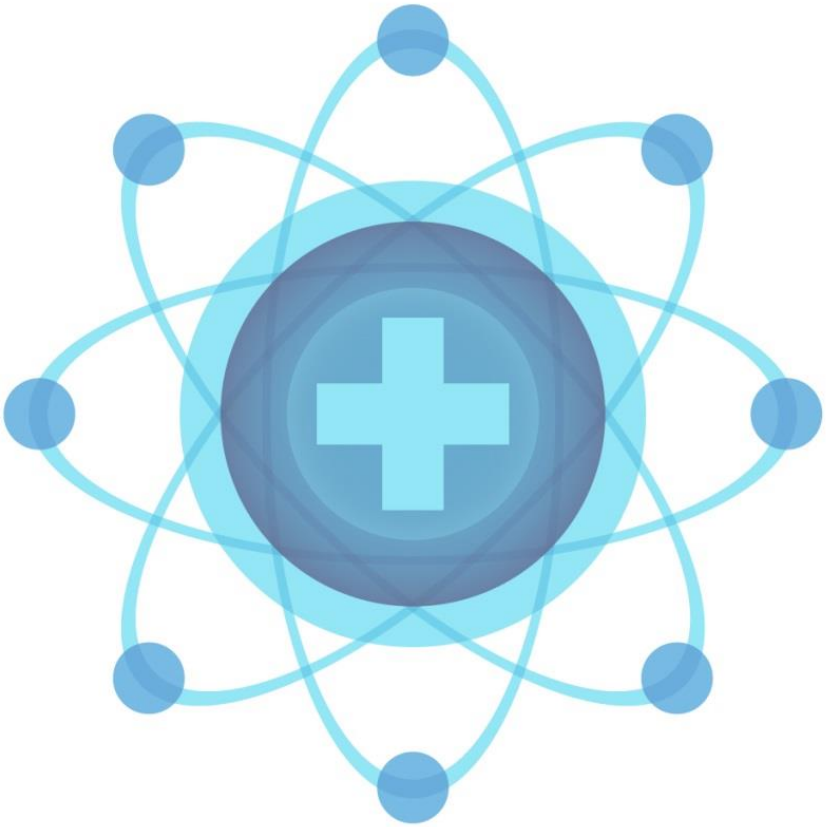

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Difficulties and prospects for non-drug treatment of metabolic syndrome

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Abstract: Abdominal obesity (and the closely related metabolic syndrome) is one of the most common diseases in the world. The urgency of the problem of the progression of abdominal obesity lies not only in its widespread prevalence, but also in the formation of a high risk of developing cardiovascular diseases and type 2 diabetes mellitus. The main reasons for the rapid development of obesity are considered high-calorie nutrition (which includes not only the quantity, but also the quality of food eaten), a sedentary lifestyle and a genetic predisposition. Until now, there has been a heated debate about methods for fast and high-quality weight loss.

There are many studies on the treatment of the various components of metabolic syndrome. Despite the many different pharmaceuticals developed for the treatment of abdominal obesity, non-drug methods of treatment and the organization of a healthy lifestyle come out on top, which is a difficult and, at times, overwhelming task for the clinician.

One of the main reasons for failure in this field is the lack of time at the doctor for outpatient appointments. To address this issue, the role of the "Schools of Health" is considered in order to effectively reduce the body weight of patients with metabolic syndrome and maintain long-term results. A review of the prevalence and main causes of abdominal obesity is carried out, the results of existing schools in real clinical practice for the treatment of various chronic diseases are analyzed, an assessment of their effectiveness is given.

Keywords: metabolic syndrome, obesity, diet.

Introduction: Metabolic syndrome (MS) is characterized by an increase in visceral fat mass, decreased sensitivity of peripheral tissues to insulin, and hyperinsulinemia, which cause the development of disorders of carbohydrate, lipid, purine metabolism and arterial hypertension (AH). The problem of MS progression is one of the most pressing problems of modern medicine, associated not only with leading an unhealthy lifestyle, excessive nutrition and physical inactivity, but also with a genetic predisposition [1].

Metabolic syndrome is gaining importance in the world. The number of patients increases dramatically every year. More than 1 billion people on our planet are overweight and over 300 million are obese. According to the WHO, the number of patients with a high risk of developing diabetes mellitus (including insulin resistance and obesity) is 40-50 million people in Europe [2]. According to various authors, in industrialized countries among the population over 30, the prevalence of MS ranges from 10 to 20% [3,4].

The prevalence of MS in Western countries, according to various sources, is 25-35% of the population, increasing with age. At the age of 60 and older, MS accounts for 42-43.5%. More than 47 million people in the United States have MS [5-

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7]. In developing countries, including Russia and Belarus, about 30% of the population is overweight [8.9]. There is a high increase in the incidence of MS among adolescents [10-14]. The prevalence of MS among men and women is equal: in men - 24%, among women - 23.4%, with than in women, the incidence of MS increases in the postmenopausal period [14,15].

Target. To study the role of non-drug methods of treatment of metabolic syndrome based on the results of clinical studies.

Results and Discussions.

The clinical significance of disorders and diseases united by the framework of the syndrome is that their combination greatly accelerates the development and progression of diseases associated with atherosclerosis. The latter, according to WHO estimates, rank first among the causes of mortality in the population of industrially developed countries [23-25].

Thus, in addition to the epidemiological aspect, MS is a serious factor of cardiovascular risk and the risk of developing type 2 diabetes, affects life expectancy and its quality. In recent years, more and more information has been accumulating on the relationship of metabolic disorders with cardiovascular morbidity (CVD) and mortality [13, 26-28,35].

It has been proven that it is patients with MS who are at risk of rapid development of diabetes mellitus and various forms of coronary artery disease [25, 27, 29].

In the 21st century, for mankind, which has overcome the epidemic of life-threatening infections over a centuries-old history, the problem of CVD has come to the fore in relevance among all causes of morbidity and mortality.

A significant role in this was played by lifestyle modification associated with limiting physical activity, increasing the calorie content of food, and a steady increase in emotional stress. All this potentiates the main risk factors for CVD, namely, an increase in blood pressure (BP), dyslipidemia, diabetes mellitus and obesity [6, 30, 31].

Obesity is recognized as one of the most significant risk factors for the development of CVD, early disability of patients and premature mortality [25, 32].

According to the Framingham Heart Study, obesity was found to be an independent risk factor for all-cause mortality [33]. With obesity of 1 degree, the risk of developing diabetes increases by 2-3 times, 2 degrees - 5 times, and 3 degrees - 10 times [34]. To date, it has been proven that the most dangerous in relation to the development of various diseases is the visceral type of obesity [25], which is widespread in modern society and is the main and mandatory criterion for MS [8,21, 28-34].

The problem of MS development is directly related to lifestyle and poor nutrition. Over the years, hundreds and even thousands of works devoted to MC have accumulated [20]. Pharmaceutical companies have invented a huge number of drugs that affect various links in the pathogenesis of MS. But, despite the successes, in this direction there are no positive shifts in solving this problem as a whole.

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Throughout humanity, anthropometric data have constantly changed, mainly due to an increase in height, to a lesser extent - due to an increase in body weight. Things have changed dramatically lately. The lifestyle of a modern person has changed dramatically and ceased to correspond to the concept of healthy. Instead of national cuisines, a high-calorie diet has come: universal "McDonaldization", "Coca-Colanization" of the population.

In large industrial cities, most of the working-age population among the choice of places for public catering prefers various fast food cafes, where they often offer food containing large the amount of fats, carbohydrates, salt, sugar, low in fiber, vitamins and minerals.

Therefore, lifestyle modification and diet therapy remain the primary treatment strategies for MS. MS before the development of type 2 diabetes mellitus is a reversible condition, thus, by making a diagnosis and starting treatment, regression of the main manifestations can be achieved. The main goal of MS treatment is to reduce the risk of developing CVD and type 2 diabetes. Therapeutic measures in the treatment of patients with MS should correct the main links of its pathogenesis [17].

The main tasks in the treatment of patients with MS are: weight loss, achieving good metabolic control, achieving an optimal blood pressure level, preventing acute and long-term cardiovascular complications (CVC).

The main component of MS, triggering a further pathological mechanism of metabolic disorders, is abdominal obesity (AO).

Treatment of AO is acquiring important medical importance, since the increase in waist volume is directly associated with a number of disorders that affect life expectancy, ahead of such serious risk factors as smoking and alcohol abuse [28]. It is the normalization of body weight that causes a decrease in insulin resistance, an improvement in insulin sensitivity, a decrease in blood pressure and regression of impaired functions.

According to the WHO, the health of the population is 70% conditioned by the lifestyle, therefore an important factor in the fight against CVD is the formation of a healthy lifestyle [19, 29, 30].

Data from three large studies (Da Qing stady, DPP, FDP) have shown that lifestyle changes in people with MS reduce the risk of developing diabetes by more than 50% [31,34]. It has been proven that diet and moderate exercise for at least 3-6 months leads to a significant decrease in body weight by 11%, waist circumference by 9%, high-density lipoprotein cholesterol (LDL) levels - by 13%, triglycerides - by 24%, improvement of insulin sensitivity - by 15% [12-14].

A decrease in body weight by 5.6 kg by 58% reduces the risk of further progression of carbohydrate metabolism, and a decrease in body weight by 10% leads to a decrease in overall mortality by 10%, a decrease in mortality from diabetes by 10%, a decrease in systolic and diastolic blood pressure by 10 mm Hg, an increase in high-density lipoprotein (HDL) by 8%, a decrease in triglycerides (TG) by 30% [22]. For every 1 kg of weight loss, there is a decrease in total cholesterol by 0.05 mmol / L, LDL - by 0.02 mmol / L, TG - by 0.015 mmol / L, increase in HDL - by 0.009 mmol / L [32].

Diet therapy is the cornerstone of the management of MS patients, and perhaps the most difficult to manage. Many nutritionists testify that changing their dietary habits for patients with MS is a difficult and sometimes daunting task [19]. Despite the fact that dietetics has made great strides in studying the dietary aspects of obesity treatment, patient adherence to changes in eating behavior remains extremely low [22, 28, 30].

Difficulties also arise for doctors who recommend weight loss to patients with MS. There are no clearly prescribed dietary recommendations for the treatment of patients with MS. There are developed dietary tables according to Pevzner, general recommendations for hypocaloric nutrition, food pyramids, etc. However, MS is a multicomponent disease, and if a Pevzner dietary table is prescribed, then all components should be taken into account. In case of obesity, dietary table No. 8 according to Pevzner is prescribed, with impaired carbohydrate metabolism and type 2 diabetes - dietary table No. 9 with restriction of carbohydrates, with hypertension and concomitant coronary artery disease - dietary table No. 10, with dyslipidemia - restriction of animal fats, with hyperuricemia and gout - limiting the intake of purines, etc.). In this situation, the doctor is faced with the question: what exactly should be prescribed in dietary recommendations. Most authors believe that the nutrition of patients with MS should be frequent and fractional (up to 5-6 times a day) in small portions, low in calories and low in fat and simple sugars.

The optimal daily food ration includes: proteins - 15%, complex carbohydrates - 55%, simple carbohydrates levoda - less than 10%, fats - 30% (of which saturated animal fats should be less than 7%) of the daily diet [32]. Given the frequent presence of hypertension in patients with MS, the consumption of sodium chloride is limited to no more than 2-5 g / day. An increase in fiber-containing foods has been recommended [31].

It is necessary to teach patients how to calculate the daily caloric intake; to create a negative energy balance, the daily caloric intake should be reduced by 500 kcal. Caloric content for each patient is is read individually using special formulas, taking into account such components as gender, age, physical activity [16,19].

On the modern pharmaceutical market there is a huge number of drugs that are used in the treatment of individual links in the pathogenesis of MS: antihypertensive, hypoglycemic, hypocholesteric, antipurine [22], but non-drug methods of treatment are returning to the first place in the treatment of MS [17, 21].

Increasing physical activity is the second most important non-drug weight loss method along with diet therapy. However, physical activity should be dosed and individual for each patient. Other methods of non-drug effects on body weight have been described, such as herbal medicine, the use of dietary supplements, psychological effects, hypnosis, and auto-training [29].

There is no sufficient evidence base for their widespread use; their use is possible only as additional methods to the main treatment.

It should be said that the majority of patients have no concept of a healthy lifestyle. Everyone knows that you shouldn't take too much alcohol, smoking is harmful, but the concept of healthy eating is blurred even among educated people.

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The concept of a healthy food is biased towards foods with a low glycemic index, which is not always correct: people
strive to choose a product free of genetically modified and transgenic products, which may be correct, but by no means the primary one in the choice of products.

On the other hand, there is no information in the media, special literature for patients. It is clear that if a person has the opportunity to have access to information on healthy eating, then his eating behavior is close to the correct one.

Due to proper nutrition, body weight decreases, waist volume decreases, anthropometric indicators improve, and the risk of CVD and diabetes mellitus decreases [20].

An important task is not only to reduce weight to optimal indicators, but also to further maintain it at a certain level. Often, patients have no idea what their weight and waist circumference should be. The key point for people motivated to reduce their excess weight is the course approach. Changing the diet plan, lifestyle should be perceived by the patient relatively easily, not become burdensome, it is easy enough to be carried out for a long time.

The more the doctor interferes with the patient's lifestyle and lifestyle, the less hope for success: competence and long-term fulfillment of any prescription is directly dependent on a person's motivation, personality traits, and also on the degree of lifestyle change. The number of recommendations that a doctor must give should be limited, his task is to develop a strictly limited, but most effective number of recommendations.

The diet of a patient with MS should not only ensure weight loss, but also not cause metabolic disorders and not provoke an increase in blood pressure.

Weight loss should be gradual. A rapid and sharp decrease in body weight by 10–20 kg leads to a decrease in the hormone leptin, which leads to a compensatory, difficult to overcome feeling of hunger and an increase in food consumption [18].

One of the problems of withdrawal from priority tasks is the independent expansion of physical activity with insufficient change in the diet.

For the treatment and prevention of many diseases (arterial hypertension, diabetes, bronchial asthma, etc.), Health Centers have been established in Uzbekistan, where "Health Schools" are successfully carried out, each of which has developed programs to educate patients, and which have proven their effectiveness in real clinical practice [5, 28, 29, 32]. Created obfor patients with alcoholism, drug addiction, but for patients with MS, overweight, there are no such schools.

For the effective treatment of arterial hypertension, the “School of Health for Patients with Arterial Hypertension in Primary Health Care” has been successfully used. On the basis of many treatment-and-prophylactic institutions, "Health Centers" have been created, in which lectures are given on the formation of a healthy lifestyle for patients with arterial hypertension, bronchial asthma, diseases of the musculoskeletal system [22.35]

The effectiveness of programs to reduce mortality from CVD is mainly due to prevention and largely depends on the active participation of patients themselves and their immediate family [29].

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According to the literature, there are practically no works devoted to the feasibility of creating "Health Schools for Patients with MS" based on teaching proper nutrition, changing lifestyle, eating behavior, and correct calculation of physical activity.

The introduction of an innovative program in a primary care setting makes it possible to improve the early detection and systematization of metabolic syndrome and its main components. This, in turn, enhances the early detection of various metabolic syndrome-related diseases.

Measures for non-drug prevention and treatment of metabolic syndrome expand the range of opportunities for lifestyle modification by involving family members in the treatment and prophylactic process.

The practical use of an innovative prevention program creates a methodological basis for the development of individual preventive strategies for patients with metabolic syndrome and its main components. From innovative technologies in the prevention of metabolic syndrome, you can use a digital program for calculating cardiovascular risk, which takes into account the main components of metabolic syndrome; the program can run on a computer, tablet and smartphone; the program allows the patient to self-monitor the state of the MS components and the level of risk [20].

Conclusion. Thus, among the unorganized population, there is a high prevalence of the main components of the metabolic syndrome, which are the main risk factors for CVD. The prevention technologies that exist today do not meet modern requirements and cannot fully get the result from their use.

Modern prevention of metabolic syndrome and CVD requires the use of new innovative methods. The positive effect of preventive intervention increases significantly when, along with personal contact, modern information and communication technologies through the phone, instant messengers.

The use of modern gadgets, diagnostic and preventive digital programs significantly increases the effectiveness of preventive measures.

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