

## DIABETES MELLITUS

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**Abstract:** Currently, we see that diabetes occurs in many people. We need to further simplify the processes of treatment, prevention, disease assessment and screening of this disease. Diabetes does not develop in the absence of factors affecting the disease, but the predisposition is high. Complications of diabetes mellitus occur due to insufficiency of internal organs.

**Keywords:** hyperglycemia, glucose meter, test strip, hypercorticism, insulin

### Introduction

Diabetes mellitus is a disease caused by insulin deficiency in the body and metabolic disorders. Sugar disease has been known for a very long time in the history of Oriental folk medicine. Abu Ali ibn Sina pays special attention to this disease. "The water comes out the way it is when it is drunk," he writes. The patient's consumption of large amounts of water also causes other diseases, and the patient loses a lot of weight. Stopping at the treatment, the doctor says: "drink cold mealy liquids to the patient, put them in a cold bath, drink sour ayran, give fruits, drink mint tinctures, that is, wet the patient, cool down." This means that the disease occurs due to overheating of the human body. According to historical medical sources, diabetes mellitus can also be hereditary. In diabetes mellitus, there is a sharp increase in blood sugar levels with urine (containing sugar), thirst, weight loss, weakness, itching in the body and other symptoms.

There are hereditary or acquired in life, as well as insulin-dependent (type 1 diabetes) and insulin-dependent (type 2 diabetes) the type of disease.

Type 1 diabetes is most common in adolescence. At the same time, pancreatic cells in the patient's body cannot produce insulin, and insulin preparations are used in their treatment in order to reduce blood sugar levels.

In type 2 diabetes, the production of insulin by the islet cells of the pancreas persists, while the amount of insulin in the blood remains moderate or slightly higher.

However, due to a sharp decrease in tissue sensitivity to insulin, the absorption and use of glucose by tissues decreases, and it accumulates in the blood, which leads to an increase in blood sugar levels and its release in the urine, as a result of which the patient is severely obese. This type of diabetes mainly affects middle-aged and elderly people. The disease develops gradually, from winter, at the beginning of which symptoms such as dry mouth, thirst, weight loss are not obvious. The patient is more concerned about weakness, fatigue, thirst. Despite the high level of glucose in the blood, with type 2 diabetes, an increase in the content of acetone in the blood and its appearance in the urine is very rare. Such patients can live without insulin. They get good benefits from diet, exercise, and taking medications that lower blood sugar levels.

Diabetes is a lifelong disease that needs to be treated throughout life. Vascular complications of diabetes mellitus — diabetes-specific angiopathies (macro- and microangiopathies) - are manifested in patients who do not receive full treatment and blood glucose levels remain high for a long time.

This condition of all organs (skin, muscles, nerves, etc.) damages capillaries. Diabetes-specific microangiopathies are more often and earlier observed in the kidneys, eyes, legs and other organs.

## **DISCUSSION AND RESULTS**

Causes of diabetes:

Currently, hereditary predisposition to diabetes mellitus is considered proven. In type 1 diabetes, genetic heterogeneity is observed, that is, the disease can be caused by different groups of genes. A laboratory and clinical indication for the detection of type 1 pathology is the detection of antibodies to beta cells of the pancreas in the blood. The nature of the inheritance has not been fully studied.

The pathogenetic basis of diabetes depends on the type of disease. There are two fundamentally different types. Although modern endocrinology calls the classification of the disease conditional, it is important to determine the treatment strategy in each of its types.

The main causes of the disease include:

The causes of heredity-the disease does not develop in the absence of influencing factors, but the predisposition is high.

Causes of obesity-excess weight leads to the formation of type 2 diabetes.

In the absence of treatment, diabetes mellitus is caused by the following diseases. Diseases that cause damage to beta cells responsible for insulin production. These include pancreatitis, pancreatic cancer, and other diseases of the endocrine glands. Viral infections include measles, chickenpox, infectious hepatitis and other diseases. These infections contribute to the development of diabetes. This is especially true for people at risk.

It is advisable to stay away from nervousness, stress, irritability. With age, the likelihood of developing diabetes doubles every ten years. This list does not include factors that can cause secondary diabetes, since the disease is also cured when the main factor is eliminated.

In addition, the following factors may affect the development of the disease

may:

Pheochromocytoma is a tumor of the adrenal glands, which leads to the opposite effect on insulin, many growth hormones are produced;

Adrenal hyperactivity (hypercorticism); hyperthyroidism; cirrhosis of the liver;

Carbohydrate sensitivity disorder;

Transient hyperglycemia is a temporary increase in blood glucose levels. The most important basis of the problem is a violation of the interaction of insulin with tissue. Glucose is needed by the body as the main energy substrate for maintaining vital processes. The lack of glucose passage to the tissues, the lack of accumulation of glucose in the form of glycogen as a depot in the liver is the reason for an increase in its amount in the blood. It is these changes that have been called diabetes mellitus.

Not every hyperglycemia is considered a real diabetes. Changes that occur only under the influence of insulin are considered such a disease. Pathogenesis: insufficient insulin production by endocrine cells of the pancreas.

Violation of the interaction of insulin with body tissue cells (insulin resistance).

Its causes include: a change in the structure or a decrease in the number of insulin-specific receptors, a change in the structure of insulin itself, a violation of the mechanism of signal transmission from receptors to organelles inside cells. As mentioned above, diabetes can be transmitted from parents to children.

If one of the parents has this disease, the probability that he will have offspring is 10% for type 1 and 80% for type 2.

Pancreatic insufficiency (type 1 diabetes). The old name is insulin-dependent diabetes. Young people, under 40 years of age, and thin people are most often affected.

The disease is severe, insulin is prescribed for treatment. The initial process in the development of this type of diabetes is the massive destruction of endocrine cells of the pancreas (islets of Langerhans). This leads to a sharp decrease in the level of insulin in the blood. Cell disorders can be caused by viral infections, oncological diseases, pancreatitis, toxic damage to the pancreas, stress conditions, diabetes mellitus of varying severity, the development of atherosclerosis, in turn, coronary heart disease (angina pectoris, myocardial infarction), circulatory disorders in the brain (dizziness, cerebral stroke), etc. leads to .

In both types of diabetes, the main goal of treatment is to bring blood sugar levels as close as possible to those in healthy people, that is, to achieve a state of compensation. The main way to maintain blood sugar levels in moderation is to determine blood glucose levels as quickly as possible; such monitoring is necessary for insulin-dependent type 1 diabetes. When independently determining the level of glucose in the blood at home, you can use a special reactive paper. To do this, a drop of blood from a finger is taken using an injection needle onto reactive paper (blood is dropped onto strips at one end of the paper). After a minute, the blood on the paper is wiped off with a cotton swab, and after another minute, the color of the reactive paper is compared with a scale. The scale indicator closest in color represents the blood glucose level in mmol/L (mg%). Similarly, the level of sugar in urine at home can be determined by patients themselves using special reactive paper. If the glucose level in the blood or urine is high, appropriate treatment should be carried out immediately. In addition,

patients should also monitor their body weight once a week and maintain it within the normal range corresponding to their height, age and profession.

In diabetes mellitus, treatment is prescribed depending on the general condition of each patient, the symptoms of the disease, blood, urine, etc., which is carried out in stages. The duration of treatment depends on the severity, missed or new disease and its type. The cause may be autoimmune diseases. In humans, this disease will be genetically determined and predisposed by a defect in a number of genes located on 6 chromosomes. These defects enhance the body's autoimmune aggression against pancreatic cells and negatively affect the regenerative ability of beta cells. Prolonged hypoxia of pancreatic cells, a diet high in carbohydrates and fats and low in protein can also serve as provocative factors. This leads to a decrease in the secretory function of cells and, ultimately, to their death.

After massive cell death, the mechanism of their autoimmune damage is activated. Type 1 diabetes cannot be cured completely, but in some cases the disease does not cause excessive concern if the function of the gland is maintained in moderation and a diet is followed. Constant intake of artificial insulin is required. Since insulin is broken down in the gastrointestinal tract, it is administered only by injection. Following a strict diet, easily digestible carbohydrates (sugar, sweets, fruit juices) should be completely excluded from the diet.

Extraprostatic insufficiency (type 2 diabetes mellitus). The old name is insulin-dependent diabetes. The most common cases are elderly people suffering from obesity (the main risk factor is overweight in 80% of patients), people over 40 years old. The receptors cannot interact with the hormone due to a change in structure or a decrease in quantity. It is also sometimes possible to change the structure of the hormone itself (genetic defects). In addition to obesity, risk factors for type 2 diabetes include: old age; smoking; alcohol consumption; hypertension; chronic overeating; sedentary lifestyle. The presence of a hereditary predisposition to type 2 diabetes mellitus has been proven. This is indicated by a 100% coincidence of the presence of the disease in homozygous twins. Insulin is not always necessary to treat the disease. Only a qualified doctor can prescribe a treatment procedure. First of all, such patients are prescribed a diet. It is important to follow the doctor's recommendations. It is recommended to reduce body weight gradually, from 2-3 kg per month, until it returns to normal. If the diet is not followed, drugs that reduce blood sugar levels are prescribed, in the most severe cases-insulin.

### Conclusion

Medical supervision, education, and psychological care are needed to improve the quality of life for patients living with diabetes. Early detection and proper management of the disease are important in reducing severe diabetes complications. Type 1 of the disease develops as a result of insulin deficiency and occurs mainly in young children and adolescents. Type 2 diabetes, on the other hand, often develops in adults due to improper lifestyle, obesity and decreased insulin sensitivity. The treatment process includes insulin therapy, medication, diet, and physical activity. Early diagnosis, use of a healthy lifestyle, and regular control of the disease are important in preventing severe diabetes complications – heart disease, blindness, kidney failure, and damage to the nervous system. To improve the quality of life of patients, an integrated approach, medical care and psychological support are necessary.

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