

Louisiana Pharmacists Association Educates Patients About Diabetes

What is diabetes?

An estimated 30.3 million people in the United States are currently living with diabetes.¹ Diabetes is a chronic medical condition that occurs when the body cannot properly absorb and store glucose. When a person eats, food is digested and broken down into glucose, which is transported throughout the body in the blood. As glucose is detected in the blood, the body releases insulin from the pancreas to pull that glucose into cells for energy. A person with diabetes has insufficient insulin production or does not respond properly to the insulin made. This results in hyperglycemia, or high blood sugar.

While the term “diabetes” is used for everyone with the disease, not all diabetes diagnoses are the same. There are three different classifications of diabetes: type 1, type 2, and gestational.

Type 1 Diabetes accounts for roughly 5% of patients with diabetes.¹ Type 1 is the result of an autoimmune response in the body, meaning that a person’s body attacks its own beta cells, the cells that produce insulin. This is a result of genetic and environmental factors and occurs most often in children or young adults. However, once diagnosed, there is no cure for type 1 diabetes, only treatment. Exogenous insulin is the only recommended treatment, and all type 1 diabetic patients need insulin to live. People living with type 1 must inject a long acting insulin once daily as well as a short acting insulin with regards to meals. Treatment is individualized per patient.² Because of their insulin dependence, type 1 diabetics are at an increased risk of hypoglycemia, a condition when the body’s blood sugar drops too low. Hypoglycemia is a complication that can be just as or more dangerous than hyperglycemia.

Type 2 Diabetes is the most prevalent type of diabetes; almost 90% of people diagnosed with diabetes have type 2.¹ Unlike type 1 patients, people living with type 2 diabetes can still produce insulin. However, their bodies do not properly respond which results in insulin resistance. The body produces an increased amount of insulin to compensate for the excess sugar in the blood due to poor diet. The constant increase causes the body’s sensitive to insulin to decrease and cells cannot absorb the sugar. Because the sugar remains in the blood stream, complications occur.³ Obesity, inactivity, and genetic factors all play into a patient’s likelihood of being diagnosed with type 2 diabetes. There are many pharmaceutical options available for the treatment of type 2 diabetes, but lifestyle modifications such as diet and exercises can significantly reduce the risk for complications and the need for medication. Treatment options for type 2 diabetics include medications that increase the body’s production of insulin, increase the body’s response to insulin, decrease the amount of sugar in the blood stream, as well as insulin injections.²

Gestational Diabetes occurs in 2%-10% of pregnancies each year in the US¹. The diagnosis is given when a woman has high blood sugar during her pregnancy, but did not have diabetes or high blood sugar before pregnancy.³ The cause of this change is most likely due to hormone changes that leads to insulin resistance, which resolves shortly after pregnancy.¹ However, once a woman has been diagnosed with gestational diabetes, she is at higher risk for developing type 2 diabetes later in life. The mainstay for treatment of gestational diabetes is lifestyle changes such as diet and exercise. Because of the baby, there are limited pharmaceutical

treatment options, but insulin is the first line option if needed.² Gestational diabetes causes an increased risk of high blood pressure during pregnancy and delivering a baby with high birth weight.¹

What are those numbers people talk about?

Glycemic control is measured using two main indicators, A1C and blood sugar. A1C is a measure of the percent of hemoglobin A1C cells in the blood that have been glycosylated; it is a rough measure of glycemic control over the past three months. The goal for most diabetic patients is an A1C of less than 7%. Blood glucose is a measure of the amount of sugar currently in the blood. The values patients are looking for are between 80-130 mg/dL fasting, and a blood glucose of less than 180 mg/dL after meals. These goals are associated with better long-term outcomes and less serious complications for patients.²

Why does any of this matter?

Overall, the complications of the disease are the same in type 1 and type 2 diabetes and can be very serious. The main cause of these complications comes from the excess sugar that is not efficiently removed from the blood stream. The body is not designed to have large amounts of glucose floating in the blood for long periods of time. Eventually, without the help of insulin or medications, that sugar begins to attach itself to the walls of blood vessels, a process called glycosylation. This causes many complications, primarily divided into 2 categories: microvascular and macrovascular.³ In microvascular complications small blood vessels are glycosylated. This leads to complications such as blindness, neuropathy, kidney failure, impotence, and diabetic foot infections. Macrovascular complications involve glycosylation of larger blood vessels and are often more immediately life threatening. They include heart attack, stroke, and amputation due to lack of circulation.³ While these complications are serious and daunting, their onset can be delayed with proper glycemic control.

While diabetes has its complexities and all patients are unique, diabetes is a very common disease that in some way affects most people in the United States. With an improved awareness of the causes and prognosis of the disease, there can be continued work towards better technological and pharmaceutical advances to one day find a cure for diabetes of every kind.

References:

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