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MEDITERRANEAN DIET AS AN ELEMENT OF TREATMENT AND PREVENTION OF CARDIOVASCULAR DISEASES

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СРЕДИЗЕМНОМОРСКАЯ ДИЕТА КАК ЭЛЕМЕНТ ЛЕЧЕНИЯ И ПРОФИЛАКТИКИ КАРДИОВАСКУЛЯРНЫХ ЗАБОЛЕВАНИЙ

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Currently, the issues of treatment and prevention of cardiovascular diseases are still relevant, as cardiovascular pathology remains one of the leading causes of disability and mortality in all developed countries of the world. In the Russian Federation there is a high incidence of the diseases of the circulatory system, so they have the top priority among health problems, despite a slight decrease in morbidity in recent years. The main purpose of this review is to study the experience of applying the Mediterranean diet and its components in therapy and prevention of cardiovascular pathology. Research method: we searched electronic databases PubMed, Scopus, Web of Science, MedLine, Science Direct and eLIBRARY.RU using the following terms: "Mediterranean diet", "cardiovascular diseases", "prevention of cardiovascular diseases", "diet therapy of cardiovascular diseases". On the basis of numerous world clinical studies analysis, it can be assumed that the Mediterranean diet is one of the most reliable and well-studied in terms of prevention of cardiovascular pathology. The aim of this review is to draw the attention of the medical community to such a long-known, extensively studied, scientifically confirmed, accessible and simple way of rationalizing daily nutrition as the consumption of elements of the Mediterranean diet in the daily one. Further wide informing of patients about this way of nutrition from different specialists (general practitioners, cardiologists, nutritionists, gerontologists and others) is required.

Keywords. Mediterranean diet; cardiovascular diseases; treatment of cardiovascular diseases; diet Therapy of arterial hypertension; prevention of cardiovascular pathologies.

В настоящее время вопросы лечения и профилактики сердечно-сосудистых заболеваний не потеряли своей актуальности, так как кардиоваскулярная патология занимает лидирующие позиции среди причин утраты трудоспособности и смертности населения во всех развитых странах мира. В Российской Федерации болезни системы кровообращения, несмотря на некоторое снижение заболеваемости в последние годы, также имеют высокую распространенность, поэтому являются приоритетными проблемами здравоохранения. Основной целью данного обзора является изучение опыта применения средиземноморской диеты и ее компонентов в терапии и профилактике кардиоваскулярной патологии. Был выполнен поиск в электронных базах данных PubMed, Scopus, Web of Science, MedLine, Science Direct и eLIBRARY.RU на основе следующих терминов: «средиземноморская диета», «кардиоваскулярные заболевания», «профилактика сердечно-сосудистых заболеваний», «диетотерапия сердечно-сосудистых заболеваний». Анализ множества мировых клинических исследований дает возможность предположить, что средиземноморская диета является одной из наиболее достоверных и изученных в плане предотвращения сердечно-сосудистой патологии. Обзор служит целью привлечения внимания медицинского сообщества к такому давно известному, многосторонне изученному, научно подтвержденному, доступному и простому способу рационализации повседневного питания, как включение элементов средиземноморской диеты в рацион. Необходимо дальнейшее широкое информирование пациентов об этом способе питания со стороны врачей разного профиля (терапевтов, кардиологов, врачей общей практики, диетологов, нутрициологов, геронтологов и других).

Ключевые слова. Средиземноморская диета, кардиоваскулярные заболевания, лечение кардиоваскулярных заболеваний, диетотерапия сердечно-сосудистых заболеваний, профилактика кардиоваскулярных патологий.

INTRODUCTION

Prevention and comprehensive treatment of cardiovascular pathology, in addition to drug therapy, should include mandatory modification of lifestyle and nutrition. According to the National Health and Nutrition Examination Surveys, disturbances in habitual eating patterns have been associated with the development of metabolic and cardiac pathologies. Among them, the most significant were: excessive sodium consumption, a reduction in the amount of nuts and foods rich in omega-3 fatty acids in the daily diet, frequent consumption of processed meat, a small amount of vegetables and fruit in the diet, and regular consumption of artificially sweetened beverages. It has been proven that refined carbohydrates can “displace” more nutritious and healthy foods from the diet [1]. Due to the high role of alimentary factors as triggers of the development of cardiovascular pathology, in different years, Russian and foreign authors have proposed many different options for corrective nutrition [2]. They share many common principles, the main ones are reducing excess consumption of processed foods, using fresh whole ingredients, limiting consumption of foods with high amounts of sugar, and eliminating fast food from the diet [3].

The Mediterranean diet is one of the most studied and proven types of modern therapeutic nutrition in terms of cardioprotection [4]. It was formulated in the 1950s in the Seven Countries study, which for the first

time identified the paradoxical fact that among the poor population of Mediterranean countries, which consumes a fairly large amount of fat in their daily diet, there was a low mortality rate from cardiovascular diseases, which served as an impetus for studying their diet and the possibility of using its components in the treatment (and prevention among risk groups) of cardiac pathology [5]. This type of diet is not based on calorie restriction, but rather on the consumption of a certain list of recommended foods, mainly of plant origin, rich in polyunsaturated fatty acids and fiber, olive oil, milk, cheese and eggs, weekly inclusion of seafood and lean meat in the diet and moderate consumption of wine, as well as limiting the amount of red meat, saturated fats and flour products in the diet [6; 7].

The main objective of this review is to study the experience of using the Mediterranean diet and its components in the treatment and prevention of cardiovascular pathology.

REVIEW OF MAIN COMPONENTS

OF MEDITERRANEAN DIET AND THEIR ROLE IN PREVENTION OF CARDIOVASCULAR DISEASES

If we analyze the role of individual components of the Mediterranean diet, we should note the special importance of eating olive oil and nuts, which in a number of studies have shown a reliable effect in reducing the risk of cardiovascular events [8]. Olive oil is the main source of fat in the Mediterranean diet. The broad spectrum of

antiatherogenic effects associated with olive oil consumption may help explain the low cardiovascular mortality rate in patients with this diet. The benefits of olive oil consumption are not limited to just lowering LDL cholesterol. Olive oil has been shown to have positive effects on inflammation, oxidative damage, endothelial dysfunction, blood pressure, thrombosis, and carbohydrate metabolism [8].

Eating nuts also has a beneficial effect on the functioning of many systems and organs, including the cardiovascular system. Due to the unique profile of fatty acids contained in nuts and their derivatives (peanut butter, etc.), the level of total cholesterol and low-density lipoprotein cholesterol was significantly reduced, and the ratio of low- and high-density lipoproteins was improved. In this regard, the likelihood of developing atherosclerosis of blood vessels, including coronary ones, is significantly reduced, which, in turn, prevents the occurrence of cardiovascular events [9].

Dairy products are also important components of the Mediterranean diet. Their role continues to be debated, and the effect of fresh milk on the human body, which changes with age, is not fully understood. However, based on the results of recent large randomized controlled trials, it can be said that the positive effects outweigh the negative ones [9]. There is evidence that cheese consumption is associated with a reduced risk of cardiovascular disease. This may be related to the latter's ability to reduce LDL levels [10]. However,

the data presented in the described studies is currently quite scarce, and the question of the influence of dairy products on the cardiovascular system remains open and requires new scientific research.

Products based on grain crops have been one of the main components of the human diet since ancient times. Dietary guidelines strongly recommend the inclusion of whole grains in the diet of patients of all ages, as evidence has grown in recent years that whole grains and whole grain-based products have the ability to improve many parameters of human health beyond simply providing energy and nutrients [11]. One study also found that high whole grain consumption reduced the risk of cardiovascular disease compared to those who consumed grains in insufficient quantities. At the same time, it was identified that people who consumed refined grain products did not have a change in the risk of developing cardiovascular pathology [12].

It is important to note the beneficial properties of fruits and vegetables as the main elements of the Mediterranean diet. Numerous studies have accumulated to show their effectiveness in reducing cardiovascular risk [13; 14]. The advantage of these products also lies in the fact that they are quite accessible to the population of most countries, including residents of the Russian Federation. The following vegetables and fruits have shown and proven the greatest effectiveness: apple, avocado, pomegranate, grapes. The proposed mechanism for risk reduction is through

protection of the vascular endothelium, modulation of blood pressure, reduction of oxidative stress and reduction of chronic inflammation [15].

Another component of the Mediterranean diet that has a cardioprotective effect is table red wine, taken in moderation, no more than two glasses a day. The term "French paradox" was coined in 1992 to describe the relatively low incidence of cardiovascular disease in French people despite their relatively high dietary intake of saturated fat. This paradox could be explained by the moderate consumption of natural red grape wine, which was popular among the French. Later, through several clinical studies, it was established that wine has multiple effects on all phases of the atherosclerotic process – from atherogenesis to plaque rupture and vascular occlusion [16–18].

Having considered all the main components of the Mediterranean diet, it is important to note that, despite the proven role of each product and the substances it contains in preventing the development of cardiac pathology, the greatest preventive effect of the diet is achieved precisely due to their complex action and long-term adherence to them in the diet, especially in combination with a healthy lifestyle [19–21].

The role of the Mediterranean diet in the treatment and prevention of circulatory diseases is reflected in a number of large studies [22–26]. One of the most well-known studies on the Mediterranean diet is the PREDIMED project. A 2003 study included 7,447 participants aged 55 to 80 years, 43 %

men and 57 % women, who had risk factors for cardiovascular disease, namely dyslipidemia, obesity, type 2 diabetes, and a family history of cardiovascular disease. According to the results of the work, with adherence to the Mediterranean type of diet, the risk of development, progression and mortality from cardiovascular pathology is significantly reduced, the effect of the diet was comparable to the therapy of arterial hypertension with ACE inhibitors and beta-blockers.

The SUN (Seguimiento Universidad de Navarra (University of Navarra)) project presented a prospective cohort study conducted in Spain among university graduates [27]. The study followed 13,609 participants (60 % women, mean age 38 years) without cardiovascular disease (CVD) for 4.9 years. Respondents were given a 136-item questionnaire on the frequency of consumption of various foods, assessed on a 9-point scale. During the observation period, 100 cases of cardiovascular diseases were registered. In multivariate analyses, participants with the highest adherence to the Mediterranean diet (score > 6) demonstrated lower cardiovascular risk (odds ratio = 0.41, 95 % confidence interval [CI]: 0.18–0.95) compared with those with the lowest score (< 3). For each 2-point increase, the adjusted hazard ratios were 0.80 (95 % CI: 0.62–1.02) for total CVD and 0.74 (CI: 0.55–0.99) for coronary heart disease. This study demonstrated how adherence to Mediterranean diet foods reduces the risk of cardiovascular disease.

The EPIC Norfolk (European Prospective Investigation of Cancer) study, con-

ducted in the UK on 23,902 participants over 12.2 years, also proved the role of the Mediterranean diet in preventing mortality from cardiovascular disease [28]. Based on the obtained results, it was suggested that overall cardiovascular morbidity and mortality may be reduced by increasing adherence to the Mediterranean diet.

Data from several studies have convincingly proven [29–32] that rational nutrition is a key factor in promoting a healthy lifestyle and preventing many chronic diseases. In particular, a large number of studies have established the protective effect of the Mediterranean diet against a number of chronic diseases, including diabetes, cardiovascular disease, cancer, aging disorders, as well as against overall mortality.

Currently, the role of nutritionology as a system of knowledge about proper nutrition for a patient who does not have a clinically developed picture of the disease, but has risk factors, including cardiovascular pathology, is increasing [33]. Modern clinical studies confirm that elements of the Mediterranean diet have a cardioprotective effect and are capable of exerting a positive therapeutic and preventive effect on cardiovascular pathology [34]. The Mediterranean diet is recommended and included in the list of mandatory non-drug recommendations in Russia and other countries [35; 36]. However, there remains insufficient awareness among both the population and doctors about the benefits of this type of diet for reducing the risk of developing and progressing cardiovascular diseases [37; 38].

CONCLUSIONS

Based on numerous global clinical studies, it can be assumed that the Mediterranean diet is one of the most reliable and studied in terms of preventing cardiovascular pathology. Many authors have confirmed (in the PubMed database for the period from 2020 to May 2024 alone, there are 5649 publications for the query mediterranean diet, 672 for the query mediterranean diet and hypertension, and 836 for the query mediterranean diet and cardiovascular prevention) that the Mediterranean diet reduces the risks of developing coronary heart disease and heart failure, along with a reduction in overall mortality from cardiovascular disease, which once again emphasizes the relevance of this literature review.

The use of elements of the Mediterranean diet in the general scheme of measures for the prevention and treatment of cardiovascular pathology shows a positive effect. Recognition of the health benefits of the Mediterranean diet has made its widespread adoption an urgent priority. Despite the difficulties associated with adherence to this diet, such as the financial capabilities of the population, the eating habits and preferences of certain peoples and social groups, the unavailability of some products on a permanent basis, the Mediterranean diet can be called one of the most convenient of the therapeutic diets with a certain plasticity, where it is not necessary to completely change your diet, but only to follow the principles of choosing products.

This review serves the purpose of drawing the attention of the medical community to such a long-known, comprehensively studied, scientifically proven, accessible and simple way of rationalizing everyday nutrition as the inclusion of elements of the Mediterranean diet in the diet. Further widespread information of patients about this way of nutrition is necessary from doctors of various profiles (therapists, cardiologists, general practitioners, dietitians, nutritionists, gerontologists and others).

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