

IMPORTANCE OF GLUCOSE IN MEDICINE

Makhmudov Sultan Obit ugli,
Assistant teacher of Bukhara state medicine institute, medical
chemistry department

Glucose is a simple, non-hydrolyzable, carbohydrate and is a source of energy for the body. If it increases or decreases in the body, it causes various diseases. Hyperglycemia is a condition characterized by an increase in the amount of glucose in the blood in the body. It is caused by too many carbohydrates entering the blood or their insufficient absorption by the cells. This is caused by physiological (a large consumption of carbohydrates) and pathological (diabetes, mental illnesses, brain tumors, etc.) conditions. A doctor's test is required to maintain the normal level of glucose. The patient lies still for 12 hours, and then drinks a solution containing glucose. A blood sample is taken immediately, then every 30 minutes for 2 hours, and then every hour for a total of 5 hours. If the amount of glucose in the blood exceeds 200 mg/l and is high for a long time, then hyperglycemia is diagnosed. The disease that causes hyperglycemia is diabetes. This disease occurs when the pancreas does not produce enough insulin. In the diagnosis of diabetes, there are two types of symptoms.

The importance of glucose control in patients with Type 1 diabetes is no longer as controversial as it was before the publication of the Diabetes Control and Complications Trial in 1993. The Diabetes Control Study was one of the longest, most comprehensive, and most expensive studies in medical history. clearly demonstrated the importance of glucose control in preventing the onset and delaying the progression of the classic microvascular complications of diabetes (retinopathy, nephropathy, and neuropathy) in patients with Type 1

diabetes. The DCCT was not the first study to demonstrate the importance of glucose control, although it set the standard of care for glucose control in the United States and around the world.

The importance of glucose control in patients with Type 2 diabetes is not as widely recognized as in Type 1 diabetes. All patients with diabetes, regardless of the cause of their glucose intolerance, most diabetes specialists and other caregivers who are interested in diabetes are concerned about the duration and severity of hyperglycemia and the rate and extent of microvascular complications. they believe that defines The main controversy that exists is the relationship between hyperinsulinemia and coronary artery disease (CAD). Effect relationships between hyperinsulinemia and CAD in humans, animals, and in vitro studies have demonstrated such findings. This controversy is relevant to this article because many patients with Type 2 diabetes require large doses of exogenous insulin to achieve normal or near-normal glycemic control. This article reviews the most relevant data reported on the importance of glycemic control in type 1 and type 2 diabetes as it relates to microvascular and macrovascular complications.

Microvascular complications. The DCCT was not the first study to demonstrate the importance of glycemic control in preventing and delaying the development of microvascular complications of diabetes. The DCCT was a long-term, prospective, randomized, interventional, multicenter trial that was sponsored by the National Institutes of Health and studied 1,400 patients with type 1 diabetes. Microvascular disease. The importance of glucose control in type 2 diabetes is not as well documented in the published literature as it is for type 1 diabetes. Type 2 diabetes is a more heterogeneous disease with other associated cardiovascular and metabolic abnormalities, making study design and data interpretation difficult. Although the pathophysiology may be heterogeneous, the

pathologic defects resulting from chronic hyperglycemia in the eyes, kidneys, and nerves are indistinguishable from those of type 1 and the nervous system.

Normally, blood glucose is reabsorbed into the bloodstream by flowing through the kidneys. However, if the amount of glucose in the blood exceeds 160 mg/l, the kidneys cannot absorb all the glucose again, and as a result, glucose passes into the urine and causes glucosuria. A sign of diabetes is an increase in the amount of glucose in the urine. We can use Benedict's test to determine the presence of glucose in the urine. A low or moderate amount of glucose turns the solution green, and a large amount of glucose turns Benedict's reagent yellow or red. The table below shows some of the colors associated with the amount of glucose.

Glucose test results		
Benedict's reagent test color	Glucose in urine	
	% (m/v)	mg/dl
Blue	0	0
Blue-green	0.25	250
Green	0.50	500
Yellow	1.00	1000
Red	2.00	2000

CONCLUSION. Another importance of glucose in medicine is that as a result of its hydrogenation, glucose-glucite (sorbitol), galactose - dulcitol, mannose - mannitol, fructose - sorbitol and magnetite, xylose - xylitol are formed. They are used in the preparation of diet drinks, sugar-free sweets and chewing gum for diabetic patients. But such sugar substitutes also have negative aspects.

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