MAHARAJA AGRASEN UNIVERSITY
BADDI , SOLAN (H.P)

DIAGNOSIS AND PREVENTION OF DIABETES

TYPE I & TYPE II DIABETES

Subject – Biochemistry

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Ms. Shabanam
Assistant Professor
Department of Zoology
School of Basic and Applied Sciences

INTRODUCTION

- Diabetes is a chronic condition that impairs the body's ability to process blood glucose, or blood sugar. There are several types, including type 1, type 2, and gestational diabetes, which have various treatments.
- Different kinds of diabetes can occur. How people manage the condition depends on the type. Not all forms of diabetes stem from diet or inactivity. Some are present from childhood.
- The most common types of diabetes include type 1, type 2, and gestational diabetes, which we cover in more detail below.

TYPE I DIABETES

- Also known as juvenile diabetes, type 1 diabetes occurs when the body does not produce insulin.
- Insulin is a hormone responsible for breaking down the sugar in the blood for use throughout the body. A person living with type 1 diabetes may receive Trusted Source a diagnosis during childhood.
- People living with type 1 diabetes need to regularly Trusted Source administer insulin. Individuals may do this with injections or an insulin pump.
- There is no cure for type 1 diabetes. Once a person receives their diagnosis, they need to regularly monitor their blood sugar levels, administer insulin, and follow some lifestyle strategies to help manage the condition.
- Successfully managing blood sugar levels can help people living with type 1 diabetes avoid serious complications.

TYPE II DIABETES

- With type 2 diabetes, the body does not make or use insulin effectively.
- According to the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)Trusted Source, type 2 diabetes is the most common type. It has a strong link with obesity.
- A person living with type 2 diabetes may or may not need insulin. In many cases, medication, along with exercise and diet strategies, can help manage the condition.
- Anyone, including children and adults, can develop type 2 diabetes.

GESTATIONAL DIABETES

- Gestational diabetes occurs during pregnancy when a person becomes less sensitive to insulin.
- According to the Centers for Disease Control and Prevention (CDC)Trusted Source, 2–10% of pregnancies each year result in gestational diabetes. Individuals with overweight or obesity going into pregnancy have an elevated risk of developing the condition.
- The CDC adds that around 50% of people with gestational diabetes will later develop type 2 diabetes.
- During pregnancy, people can take steps to manage gestational diabetes. These include:
- staying active
- monitoring the growth and development of the fetus
- adjusting their diet
- monitoring blood sugar levels
- Gestational diabetes can increase a person's risk of developing high blood pressure during pregnancy. It can also cause:
- premature birth
- increased birth weight
- blood sugar issues with the newborn, which typically clear up within a few days
- increased risk of the baby developing type 2 diabetes later in life

OTHER TYPES OF DIABETES

- In addition to type 1, type 2, and gestational diabetes, there are less common forms of the condition. Some examples includeTrusted Source:
- **Monogenic diabetes:** In this form, a single gene change causes the condition to develop. There are two main types of monogenic diabetes: neonatal diabetes mellitus and maturity onset diabetes of the young.
- **Type 3c diabetes:** This type of diabetes, which people may also call pancreatogenic diabetes, can result fromTrusted SourceTrusted Source
- **PubMed Central**
- Highly respected database from the National Institutes of Health
- Go to source
- damage to the pancreas following surgery to remove the organ, injury, or illnesses, like pancreatitis.
- **Cystic fibrosis-related diabetes:** People living with cystic fibrosis may develop this type of diabetes as a complication of the condition.

PREDIABETES

ediabetes, or borderline diabetes, occurs when a person's blood sugar levels are elevated but not enough for a diagnosis of diabetes.

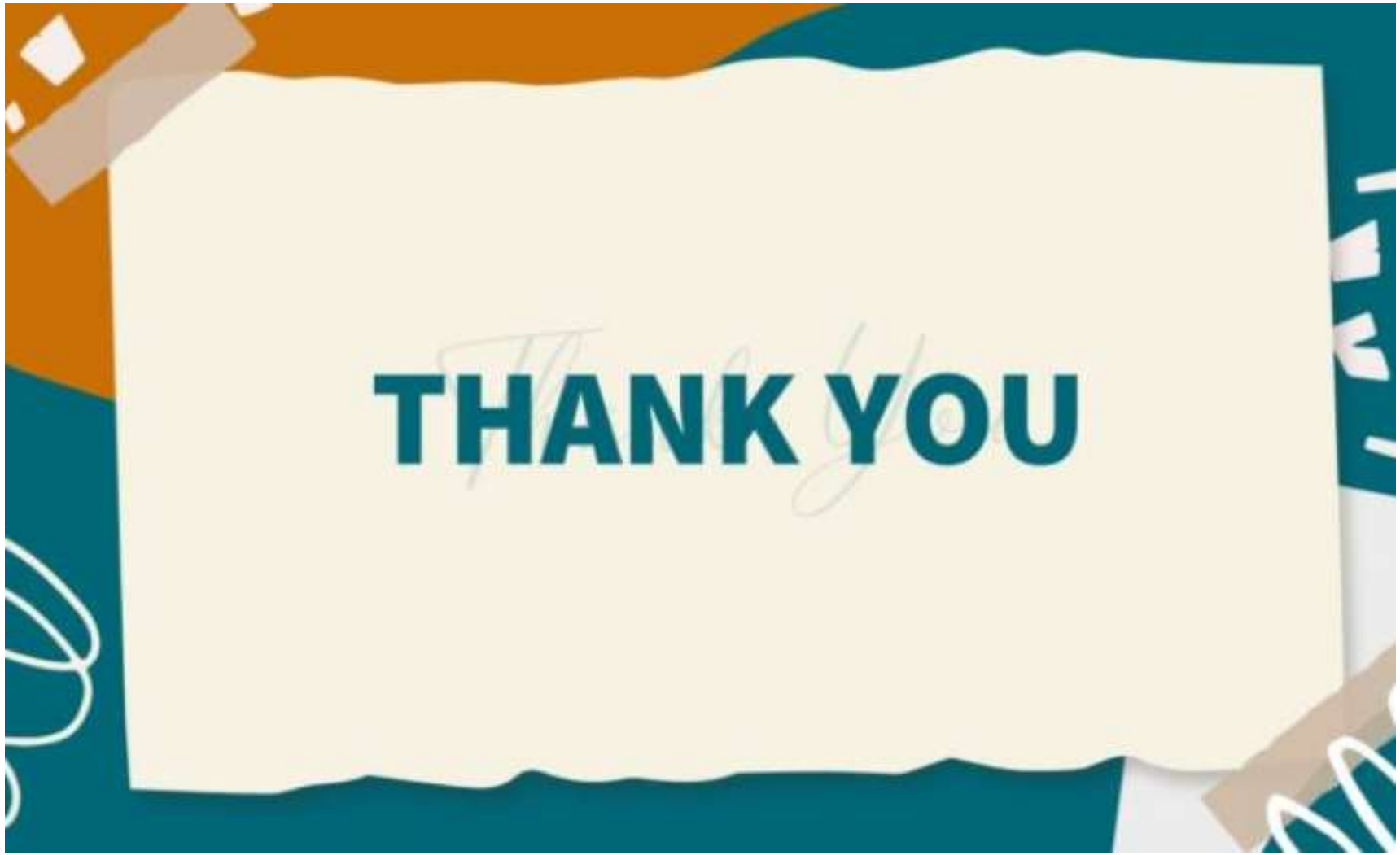
- For a doctor to diagnose prediabetes, an individual must meet the following criteria Trusted Source:
- glucose tolerance levels of 140–199 milligrams per deciliter (mg/dL)
- an A1C test result of 5.7–6.4%
- fasting blood sugar levels of 100–125 mg/dL
- People living with prediabetes have a higher risk of developing type 2 diabetes, but they do not usually experience the symptoms of full diabetes.
- The risk factors for prediabetes and type 2 diabetes are similar. They include:
- obesity or overweight
- a family history of diabetes
- HDL cholesterol lower than 40–50 mg/dL
- a history of high blood pressure
- gestational diabetes or giving birth to a child with a birth weight of more than 9 pounds
- a history of polycystic ovary syndrome (PCOS)
- being African American, Native American, Latin American, or Asian Pacific Islander
- being older than age 45 years

PREVENTION

- A person cannot prevent type 1 diabetes.
- However, people can take some steps to help prevent type 2 diabetes. Some ways to help prevent type 2 diabetes includeTrusted Source:
- maintaining a moderate weight
- eating a balanced diet that limits added sugars, saturated fats, and processed foods
- getting regular physical activity
- To reduce the risk of developing gestational diabetes, a person can maintain a moderate weight before becoming pregnant.
- While these steps can help, it is important to note that people may still develop either type 2 or gestational diabetes.

HOW INSULIN PROBLEMS DEVELOP

- Doctors do not know the exact causes of type 1 diabetes. However, insulin resistance, which can lead to type 2 diabetes, has clearer causes.
- Insulin allows the glucose from food to access the cells in the body to supply energy. Insulin resistance is usually a result of the following Trusted Source cycle:
- A person has genes or an environment that make it more likely for their body to be unable to produce enough insulin to cover how much glucose, or sugar, they eat.
- The body tries to make extra insulin to process the excess blood sugar.
- The pancreas cannot keep up with the increased demands, and the excess blood sugar starts to circulate in the blood, causing damage.
- Over time, insulin becomes less effective at introducing glucose to cells, and blood sugar levels continue to rise.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