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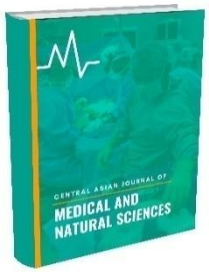

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The Role of Diet and Preventive Nutrition in Diabetes Type 2

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Abstract: Strikingly, today, more than a century after the first treatments for type 2 diabetes mellitus (T2DM) were developed, this disease not only remains one of the world's biggest problems, but its epidemic is becoming more widespread and pandemic in nature. The paradox is obvious: on the one hand, states and major players in the pharmaceutical market spend billions of dollars annually waging a "war on diabetes", on the other hand, this disease is only getting worse, younger and actively spreading around the world [H.C. Gerstein et.all, 2008].

Taking into account the traditional idea of DM as a progressive and incurable disease, it is easy to understand the degree of frustration of clinicians and laymen, from the point of view of which there is no "light at the end of the tunnel".[Sh.Levitet.all, 2013]. The authors analyzed numerous scientific studies on the problem of type II diabetes mellitus, the extent of which causes concern among specialists around the world. The review is devoted to the analysis of the role of diet and preventive nutrition in type 2 diabetes.

Key words: type II diabetes mellitus, diet, prevention, nutrition.

Relevance. Diabetes mellitus (DM) is a group of metabolic (metabolic) diseases characterized by chronic hyperglycemia resulting from impaired insulin secretion, insulin action, or both. Chronic hyperglycemia in diabetes is accompanied by damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart, and blood vessels.

Type 2 diabetes mellitus (DM 2) is a disorder of carbohydrate metabolism caused by predominant insulin resistance and relative insulin deficiency or a predominant impairment of insulin secretion.

with or without insulin resistance [1–3]. The prevalence of DM is on the rise worldwide. According to the International Diabetes Federation, the number of patients with diabetes aged 20–79 years in the world as of January 1, 2018 exceeded 425 million [6].

Table 1. Classification of diabetes mellitus (World Health Organization, 1999, with additions) [1,2,8]

type 1 diabetes ➢ Immune mediated ➢ Idiopathic	➢ Destruction of pancreatic β-cells, usually resulting in absolute insulin deficiency
type 2 diabetes	➢ With predominant insulin resistance and relative insulin insufficiency or ➢ With a predominant violation of insulin secretion with or without insulin resistance
Otherspecifictypes	➢ Genetic defects in β-cell function ➢ Genetic defects in insulin action ➢ Diseases of the exocrine pancreas ➢ Endocrinopathy ➢ Diabetes induced by drugs or chemicals ➢ Infections ➢ Unusual forms of immunologically mediated diabetes ➢ Other genetic syndromes sometimes associated with DM
Gestational diabetes	➢ Occurs during pregnancy

Type 2 diabetes mellitus often develops in people over 40 years of age with overweight or obesity (especially its abdominal type), but it can also develop at a younger age and in people with normal body weight.

A feature of the disease is a long asymptomatic course. Identification most often occurs either by chance or during a dispensary examination of patients with diseases that are often combined with type 2 diabetes: obesity, coronary heart disease (CHD), arterial hypertension (AH), gout, polycystic ovaries. At

In the absence of screening, the diagnosis can be delayed by 7–9 years from the onset of the disease.

Risk factors for type 2 diabetes [3, 9]

- ✓ Age ≥45 years;
- ✓ Overweight and obesity (BMI ≥25 kg/m^2 for the Caucasian race (23 kg/m^2 for the Asian population));
- ✓ Family history of DM (parents or siblings with DM 2);
- ✓ Habitually low physical activity;
- ✓ Impaired fasting glycemia or impaired glucose tolerance in history;
- ✓ Gestational diabetes or the birth of a large fetus in history;
- ✓ Arterial hypertension (≥140/90 mm Hg or drug antihypertensive therapy);
- ✓ HDL cholesterol ≤0.9 mmol/l and/or triglyceride level ≥2.82 mmol/l;
- ✓ Polycystic ovary syndrome;
- ✓ Presence of cardiovascular disease (CVD).

- ✓ Abdominal obesity is the main risk factor for type 2 diabetes and is largely the cause of the observed insulin resistance. However, the clinical manifestation of DM 2 occurs when β-cell dysfunction is added to the existing insulin resistance. Auto antibodies to the β-cell are absent in DM 2. Insulin resistance in type 2 diabetes is manifested both in relation to endogenous and exogenous insulin. Endogenous insulin is usually produced in normal or increased amounts. Usually this is enough to prevent diabetic ketoacidosis, and patients with type 2 diabetes are not susceptible to it, except in cases of acute conditions accompanied by an increased need for insulin (acute inflammatory conditions, surgical interventions, acute myocardial infarction (MI), stroke, etc.).

According to the International Type 2 Diabetes Federation, health care spending on diabetes control accounted for 10.8% of total health care spending in 2013 worldwide. The vast majority of countries have spent from 5% to 18% of total health care spending on diabetes control, including both health system costs and personal expenses of patients and their families. Overall, global health spending on diabetes care and prevention of complications across all countries amounted to about US$548 billion, averaging US$1,437 per person. However, it should be noted that the amount of spending varies considerably from country to country. The bulk of total global healthcare spending (36%) is in the United States. Thus, about $6,000 is spent per patient with diabetes in the United States, while in low- and middle-income countries, where the majority of people with diabetes live (80%), an average of $356 per year is spent, in Tajikistan - $87. dollars, and in some African countries below 30 dollars per year per patient with type 2 diabetes. By 2035, the economic costs of treating diabetes are expected to exceed $600 billion. Thus, the treatment of DM and its complications requires large economic costs both for the patients themselves and their families, and for the healthcare and social protection systems of each country. Thus, for example, the study of the problems "Program for Improving the Life of Patients with Diabetes Mellitus"10 contains data on the state of DM in Russia. The document indicates that 9-10 million Russians have diabetes, of which only 4 million have been diagnosed with the disease. The Program emphasizes that diabetes is a lifelong condition. 85% of patients with diabetes do not achieve the goals of therapy, only 8% live without complications. It is indicated that already at the time of diagnosis, up to 50% of patients have micro vascular complications. The cost of treating diabetic patients in Russia as a whole amounted to 12.5 million US dollars in 2015, of which 91% of direct costs are associated with the treatment of complications of diabetes. Control of moderate blood glucose and lipids, blood pressure, foot care, screening for retinopathy, detection of early signs of kidney disease, elimination of nutritional risk factors save costs and are feasible. Diabetes surveillance, implemented by WHO in partnership with the International Diabetes Federation, aims to stimulate and support effective action to prevent diabetes and its complications. However, unfortunately, the norms and standards developed to date for combating DM, ensuring public awareness of the global epidemic, scientific guidelines for controlling DM are not able to fully reduce the scale of this problem. [M.W. Sharofova, 2019].

According to the EASD consensus, "Ideally, the treatment program should be tailored to each patient to ensure that insulin therapy is consistent with his (or her) dietary preferences and exercise habits, as well as the prevailing glycemic trends as measured by CGM; the expected hypoglycemic effect must be balanced in such a way as to remain comfortable for the patient. However, DM2 is largely the result of inadequate food preferences and an inactive lifestyle of the patient. Is it reasonable to subordinate the treatment program, including insulin therapy, to an unhealthy lifestyle? "Patient involvement in decision making can help guide the selection of the best treatment option," says the consensus. Unfortunately, the information provided by the patient is not always complete and is quite capable of misleading the attending physician [S. Garget.all, 2010].

"DM2 is a chronic progressive disease characterized by hyperglycemia and progressively fading β-cell function." Surprisingly, this phrase is the only popular and widely known definition of T2DM. But what if you look for another point of view? We all know well the background against which DM2 develops: chronic overeating and low physical activity, sometimes bordering on complete immobility. Both make people fat. We also understand that the pathological changes characteristic of T2DM, namely, insulin resistance, hyperglycemia, glucosuria, and metabolic syndrome, are "aimed" at reducing body weight, or at least reducing the rate of obesity. From these pathophysiological positions, diabetes looks like nothing more than a natural reaction of the body to food overload. In other words, it is the way our body tries to protect itself from being "poisoned" by calories. Indeed, the most effective solution to the problem of weight gain "from the point of view of nature" is the formation of insulin resistance. [J.S. Yudkinet.all, 2010].

According to the recommendations of the World Health Organization, a diet for diabetes should follow measures when eating the following foods:

Foods that should be consumed in moderation: lean meat (lean beef, veal), lean fish (cod, pike perch, hake), milk and dairy products (low fat), cheeses less than 30% fat, cottage cheese less than 5% fat, potatoes, corn, mature grains of legumes (peas, beans, lentils), cereals, pasta, breads and baked goods (not rich), fruits, eggs ("Moderate" means half of your usual portion.)

Products that need to be excluded or limited as much as possible: butter, vegetable oil, lard, sour cream, cream, cheeses over 30% fat, cottage cheese over 5% fat, mayonnaise, fatty meat, smoked meats, sausages, semi-finished products (minced meat products, dumplings , frozen pizza, etc.), pies, fatty fish, poultry skin, canned meat, fish and vegetable products in oil, nuts, seeds, sugar, honey, jams, jams, dried fruits, sweets, chocolate, cakes, cakes, etc. confectionery, biscuits, pastry, ice cream, sugary drinks (lemonade, fruit juices), alcoholic beverages cook food without adding fat.)

Simple, healthy lifestyle interventions are known to help prevent or delay type 2 diabetes. To improve your chances of preventing type 2 diabetes and its complications, you need to: achieve and maintain a healthy body weight; Maintain physical activity - at least 30 minutes of regular, moderate-intensity activity on most days additional activity is needed to control weight; Eat a healthy diet and reduce your intake of sugar and saturated fats. and do not use tobacco - smoking increases the risk of developing cardiovascular diseases.

References

1. World Health Organization, International Diabetes Federation. Definition and diagnosis of diabetes mellitus and intermediate hyperglycaemia. Report of a WHO/IDF consultation. Geneva; 2006;
2. World Health Organization. Definition, diagnosis and classification of diabetes mellitus and its complications: report of a WHO consultation. Part 1, Diagnosis and classification of diabetes mellitus. Geneva; 1999;
3. ДедовИИ, ШестаковаМВ, МайоровАЮ, ВикуловаОК, ГалстянГР, КураеваТЛ, et al. Алгоритмы специализированной медицинской помощи больным сахарным диабетом / Под редакцией И.И. Дедова, М.В.Шестаковой, А.Ю. Майорова. – 9-й выпуск. Сахарный диабет [Internet]. 2019;22(1S).
4. Дедов ИИ, Шестакова МВ. Сахарный диабет типа 2: от теории к практике. МИА; 2016; 576 р.

5. Schwartz SS, Epstein S, Corkey BE, Grant SFA, Gavin JR, Aguilar RB. The Time Is Right for a New Classification System for Diabetes: Rationale and Implications of the β-Cell–Centric Classification Schema. Diabetes Care. 2016; 39(2):179–186.
6. International Diabetes Federation. IDF Diabetes Atlas. 8th ed. Brussels: IDF; 2017; 148 p.
7. Дедов ИИ, Шестакова МВ, Галстян ГР. Распространенность сахарного диабета 2 типа у взрослого населения России (исследование NATION). Сахарныйдиабет [Internet]. 2016; 19(2):104–112.
8. World Health Organization. Diagnostic criteria and classification of hyperglycaemia first detected in pregnancy. Geneva; 2013;
9. American Diabetes Association. 2. Classification and Diagnosis of Diabetes: Standards of Medical Care in Diabetes—2019. Diabetes Care. 2019; 42 (Supplement 1):S13–S28.
10. World Health Organization, International Diabetes Federation. Definition and Diagnosis of Diabetes Mellitus and Intermediate Hyperglycemia [Internet]. Geneva; 2006; 50 p.
11. World Health Organization. Use of glycatedhaemoglobin (HbA1c) in diagnosis of diabetes mellitus: abbreviated report of a WHO consultation.Geneva; 2011;
12. Дедов ИИ, Шестакова МВ. Сахарный диабет: диагностика, лечение, профилактика. Москва: МИА; 2011; 808 p.
13. Umpierrez G, Korytkowski M. Diabetic emergencies — ketoacidosis, hyperglycaemic hyperosmolar state and hypoglycaemia. Nat Rev Endocrinol. 2016; 12(4):222–232. doi: 10.1038/nrendo.2016.15
14. American Diabetes Association. 4. Comprehensive Medical Evaluation and Assessment of Comorbidities: Standards of Medical Care in Diabetes—2019. Diabetes Care. 2019; 42(Supplement 1):S34–S45.
15. National Kidney Foundation. KDIGO 2012 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease. Kidney
16. Int Suppl [Internet]. 2013;3(1):1–150.