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STUDY MEASURES FOR DIABETES MELLITUS

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Abstract: *Diabetes mellitus, commonly referred to as diabetes, is one of the most widespread chronic diseases, even in the most developed countries. The number of affected individuals continues to increase year by year. This disease is classified as an endocrine disorder, caused by the complete or partial deficiency of the hormone insulin. It is characterized by hyperglycemia, which is the prolonged elevation of glucose levels in the blood. The disease disrupts various metabolic processes (carbohydrate, lipid, protein, mineral, and water-electrolyte metabolism). According to recent studies, the global prevalence of diabetes has doubled every 12–15 years. According to the International Diabetes Federation, nearly 430 million people worldwide suffer from diabetes, with the majority suffering from Type 2 diabetes. By 2040, it is projected that the number of diabetes patients will reach 642 million, with 540,000 of them being children under 14. In Uzbekistan, over 257,000 people have diabetes, of which over 2,300 are children and 913 are adolescents. Diabetes can lead to complications such as kidney failure, blindness, myocardial infarction, stroke, and gangrene, sometimes resulting in amputations. This remains a critical issue that requires ongoing research.*

Keywords: *Diabetes Mellitus, hyperglycemia, destruction, autoimmune, insulin therapy, infection, enteroviral, retroviral, bacteria, fungi, toxins, encephalopathy.*

Relevance of the Problem: Diabetes Mellitus has two main types:

- **Type 1 diabetes** is caused by the destruction of β-cells, leading to insulin deficiency. It is primarily associated with autoimmune processes, as

evidenced by the presence of antibodies against glutamate decarboxylase (GAD) and β-cells (ICA) or insulin.

- **Type 2 diabetes** is characterized by insulin resistance and β-cell dysfunction. It is commonly associated with obesity, poor diet, lack of physical activity, stress, and other environmental factors. Type 2 diabetes has two main mechanisms: insulin secretion dysfunction by β-cells and increased peripheral resistance to insulin. Abdominal obesity is often a key factor in the development of insulin resistance.

In Uzbekistan, approximately 15% of the population suffers from diabetes. These patients often manage their condition with prescribed diets and medications that lower blood glucose levels. Regardless of the medication, individuals with diabetes must adhere to a healthy lifestyle, exercise, and maintain personal hygiene, in addition to following their prescribed treatment regimen to maintain their health.

Complications:

Uncontrolled blood glucose levels can lead to serious complications, including:

- **Retinopathy**
- **Neuropathy**
- **Nephropathy**
- **Cardiovascular issues**
- **Gangrene**

The progression of these complications depends on the severity of the disease and may manifest after years of poorly managed diabetes.

The **genetic predisposition** to diabetes is the primary risk factor, with a 65-70% chance of development in children born to diabetic parents. **Obesity** is another major risk factor, particularly in adults, as it leads to insulin resistance and poor glucose metabolism.

Recent Discovery in Diabetes Treatment: Recent studies have identified a new hormone involved in regulating metabolic processes, which plays a crucial role in the development of both Type 1 and Type 2 diabetes. The hormone, called

FABP4, regulates insulin production in pancreatic β-cells. Researchers at the Sabri Ulker Metabolic Research Center in the United States discovered that targeting FABP4 could be an effective strategy for treating diabetes. This hormone's regulation has shown promising results in animal studies, where neutralizing it prevented the onset of diabetes in experimental models.

Conclusion:

Diabetes mellitus, being a chronic condition, has significant long-term effects on various organs and systems, especially the nervous system, kidneys, and eyes. The key to managing diabetes and preventing complications lies in regular monitoring of blood glucose levels, maintaining a healthy diet, regular exercise, and following prescribed treatment plans. Early detection and management can significantly reduce the risk of complications and improve the quality of life for individuals with diabetes.

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