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QANDLI DIABETNING KELIB CHIQISH SABABLARI VA RIVOJLANISH MEXANIZMLARI

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Annotatsiya

Ushbu maqolada qandli diabet kasalligining kelib chiqish sabablari,asosiy etiologik omillari hamda rivojlanish mexanizmlari yoritilgan.Shuningdek kasallikning keng tarqalishiga olib keluvchi omillar,klinik ahamiyati va profilaktika choralariga alohida e`tibor qaratilgan.

Kalit so`zlar

Qandli diabet, giperglikemiya ,insulin,insulinrezistentlik,etiologiya, patogenez,semizlik,profilaktika.

DIABETES MELLITUS: CAUSES AND MECHANISMS OF DEVELOPMENT

Abstract

This article discusses the causes of diabetes mellitus, its main etiological factors, and the mechanisms of its development. In addition, particular attention is given to the factors contributing to the widespread prevalence of the disease, its clinical significance, and preventive measures.

Keywords

diabetes mellitus, hyperglycemia, insulin, insulin resistance, etiology, pathogenesis, obesity, prevention.

INTRODUCTION

Diabetes mellitus is one of the most urgent problems of modern medicine and is considered a chronic disease that poses a serious threat to global public health systems. According to the World Health Organization, the incidence of diabetes has been increasing significantly over the past decades, and the disease is now widely spread in both developed and developing countries.

Diabetes mellitus develops as a result of disorders in carbohydrate metabolism and is characterized by persistently elevated blood glucose levels (hyperglycemia). Over time, this condition leads to serious complications affecting the cardiovascular system, kidneys, eyes, and nervous system.

In recent years, urbanization, unhealthy dietary habits, increased consumption of high-calorie foods, reduced physical activity, and rising stress levels have contributed to the widespread prevalence of diabetes. Therefore, studying the causes and mechanisms of development of this disease is of great scientific and practical importance.

MAIN BODY

The development of diabetes mellitus is multifactorial, involving the interaction of genetic, metabolic, and environmental factors.

1. Genetic factors

Genetic predisposition plays an important role in the development of diabetes, especially type 2 diabetes. If one of the parents has diabetes, the risk of developing the disease in offspring significantly increases. Genetic factors determine insulin secretion and tissue sensitivity to insulin.

2. Insulin and its disorders

Insulin plays a central role in the pathogenesis of diabetes mellitus:

In type 1 diabetes, autoimmune processes lead to the destruction of pancreatic β-cells, resulting in a severe reduction or complete absence of insulin production.

In type 2 diabetes, insulin production is preserved; however, the sensitivity of tissues to insulin decreases. This condition is known as insulin resistance.

As a result, glucose cannot enter the cells and accumulates in the blood.

3. Obesity and metabolic syndrome

Obesity, especially visceral (abdominal) fat accumulation, is one of the main risk factors for diabetes development. Adipose tissue produces biologically active substances such as cytokines and adipokines that reduce insulin effectiveness, thereby increasing insulin resistance.

4. Unhealthy diet

A diet rich in rapidly absorbable carbohydrates (sugar, white bread, sweets) and saturated fats leads to a rapid increase in blood glucose levels. Over time, this places excessive strain on the pancreas and leads to impaired insulin secretion.

5. Physical inactivity (hypodynamia)

Lack of physical activity reduces glucose utilization by muscles. As a result, blood glucose levels rise, and insulin resistance develops.

6. Stress and hormonal changes

During chronic stress, hormones such as cortisol and adrenaline are released. These hormones increase glucose release from the liver, leading to hyperglycemia. Hormonal changes during pregnancy, menopause, and other conditions can also contribute to diabetes development.

7. Pathogenesis (mechanism of development)

The main pathogenetic mechanisms of diabetes include:

insulin deficiency or reduced insulin action

impaired glucose uptake by cells

development of hyperglycemia

disturbances in lipid and protein metabolism

long-term development of micro- and macroangiopathies (complications)

RESEARCH AND STATISTICAL DATA

Scientific studies show that most patients with diabetes mellitus are overweight and have low levels of physical activity. According to statistical data:

more than 80–90% of patients with type 2 diabetes are obese

regular physical activity reduces the risk of developing diabetes by 30–50%

healthy diet and weight control are key preventive factors

It has also been scientifically proven that preventive measures can stop the progression of the disease at the prediabetes stage.

CONCLUSION

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Diabetes mellitus is a multifactorial disease with a complex pathogenesis, in which genetic and environmental factors are closely interconnected. The widespread occurrence of this disease is directly related to changes in modern lifestyles.

Prevention of the disease includes:
healthy and balanced nutrition
regular physical activity
weight control
stress reduction
regular medical check-ups

Early prevention and a healthy lifestyle can significantly reduce the risk of diabetes and its severe complications. Therefore, promoting a healthy lifestyle and increasing public awareness of the disease is an important task.

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