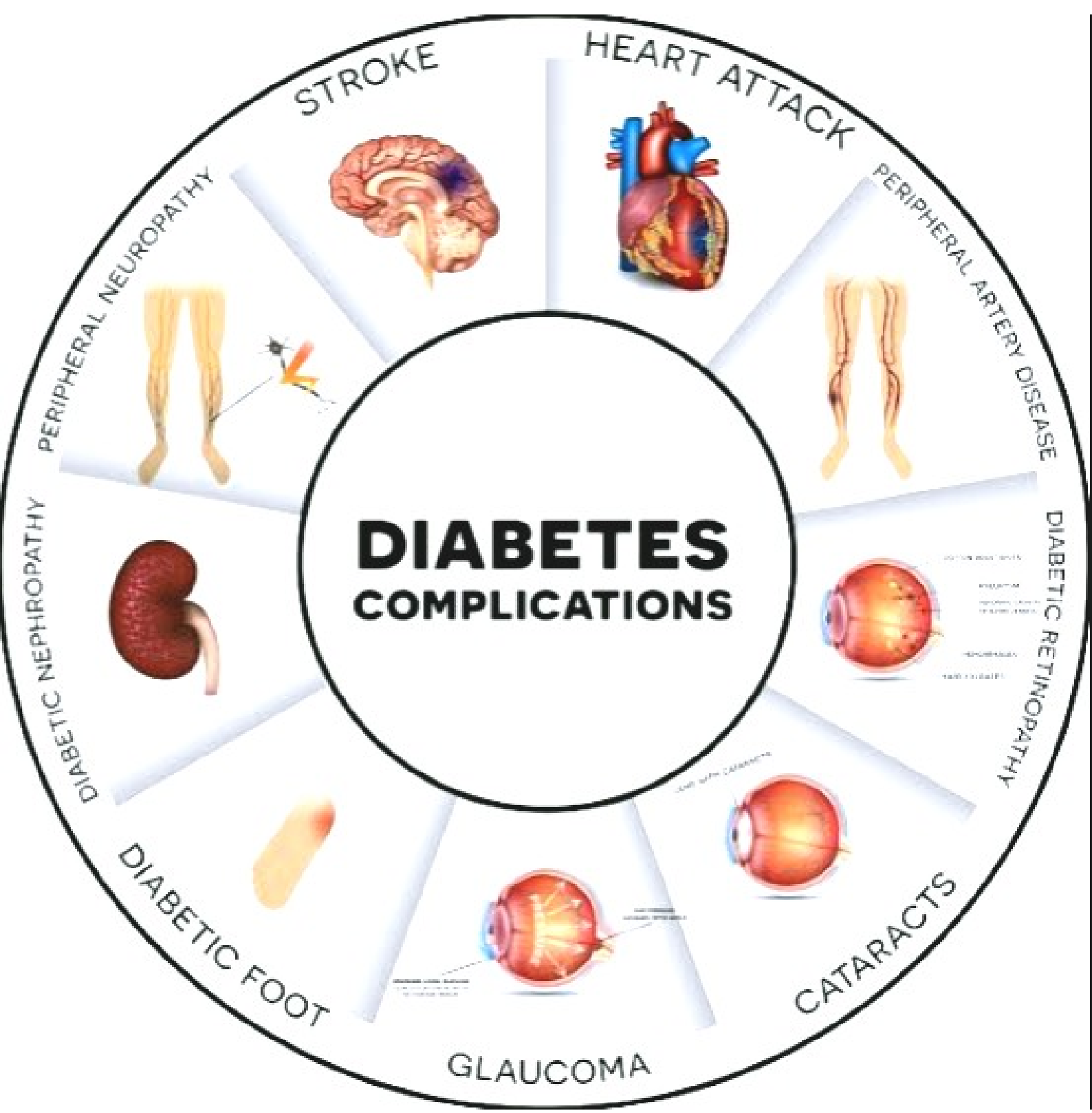
Diabetic foot ulcers

Diabetic Amyotrophy

Mental health

Gastroparesis

Hearing loss



causes of diabetes -

Diabetes causes vary depending on genetic makeup, family history, ethnicity, health and environmental factors.

There is no defined diabetes cause because the causes of diabetes vary depending on the individual and the type.

Diagnosis DIAGNOSIS

Blood tests are used to diagnosis diabetes and pre-diabetes. Lab analysis of blood is needed to ensure test results are accurate.

Glucose measuring devices such as finger stick devices may be used as a quick indicator of high blood glucose.

- Glucose tolerance test
- Oral Glucose tolerance test

diagnostic pic

Treatment - TREATMENT

prevention and treatment often involve physical exercise

Maintaining Normal body weight

Healthy diet

Diet plan - Daily nutritional needs should be taken frequently but small portions.

Below are some Diabetes myths:

People with diabetes should not exercise.

Fat people always develop type 2 diabetes eventually

Children can outgrow diabetes

Only older people develop type 2 diabetes

If you have diabetes you cannot eat chocolates or sweets

Diabetics cannot eat bread, potatoes or pasta.

Diabetes diets are different from other people's diet.

PATHOPHYSIOLOGY - TYPE 1 | TYPE 2

- If the amount of insulin available is insufficient
- If cells respond poorly to the effects of insulin
- If insulin itself is defective

Then glucose will not be absorbed properly by the body cells

The net effect is persistently high levels of blood glucose, poor protein synthesis, and breakdown of fat storage

Acidosis

When the glucose concentration in the blood remains high over time, the kidneys will reach a threshold of reabsorption → **GLYCOSURIA**

This increase the osmotic pressure of the urine
POLYURIA → increased fluid loss.

Lost blood volume will be replaced osmotically from water held in body cells and other body compartments → **DEHYDRATION** → **POLYDIPSIA**

GESTATIONAL DIABETES!

Gestational diabetes mellitus resembles type 2 in several aspects.

It occurs in about 2-10% of all pregnancies and may improve or disappear after delivery.

Risk to the baby include - Macrosomia

Congenital heart defects

Central Nervous system Abnormalities

Skeletal Muscle Malformations

Respiratory distress syndrome

Perinatal death in severe cases

MANAGEMENT :-

Hyperglycemia needs medical intervention and insulin administration

While emergency, give glucose first!

Small amount is unlikely to cause significant harm.

Life style - Good nutrition

Regular exercise

Diet control to maintain blood pressure

Medications

Surgery - pancreas transplant

kidney transplantation

Weight loss surgery

Normal

Diabetic



Fasting - $< 110 \text{ mg/dl}$ 2 hrs - $< 140 \text{ mg/dl}$.
glucose

Fasting - $\geq 126 \text{ mg/dl}$ 2 hrs - $\geq 200 \text{ mg/dl}$.
glucose

World Diabetes Day - November 14

Established in 1991 by the International Diabetes Federation with support from WHO in response to growing concerns about the health and economic threat posed by diabetes, World Diabetes Day became an official UN day in 2006.

World Diabetes Day provides an opportunity to raise awareness of diabetes as a global public health issue and what needs to be done, collectively and individually, for better prevention, diagnosis and management of the condition.