

Niyamat Khan
Fergana Medical Institute of Public Health

DIABETES MELLITUS, ETIOLOGY, TREATMENT AND PREVENTIVE MEASURES

Abstract: Diabetes mellitus (DM) is a medical condition characterized by hyperglycemia, a sugar level higher than normal. This is due to a lack of the hormone insulin. Diabetes is a lifelong disease that requires lifelong treatment. In patients who are not fully treated and have high blood glucose levels for a long time, vascular complications of diabetes - diabetic angiopathies (macro and microangiopathies) are manifested.

Key words: diabetes mellitus, autoimmune disease, chest pain, stroke, atherosclerosis, tingling sensations, impotence in men.

INTRODUCTION

Diabetes is a disease that occurs as a result of insulin deficiency and metabolic disorders in the body. Diabetes has been known in the history of oriental folk medicine for a very long time. According to historical medical sources, diabetes can also be hereditary. In diabetes, blood sugar increases sharply and is excreted in the urine (which contains sugar), thirst, dry mouth, weight loss, weakness, itching, and other symptoms are observed[1,2].

Diabetes is mainly divided into the following types:

Pre-diabetes: occurs when blood sugar levels are higher than normal, but not high enough to be diagnosed with type 2 diabetes.

1. Type 1 diabetes: This type is an autoimmune disease. The immune system attacks and destroys the cells in the pancreas that produce insulin.

2. Type 2 diabetes occurs when the body becomes resistant to insulin, causing blood sugar levels to build up.

3. Gestational diabetes: This condition is characterized by high blood sugar levels that first develop during pregnancy and disappear after delivery[3,4,5].

Hormones produced during pregnancy make cells resistant to the hormone insulin. In these conditions, the pancreas produces extra insulin to maintain normal blood sugar levels, but in some cases, it cannot keep up with the extra production. This causes glucose to build up in the bloodstream, not in the cells.

Usually, due to a sharp decrease in the sensitivity of tissues to insulin, the absorption and use of glucose by the tissues decreases and it accumulates in the blood, as a result, the amount of sugar in the blood increases and is excreted in the urine, and the patient becomes very obese. This type of diabetes mainly affects middle-aged and elderly people[6,7,8]. The disease develops gradually, insidiously, and at the beginning, symptoms such as dry mouth, thirst, and weight loss are not obvious. The patient is more worried about weakness, fatigue, and thirst. Despite the high level of glucose in the blood, in type 2 diabetes, an increase in the amount of acetone in the blood and its appearance in the urine are very rare. Such patients can live without taking insulin. They benefit greatly from diet, exercise, and taking medications that lower blood sugar levels. This damages the capillaries of all organs (skin, muscles, nerves, etc.). Microangiopathy characteristic of diabetes is observed more often and earlier in the kidneys, eyes, legs, etc.

Diabetes mellitus leads to the development of atherosclerosis, which in turn leads to ischemic heart disease (angina, myocardial infarction), impaired blood circulation in the brain (dizziness, stroke), etc.

The main goal of treatment in both types of diabetes is to reduce blood sugar levels as much as possible, bringing them closer to the level in healthy people, that is, to achieve a state of compensation. The main way to maintain normal blood sugar levels is to determine blood glucose levels as often as possible; such control is very necessary in insulin-dependent type 1 diabetes[9,10]. Special reagent papers can be used to independently determine blood glucose levels at home. For this, a drop of blood is taken from a finger with a syringe needle onto a reagent paper (blood is dropped onto the lines on one edge 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 reagent paper is compared with the scale. The scale indicator with the closest color represents the glucose level in the blood in mmol/l (mg%). In a similar way, patients can independently determine the level of sugar in the urine at home using special reagent papers. If the glucose level in the blood or urine is high, appropriate treatment should be carried out immediately[11,12]. In addition, patients should also monitor their body weight once a week and maintain it within the norm appropriate for their height, age and profession.

Treatment for diabetes is prescribed depending on the general condition of each patient, symptoms of the disease, blood, urine analysis, etc., and is carried out in stages. The duration of treatment depends on the severity of the disease, whether it has been missed or is new, and its type.

The main cause of diabetes is abnormal functioning of the pancreas and the development of a special gland in the pancreas. This can occur due to one of the following:

- If the pancreas does not produce insulin.
- If the pancreas does not produce enough insulin to meet your body's needs.
- If the pancreas produces enough insulin but your body cannot respond to it, this is called insulin resistance.

MATERIAL AND METHODS

The symptoms of diabetes vary from person to person, depending on the severity and blood glucose levels. Symptoms appear early in patients with type I diabetes, while in others they appear later.

Common signs and symptoms of type I and type II diabetes include:

- Frequent thirst or increased thirst.
- Unexplained weight loss.
- Ketonuria - the presence of ketone bodies in the urine.
- Polyuria and frequent urination.
- Fatigue and irritability.
- Blurred vision.
- Increased hunger.
- Prone to infections and slow wound healing.

Diabetes is a chronic lifestyle disorder. The longer you delay diagnosis and treatment, the greater the chance of developing serious complications. These include:

- Cardiovascular disease, such as coronary artery disease, chest pain, stroke, atherosclerosis (narrowing of the arteries in the heart), and heart attack.
- Nerve damage, such as numbness in the legs, tingling sensations, impotence in men, and chronic pain in the tips of the fingers and toes.
- Kidney damage can interfere with the filtering system. This can lead to irreversible end-stage kidney disease, requiring a kidney transplant or dialysis.
- Eye damage, which can lead to blindness. This can lead to serious diseases such as cataracts, retinal damage, and glaucoma. It can also cause hearing loss.
- Bacterial and fungal skin problems[13,14].
- Alzheimer's disease and depression

Gestational diabetes

Gestational diabetes can cause serious complications for you and your baby. These include:

- A large baby due to excessive growth. This may require a cesarean section,
- Your baby may have low blood sugar levels after birth.
- Your baby may be obese and have type 2 diabetes[15].
- Untreated gestational diabetes can lead to the death of the baby.
- Preeclampsia: High blood pressure accompanied by abnormal amounts of protein in the urine and swelling in the legs and feet.

Controlling blood sugar, along with oral medications and insulin therapy, a healthy diet, and regular exercise, plays an important role in treating prediabetes or any type of diabetes.

Treatment of type 1 and type 2 diabetes

There are some differences in the treatment of the two types of diabetes:

- Treatment of type 1 diabetes

This involves the use of insulin pumps or injections and frequent testing of blood sugar levels. They primarily need insulin to survive.

- Type 2 diabetes treatment

This is treated by focusing on lifestyle changes, monitoring blood sugar levels, diabetes medications, and insulin therapy. In addition to checking your blood sugar levels daily, your doctor may recommend a glycated hemoglobin (A1C) test[16,17].

- Insulin therapy

Your doctor will give you long-acting insulin, rapid-acting insulin, or other intermediate-acting options, depending on your weight and needs. Insulin cannot be taken orally; it must be injected to achieve normal blood sugar levels.

- Oral medications

Some diabetes medications stimulate the pancreas to produce and release more insulin. Others inhibit the production and release of glucose from your liver, meaning you need less insulin to transport sugar into your cells[18,19].

Others block the action of enzymes in your stomach or intestines that break down carbohydrates or make tissues more sensitive to insulin.

Metformin is usually prescribed to patients with type 2 diabetes.

- Pancreas transplant

- Bariatric surgery is performed to reduce body weight by making changes to the digestive system.

CONCLUSION

No matter how strict and healthy your lifestyle is, type 1 diabetes cannot be prevented. However, various lifestyle changes and choices can help prevent prediabetes, type 2 diabetes, and gestational diabetes. These include:

- Make sure you choose healthy foods that are low in calories and high in fiber.
- Make sure you get at least 30 minutes of physical activity every day.
- If you are overweight, you can lose weight

REFERENCES:

1. Dzhurabaev A. A. The role of endoscopic examinations in early diagnosis diseases of the esophagus, stomach, and duodenum //Innovations in technology and science education. – С. 264-269.
2. Мадаминов С. М., Джурабаев А. А. Влияние Микробиоты Толстого Кишечника На Развитие Язвенного Колита //Miasto Przyszłości. – 2024. – Т. 49. – С. 811-813.

3. Tishabaeva Nargiza Alimdjanovna. (2021). Torch-Infections As An Actual Problem In Obstetrics And Gynecology Practice. The American Journal of Medical Sciences and Pharmaceutical Research, 3(05), 27–33. <https://doi.org/10.37547/TAJMSPR/Volume03Issue05-05>
4. Palvanova M.S. Morphological changes in the bone tissue of the child's body in the age aspect. World Bulletin of Public Health, 94-96, 2023
5. P.T.Юсупова, О.Е. Шаланкова Репродуктивное здоровье девочек-подростков, проживающих в условиях Ферганской долины. Университетская наука: взгляд в будущее, 612-614, 2020
6. Palvanova M.S., Akhmatov B.K. Chronic myeloid leukemia epidemiology in the Fergana region over decade from 2010 until 2020. Science and innovation, Volume1, issue 8, pp. 1020-1025
7. Jaloliddinov Sh.I. "Treatment and prevention of caries disease in children". Ethiopian international journal of multidisciplinary research. volume 10, issue 12 . sjif 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980
8. Jaloliddinov Sherzodbek Ikromjon O'g'li. exploring non-surgical options for managing ventral hernia: a comprehensive guide to conservative approaches "Innovative achievements in science 2024". part 28 Issue 1 pp.113-118
9. Tilyaxodjayeva Gulbahor Botirovna. (2023). THE IMPORTANCE OF HYRUDOTHERAPY IN THE TREATMENT OF MIGRAINE. World Bulletin of Public Health, 29, 21-23.
10. Tilyaxodjayeva Gulbahor Botirovna. ЛЕЧЕНИЕ МИГРЕНИ ГИРУДОТЕРАПИЕЙ. Scientific Impulse Vol. 1 No. 5 (2022) 892-896.
11. N.A. Tishabaeva, Sh.D. Babajanova. Early and late preeclampsia - risk, factors of pregnancy and childbirth, Journal of clinical and preventive medicine 2023.-Т.4.-№4.-S-78-81
12. Isaqova N. et al. Microscopic examination of sputum //development and innovations in science. – 2024. – Т. 3. – №. 6. – С. 63-66.
13. Исакова Н., Усмонова Г. Лабораторная диагностика трихомониза //международная конференция академических наук. – 2024. – т. 3. – №. 6. – с. 59-65.
14. Исакова Н., Усмонова Г. Кишечный дисбактериоз //Models and methods in modern science. – 2024. – Т. 3. – №. 9. – С. 106-112.
15. Rahmatjonovna I. N. et al. Laboratory diagnostics of trichomoniasis disease //Ethiopian International Journal of Multidisciplinary Research. – 2024. – Т. 11. – №. 05. – С. 496-499.
16. Rahmatjonovna I. N. Fast foods are the potential of human health //Ethiopian International Journal of Multidisciplinary Research. – 2024. – Т. 11. – №. 05. – С. 365-369.
17. Makhmudova Kh.T. Features of providing highly specialized medical care to pregnant women with Covid-19 in obstetric practice. "Current problems of diagnosis and treatment of coronavirus infection" -2022
18. А.А.Джурбаев. О роли выбора лечебной тактики при панкреонекрозе/ Xirurgik operatsiyalardan keyingi asoratlari ularni oldini olish va davolashda kompleks yondashuv - Respublika ilmiy-amaliy konferensiyasi, 2023, стр.32-35
19. Yuldasheva Moxigul Turdaliyevna, Boratova Mohidilxon Abdumajiq qizi. MORPHOFUNCTIONAL CHANGES OF CERVICAL SQUAMOUS EPITHELIUM AFTER CHEMOTHERAPY AND LIGHT THERAPY. International Multidisciplinary Journal for Research & Development 10 Vol. 10 No. 12 (2023).