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MODERN APPROACHES TO DIETOTHERAPY IN HYPERTENSIVE DISEASE

Summary. The article features the diet therapy in hypertension, recommendations of the World Health Organization (WHO), leading European nutritionists and cardiologists on the disease.

The aim of the study – to get acquainted with the nutritional characteristics of hypertension; analyze known publications on nutrition and diet therapy in hypertension. Also, changes in lifestyle are recommended for the prevention and treatment of hypertension. Cardiovascular disease is one of the leading causes of morbidity and remains one of the major causes of mortality in economically developed countries. One of the most serious health problems today is arterial hypertension, a leading risk factor for myocardial infarction and stroke, as well as the cause of disability and death among people of working age. WHO experts from the 12 largest countries in the world have said that about 20 % of the adult population of the planet suffers from high blood pressure, hypertension "is younger" in recent decades. In this regard, according to researchers, pressure is reduced by 19 % in boys and 16 % in girls. Therefore, the problems of further improving the treatment and prevention of arterial hypertension are extremely relevant and have become the subject of numerous studies, including the areas of nutrition and diet therapy. At present, the main factors of food risk for hypertension are excessive intake of sodium, saturated fatty acids, excess and caloric diet, etc. The article gives recommendations for changing the way of life for the prevention and treatment of hypertension. Fatty foods, stomach overload with food, high salt content, water retention in the body, and as a result of increased pressure, lead to an increase in the number of cardiovascular diseases. This review of the literature describes and examines the nutritional features of different countries of the world, examines the effects of diet therapy and provides recommendations for improving the health of the population: limiting sodium intake (no more than 5 g/day); reduce the total amount of liquid (up to 1–1.2 liters per day); maintaining adequate potassium consumption (through fresh fruits and vegetables); consumption of sufficient amounts of calcium, magnesium and other minerals; food fibers; enriching your diet with seafood; slimming (Mediterranean diet with moderate use of red wine); reduction or complete refusal to use foods rich in caffeine; flour products, semi-finished products, etc.; increase in physical activity (walking and running in the fresh air, swimming, cycling, exercises on a bike).

Conclusions. Proper nutrition in hypertension is one of the important ways to normalize the functions of the heart and blood vessels, thereby improving the quality of life without leading to fatal results. Nutrition should help to maintain health, meet the needs of the body in nutrients, calories, as well as vitamins and mineral elements.

Key words: hypertensive disease; cardiovascular system; World Health Organization (WHO); dietary intake; dietotherapy; diet; Mediterranean diet; dietary approach to stop hypertension; Tofu cheese; quercetin.

"Food is the most important factor supporting life.
 Only the intake of healthy food contributes to the proper growth
 and development of the person, the use of harmful
 food is the cause of disease"

INTRODUCTION This article discusses the features of dietotherapy for hypertensive disease, provides recommendations of the World Health Organization, leading European nutritionists and cardiologists.

The aim of the study – to get acquainted with the features of nutrition in hypertension; analyze the well-known publications about the features of nutrition and diet in hypertension; give recommendations on lifestyle changes for the prevention and treatment of hypertension.

Cardiovascular diseases occupy one of the first places in the structure of morbidity and remain one of the leading causes of death in economically developed countries [8]. In particular, one of the most serious health problems today in the world is hypertension, which is a leading risk factor for myocardial infarction and stroke, as well as the cause of disability and death in people of working age [4].

WHO experts of the 12 largest countries stated that 20 % of the adult population of the planet suffers from high blood pressure [6]. In addition to all the troubles, hypertension has also been "getting younger" in recent decades. According to researchers, the pressure is broken in 19 % of boys and 16 % of girls [6]. In this regard, the problems of further improving the treatment and prevention of hypertension are extremely relevant and has been the subject of numerous studies, including in recent years in dietology and dietotherapy. The WHO Committee of Experts on the Prevention of Cardiovascular Diseases considers the most urgent

rationalization of the nutritional status of the population as the main focus in their prevention. As the experience of a number of countries (USA, Finland, Australia, etc.) testifies, the improvement of lifestyle, in which nutrition has played a leading role, has led to a 30–35 % reduction in mortality from complications of arterial hypertension over the past 35 years [14].

This article is devoted to acquaintance with the peculiarities of nutrition in hypertensive disease. In the presented review of the literature we analyzed the well-known publications on the peculiarities of nutrition and dietotherapy in hypertension.

Many outstanding clinicians, cardiologists, nutritionists, gave paramount importance to medical nutrition in diseases of the cardiovascular system. Unfortunately, clinicians involved in prescribing and implementing treatment programs for hypertension do not always maximally and effectively use the therapeutic effect of therapeutic food, do not correct the water-electrolyte and microelement (Na, K, Cl, Ca, Mg) composition of the daily diet, vitamin imbalance and dysproteinemia occurring in the patient's body. Regardless of the magnitude of blood pressure, the course of arterial hypertension, treatment begins or is carried out against the background of an appropriate diet and the normalization of lifestyle. At the same time, it should be noted that, G.F. Lang also wrote that dietotherapy is of great importance in the treatment and prevention of hypertension [2].

Currently, the main nutritional risk factors for hypertension are excess consumption of sodium, saturated fatty acids, excess nutrition, increased caloric intake, etc. The work of cardiovascular system is closely related to the processes of digestion. Abundant food overwhelms the stomach, as a

result, it shifts the diaphragm and thereby impede the work of the lungs and heart. Overload creates and excess fluid intake. If there is too much salt in the diet, then water is retained in the body tissues, which contributes to high blood pressure and leads to edema.

How does hypertensive patient have health food? Let's start with the salts. Restriction of salt (up to 5 g per day) is particularly important and oversalting food is unacceptable. It is recommended to cook food without salt or only slightly salt already prepared foods. The taste of unsalted or insufficiently salted food can be improved by adding cranberries, citric acid, cinnamon, parsley, garlic, dill or cilantro, and also monosodium glutamate [3]. The latter is widely used in the nutrition of the population in China and Japan. In China, this substance is called "Wei-Sue", and in Japan "Ajino-Moto" is translated as the essence of taste. Therefore, monosodium glutamate refers to substances that improve the taste of food products, ready meals. However, it should not be forgotten that excessive amounts of monosodium glutamate can lead to the "Chinese restaurant syndrome" or the so-called "Olney's disease", the doctor who described this symptom complex in 1868 [7].

Products containing salts of potassium, should be relatively more in the daily diet, since potassium improves the functioning of the heart muscles and helps to eliminate excess fluid from the body. Potassium salts are many in vegetables, fruits, berries, fresh juices; especially rich in potatoes, apricots, pumpkin, bananas, but the original storerooms of potassium are prunes, dried apricots, raisins, rose hips. It is necessary to provide the body with salts of magnesium, as they have a vasodilatory action and contribute to the prevention of vascular spasms with a subsequent decrease in blood pressure. The magnesium diet includes rye and wheat bread with bran, oat, millet, barley, buckwheat porridge (puddings, casseroles), beets, carrots, lettuce, parsley, black currants, walnuts, almonds [3].

In accordance with the recommendations of the WHO and the Russian National Society of Cardiologists and Therapists, in order to remain healthy, you must eat five servings of vegetables and fruits per day. These are two medium apples, 200 grams of cabbage, preferably broccoli and another vegetable or fruit, for example, one carrot or one apricot, which must be taken in one day [5]. Pumpkin and eggplants contain many useful nutrients (vitamins C, PP, carotene, pectin substances, potassium, vegetable fibers), which allow us to recommend these vegetables in diets for diseases of the cardiovascular system. Pumpkin and eggplant dishes can be prepared in any technological form: cook, simmer, fry, cook caviar from them. Pumpkin and eggplant foods are included in therapeutic diets for atherosclerosis, hypertension, coronary heart disease, and constipation [4]. Courgettes are a kind of pumpkin and are considered useful. Courgettes contain vitamins C, PP, carotene, vegetable fibers, such mineral elements as potassium, magnesium. Foods of courgettes are widely used in therapeutic diets for diseases of the cardiovascular system, particularly hypertension. Courgettes have a diuretic effect, which is very important for the tendency to edema, contribute to the activation of intestinal peristalsis with constipation [3].

Nutritionists advise to enrich the diet of patients suffering from diseases of the cardiovascular system with well-known dietary (dietary) fibers [15, 16]. At the same time, it should be noted that one of the first clinical experimental studies [17–20], the effects of dietary fibers on the human body were

conducted in Ukraine, namely in Ternopil State Medical University at the Department of Therapy of the Faculty of Post-graduate Education under the guidance of prof. S. G. Weinstein in the 80s of the last century.

Another of the necessary indicators of health is body overweight. If you manage to achieve weight loss, many problems are eliminated by itself. However, there is a decrease in high blood pressure. European nutritionists recommend overweight hypertensive patients such diets as DASH (Dietary Approach to Stop Hypertension), Mediterranean [13] (Fig. 1).

The daily diet according to the DASH diet includes the following products:

- Cereals – at least 7 servings per day (1 serving = slice of bread, 1/2 Cup of ready-made pasta, 1/2 Cup of porridge).
- Fruit – no more than 5 servings per day (1 serving = 1 fruit, 1/4 Cup dried fruit, 1/2 Cup juice).
- Vegetables – 5 servings per day (1 serving = 1/2 Cup boiled vegetables).
- Low-fat dairy products – 2–3 servings per day (1 serving = 50 g of cheese or 0,15 l of milk).
- Seeds, beans, nuts – 5 servings per week (serving = 40 g).
- Animal and vegetable fats – 3 servings per day (1 serving = teaspoon of olive or linseed oil).
- Sweet foods – no more than 5 times a week (1 tsp jam or honey).
- Liquid – 1.2 l per day (water, green tea, juice).
- Protein – 0.2 kg lean meat or fish, eggs.

The Mediterranean Diet has been widely recognized in Europe as a simple and physiological diet, especially for the prevention of cardiovascular diseases. Such components of the Mediterranean Diet as onion-garlic and olive oil, which have a positive effect on both systolic and diastolic blood pressure [12].

Onions are considered one of the flavoring products (according to the opinion of Professor G.M. Makhkamov) of the Mediterranean diet. Many studies confirm that onions have antithrombotic, antioxidant properties and are a great source of flavonoids, quercetin [11]. However, onion and soy "tofu cheese" are the main source of quercetin in Japanese women who have a low incidence of coronary heart disease in comparison with women in other countries of the world [9]. It is necessary to limit (or better – to exclude) the consumption of beverages that excite the cardiovascular and nervous systems – strong brewed tea and coffee, carbonated drinks.

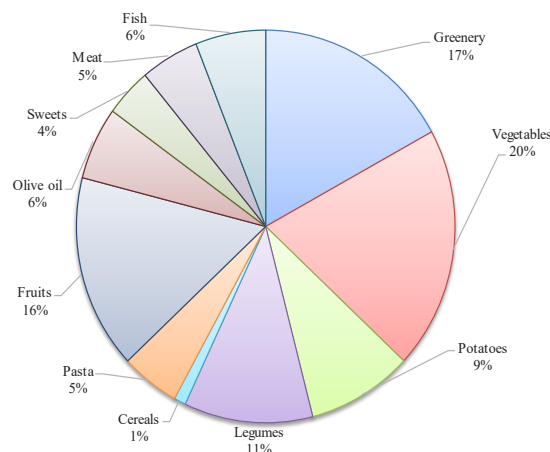


Fig. 1. Nutritional balance in the Mediterranean Diet [13].

Of course, the concept of “strong” in a certain sense of the word is subjective, but in any case, it should be noted that caffeine and other tonic substances of tea and coffee can cause heart palpitations, insomnia and high blood pressure. You should be especially careful with instant coffee: it contains much more caffeine than usual. It is best to drink green tea with lemon, lemon balm or ginger.

The total amount of liquid is also important to reduce to 1–1.2 liters per day, including tea, compote, milk, soup. Purpose: not to overload the cardiovascular system and prevent the appearance of edema. French doctors say that a glass of red wine a day will not harm health, but on the contrary, for the cardiovascular system can even be useful. The chief cardiologist of the Ministry of Health of Russia Professor Irina Chazova believes that it is good for health to drink one glass of wine – better than red [7].

A Mediterranean diet with reduced salt intake and increased consumption of fruits and vegetables along with moderate consumption of red wine can improve hemodynamic performance in patients with hypertension [10].

CONCLUSIONS Proper nutrition in hypertension is one of the important ways to normalize the functions of the heart

and blood vessels, thereby improving the quality of life without leading to fatal results. Nutrition should help to maintain health, meet the needs of the body in nutrients, calories, as well as vitamins and mineral elements. The recommendations of lifestyle changes for the prevention and treatment of hypertension include:

- restriction of sodium intake (not more than 5 g/day);
- reduce the total amount of liquid (up to 1–1.2 liters per day);
- maintaining adequate potassium intake (through fresh fruits and vegetables);
- consumption of adequate amounts of calcium, magnesium and other minerals;
- increased consumption of dietary fiber;
- enrich your diet with seafood;
- weight loss (Mediterranean Diet with moderate consumption of red wine);
- reduction or complete rejection of the use of products rich in caffeine; flour products, semi-finished products, sausages from horse meat, bear meat, etc.
- increased physical activity (walking and running in the fresh air, swimming, bicycling, exercise bicycle).

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СУЧАСНІ ПІДХОДИ ДО ДІЄТОТЕРАПІЇ ПРИ ГІПЕРТОНІЧНІЙ ХВОРОБИ

Резюме. У статті показано особливості дієтотерапії при гіпертонічній хворобі, наведено рекомендації Всесвітньої організації охорони здоров'я (ВООЗ), провідних європейських нутриціологів і кардіологів щодо цього захворювання.

Мета дослідження – ознайомитися з особливостями харчування при гіпертонічній хворобі. Проаналізувати відомі публікації щодо харчування і дієтотерапії при гіпертензії. А також порекомендувати зміни способу життя для профілактики й лікування гіпертонічної хвороби. Серцево-судинні хвороби займають одне з провідних місць серед захворюваності й залишаються однією з важливих причин смертності в економічно розвинених країнах. Однією із найсерйозніших проблем здоров'я сьогодення є артеріальна гіпертензія, провідний фактор ризику інфаркту міокарда та інсульту, а також причиною інвалідності та смерті серед людей працездатного віку. Експерти ВООЗ із 12 найбільших країн світу зауважили, що близько 20 % дорослого населення планети страждає від високого кров'яного тиску, гіпертензія “молодшає” в останні десятиліття. У зв'язку з цим, за даними дослідників, тиск знижується у 19 % хлопчиків і 16 % дівчаток. Тому проблеми подальшого удосконалення лікування і профілактики артеріальної гіпертензії є надзвичайно актуальними і стали предметом численних досліджень, зокрема в галузі дієтології і дієтотерапії. У даний час основними чинниками харчового ризику для гіпертонічної хвороби є надмірне споживання натрію, насичених жирних кислот, надмірне та калорійне харчування тощо. У статті наведено рекомендації щодо зміни способу життя для профілактики і лікування гіпертензії. Надмірне харчування перевантаження шлунка їжею, вміст великої кількості солей, затримка води в організмі, і як результат підвищений тиск, призводять до збільшення кількості серцево-судинних захворювань. У даному огляді літератури описано і досліджено харчові особливості різних країн світу, вивчено вплив дієтотерапії та наведено рекомендації для поліпшення здоров'я населення: обмеження споживання натрію (не більше 5 г / добу); зменшення загальної кількості рідини (до 1–1,2 л на добу); адекватне вживання калію (у вигляді свіжих фруктів і овочів); споживання достатньої кількості кальцію, магнію та інших мінералів; харчових волокон; збагачення свого раціону морепродуктами; схуднення (середземноморська дієта з помірним вживанням червоного вина); скорочення або повна відмова від споживання продуктів, багатих на кофеїн; виробів із борошна, напівфабрикатів тощо; підвищення фізичної активності (ходьба і біг на свіжому повітрі, плавання, їзда на велосипеді, вправи на велотренажері).

Висновки. Правильне харчування при гіпертензії є одним з важливих способів нормалізації функцій серця і кровоносних судин, тим самим покращуючи якість життя, не призводячи до фатальних результатів. Харчування повинно сприяти збереженню здоров'я, задоволенню потреби організму в поживних речовинах, калоріях, а також вітаміні і мінеральні елементи.

Ключові слова: гіпертонічна хвороба; серцево-судинна система; Всесвітня організація охорони здоров'я (ВООЗ); харчовий раціон; дієтотерапія; середземноморська дієта; DASH-дієта; кверцетин.

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СОВРЕМЕННЫЕ ПОДХОДЫ К ДИЕТОТЕРАПИИ ПРИ ГИПЕРТОНИЧЕСКОЙ БОЛЕЗНИ

Резюме. В статье показаны особенности диетотерапии при гипертонической болезни, приведены рекомендации Всемирной организации здравоохранения (ВОЗ), ведущих европейских нутрициологов и кардиологов по поводу этого заболевания.

Цель исследования – ознакомиться с особенностями питания при гипертонической болезни. Проанализировать известные публикации об особенностях питания и диетотерапии при гипертонии. А также рекомендованы изменения образа жизни для профилактики и лечения гипертонической болезни. Сердечно-сосудистые болезни занимают одно из ведущих мест среди заболеваемости и остаются одной из важных причин смертности в экономически развитых странах. Одной из наиболее серьезных проблем здоровья сегодня является артериальная гипертония, ведущий фактор риска инфаркта миокарда и инсульта, а также причиной инвалидности и смерти среди людей трудоспособного возраста. Эксперты ВОЗ из 12 крупнейших стран мира заявили, что около 20 % взрослого населения планеты страдает от высокого кровяного давления, гипертония “молодеет” в последние десятилетия. В связи с этим, по данным исследователей, давление снижается у 19 % мальчиков и 16 % девочек. Поэтому проблемы дальнейшего совершенствования лечения и профилактики артериальной гипертонии чрезвычайно актуальны и стали предметом многочисленных исследований, в том числе области диетологии и диетотерапии. В настоящее время основными факторами пищевого риска для гипертонической болезни являются избыточное потребление натрия, насыщенных жирных кислот, избыточное и калорийное питание и т. д. В статье приведены рекомендации по изменению образа жизни для профилактики и лечения гипертонии. Обильная пища, перегрузка желудка едой, содержание большого количества солей, задержка воды в организме, и как результат повышенное давление, приводят к увеличению числа сердечно-сосудистых заболеваний. В данном обзоре литературы описаны и исследованы пищевые особенности разных стран мира, изучено влияние диетотерапии и приведены рекомендации для улучшения здоровья населения: ограничение потребления натрия (не более 5 г/сут.); уменьшить общее количество жидкости (до 1–1,2 л в сут.); поддержание адекватного потребления калия (через свежие фрукты и овощи); потребление достаточного количества кальция, магния и других минералов; пищевых волокон; обогащение своего рациона морепродуктами; похудение (средиземноморская диета с умеренным употреблением красного вина); сокращение или полный отказ от употребления продуктов, богатых кофеином; мучные изделия, полуфабрикаты и др.; повышение физической активности (ходьба и бег на свежем воздухе, плавание, езда на велосипеде, упражнения на велотренажере).

Выводы. Правильное питание при гипертонии является одним из важных способов нормализации функций сердца и сосудов, тем самым улучшая качество жизни, не приводя к фатальным результатам. Питание должно помогать поддерживать здоровье, удовлетворять потребности организма в питательных веществах, калориях, а также в витаминах и минеральных элементах.

Ключевые слова: гипертоническая болезнь; сердечно-сосудистая система; Всемирная организация здравоохранения (ВОЗ); пищевой рацион; диетотерапия; средиземноморская диета; DASH-диета; кверцетин.

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