The Effect of Dietary Approaches to Stop Hypertension (DASH) Plan on Quality of Life in Hypertensive with Acute Coronary Syndrome Patients

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ABSTRACT

Objective: The aim of the study was to evaluate the effect of Dietary Approaches to Stop Hypertension (DASH) on quality of life in hypertensive patients with acute coronary syndrome (ACS).

Methods: This study was designed and conducted with 34 patients using a single-group and pre-test/post-test design in two public hospitals. Descriptive characteristics of the patients were obtained through a questionnaire. The questionnaire included socio-demographic characteristics, dietary habits, physical activity levels and quality of life using the MacNew Heart Disease Health-Related Quality of Life scale. The DASH diet plan was planned individually based on the daily energy requirement and explained to the patients. Patients were requested to achieve maximum adherence to the DASH diet plan for 12 weeks. Patients' adherence to the DASH diet and quality of life were compared at the baseline and at study completion using SPSS 25.0 paired sample t-test.

Results: Patients' adherence to the DASH diet showed a statistically significant increase compared to the baseline (p<.05). In addition, patients' quality of life scale scores, including overall awnd sub-dimensions, statistically increased endline of the study (p<.001). A significant correlation was found between the change in adherence to the DASH diet and quality of life score changes (p<.05).

Conclusion: The DASH diet may improve quality of life in hypertensive patients with ACS. More clinical and long-term studies are needed to clarify the possible mechanisms in relation to these findings.

Keywords: Acute coronary syndrome, cardiovascular disease, DASH diet, hypertension, quality of life

1. INTRODUCTION

The prevalence of cardiovascular diseases (CVD) and mortality rates related to the diseases are gradually increasing in the Türkiye and worldwide. It is one of the primary causes of death (1). The World Health Organization (WHO) estimated that 16.0% of all deaths are caused by ischaemic heart disease (2). The primary cause of death is coronary heart disease (CHD) with a rate of 13.0% in United States of America, whereas in Europe, 37.0% of deaths are associated with circulatory system diseases and ischaemic heart disease is responsible for 12.0% of the deaths (3). The results of the Heart Diseases and Risk Factors in Turkish Adults (TEKHARF-2017) epidemiological study conducted in Türkiye; it was reported that 42.0% of the causes of death between 1990-2016 were coronary-related. Base on the findings, 420 000 coronary events occur annually, of which 120 000 are recurrence of acute events in patients referrred as coronary artery disease (CAD), 180 000 are new acute coronary syndromes (ACS),

and 120 000 are CAD characterized as "silent" development in seemingly healthy (4).

Diabetes, hypertension, hyperlipidemia, obesity, homocysteinuria, psychological and mental stress, smoking, age, gender, ethnicity, nutritional status, sedentary life and family history are among the risk factors for CAD (5). Long-term exposure to risk factors, progressive maintenance of the chronic inflammation leads to gradual closure of the artery, partial or complete interruption of blood flow to the heart and consequently to ACS (6). In addition, especially the persistence of modifiable factors adversely affects the structure or functions of the heart, and impairs the patients' quality of life. Low levels of physiological, psychological and social wellbeing, which are included in health-related life quality, are commonly observed in patients diagnosed with ACS (7, 8). The target of secondary prevention care planning for patients is to optimize cardiac structure and function,

improve life quality and prevent recurrent adverse cardiac events by reducing risk factors (9).

The literature suggests that Dietary Approaches to Stop Hypertension (DASH), one of the healthy eating patterns, has positive effects on diseases such as hypertension, diabetes, obesity and cancer (10, 11). The DASH diet plan includes high vegetable, fruit, whole grain products, low-fat/non-fat dairy products, nuts, oilseeds and legumes, lean meat and products with reduced consumption of fat and sugar/sugary foods. In addition, the plan is rich in fibre, magnesium, potassium, calcium and low in sodium, saturated fat, cholesterol and refined carbohydrates, depending on the consumption of the food groups (12). The beneficial effects of the mentioned food groups and components on modifiable risk factors of CAD and ACS, especially metabolic syndrome, have been presented in many studies (13, 14). In a meta-analysis study analysing the association between CHD risk and daily consumption of food groups, a negative association was found with consumption of vegetables, fruits, dairy products, whole grains, legumes, oilseeds and fish, and a positive association was determined with consumption of red meat, processed meat and sugary drinks (15). Although there is evidcnce that the relationship of different nutrients and food groups with heart diseases, there is no study evaluating effect of DASH diet plan on quality of life in CAD and ACS sample in an experimental design. Therefore, the study aimed to evaluate the effect of 12-week DASH diet plan intervention on quality of life in hypertensive patients with ACS.

2. METHODS

This study was carried out in patients admitted to the cardiology outpatient clinics of two public hospitals in Türkiye between June 2020 and September 2021. Using G Power 3.1 computer-assisted software, it was determined that at least 24 participants were required with an effect size of 0.2, 80% power and margin of error of 0.05 according to similar studies (16, 17). The study was approved Scientific Research and Publication Ethics Committee of Gümüşhane University (Decision number: 95674917-108.99-E.10275, date: 11/03/2020). Details about the study were given to patients, and the voluntary consent form was signed accepting to participate. The study is registered at ClinicalTrials.gov (Referans Number: NCT06485765).

The study sample included patients aged 20-64 years, diagnosed ACS within the last month, with a measured blood pressure above 140/90 mmHg or using antihypertensive drugs (history of hypertension), not obese (Body mass index<30.0 kg/m^2), not diagnosed with a disease requiring a specific medical nutrition therapy (chronic renal failure, diabetes, cancer, etc.) and volunteered. The study enrolled 66 male and 8 female hypertensive patients diagnosed with ACS meeting the inclusion criteria. However, the study was completed with 34 male hypertensive patients with ACS due to reasons such as individuals requesting to leave the study, not attending the visits for various reasons, not complying with the nutrition plan given and inability to communicate.

2.1. Data Collection Tools

2.1.1. Questionnaire

The descriptive data of the study were obtained with a questionnaire desingned by the researchers after reviewing the literature and expert views. The questionnaire form consists of four sections. The first section includes demographic information of the patients (age, gender, marital status, educational status, occupational information, cohabitants and social security); information about health-related diseases, smoking and alcohol consumption, some eating habits (number of main and snack meals, skipping meals, etc.) in the second section; physical activity levels in the third section; the MacNew Heart Disease Health-Related Quality of Life Scale in the fourth section.

2.1.1.1. MacNew Heart Disease Health-Related Quality of Life Scale

Patients' quality of life at baseline of the study and at the end of the 12th week was evaluated using the MacNew Heart Disease Health-Related Quality of Life Scale. The scale is a different form of the post-MI (Myocardial Infarction) Quality of Life Scale, which was developed to determine especially depression and anxiety with acute MI and which can be evaluated by patients responding to the scale. The scale can be used in different cardiac patients such as MI, angina pectoris and heart failure patients and there is a high correlation between it and other tools that assess quality of life (18). The scale Turkish validity and reliability study was performed by Daskapan et al (19). The scale consists of three sub-dimensions (emotional, physical and social) and 27 items in 7-point Likert type (19, 20). The answer to each item is between 1-7. A low score indicates poor quality of life, while a high score indicates better quality of life (21).

2.1.2. Anthropometric Measurements

Anthropometric measurements of the patients were collected at baseline of study. Body weight (kg) of the patients was measured in the morning on an empty stomach using Tanita BC 601 brand bioelectrical impedance analyser. It was ensured that the patients did not perform heavy physical activity 24 hours before the measurement, did not consume beverages (such as tea, coffee, etc.) at least 4 hours before the measurement, and did not have metal objects on them at the time of measurement (22). Height (cm) was measured with a stadiometer without shoes in the Frankfurt plane (23).

2.2. Planning the DASH Diet

Patients' daily energy requirement was calculated by multiplying the physical activity level (PAL) based on 24-hour physical activity recording and the Harris-Benedict basal metabolic rate formula (24).

Harris-Benedict Formula

Male = 66.5 + 13.75 x Weight (kg) + 5.003 x Height (cm) – 6.775 x Age (years)

Female = 655.1 + 9.563 x Weight (kg) + 1.85 x Height (cm) – 4.676 x Age (years)

After calculating the daily energy requirement, DASH diet plan was prepared for the patients and were requested to follow it for 12 weeks. Information about the foods was given and the changes that individuals could make in the nutrition plan were informed using the meal and food photo catalogue (25). Patients were also informed about nutritional behaviours such as cooking methods (grilling or boiling instead of frying, etc.), preparation (not adding salt while preparing food, using spices instead of salt, etc.), and reading food labels (fat, salt and sugar contents etc.). Also, given about foods with high salt content (salted or pickled foods, pickles, homemade tomato paste, etc.) that patients should not consume during the diet plan. In order to control DASH diet plan, digital or face-to-face interviews were occured every 15 days about the recommended intake level of the food groups (cereals, low-fat milk and dairy products, vegetables, fruits, meat-chicken-fish, fat, nuts-oily seeds-legumes, sugar and sugary foods). In addition, the private contact information of the researcher was shared with the patients for any about to the nutrition plan.

2.2.1. Assessment of Adherence to DASH Diet Plan

Studies on adherence to DASH diet were reviewed and a checklist related to the plan was formed at the baseline (26, 27). Patients' adherence to the diet plan was checked with the checklist, and necessary changes and information were made to ensure their adaptation. The patients' adherence to the recommended DASH diet plan portion amount according to the their daily energy requirement at baseline and 12th week was scored by the researcher through asking questions. In this context, patients was scored as "Yes" (1 point) if the recommended portion amount is fully complied with (consumption of 100% or more recommended portion), if "Partially" (0.5 point) complied with (66-99% of the recommended portion), and "No" (0 points) if they do not comply (consumption of 66.0% or less of the recommended portion). Lean meat-chicken-fish, solid-liquid fat and sugar/sugary foods were reverse scored. In addition, some dietary behaviors under other recommendations (cooking and preparation methods, reading food labels, etc.) were also considered as a variable. DASH diet plan adherence score was obtained according to the answers given for the food groups and other recommendations in the DASH diet plan (27). The score range can be 0-9, with a higher score showing better dietary adherence.

2.3. Statistical Analysis

The data were analysed with the SPSS 25'(Statistical Package for the Social Sciences)' computer software. Continuous quantitative data are given as mean ($\bar{X}$) and standard deviation (±SD), and categorical variables are given as number (n) and percentage (%).

The data conformity to normal distribution was analysed by visual (histogram etc.) and analytical methods (skewness and kurtosis). Paired Sample t-test was performed for differences were normally distributed the baseline and end of study variables in repeated measures comparing. Pearson correlation analysis was used to evaluate the relationship between the changes in the MacNew Heart Disease Health-Related Quality of Life and the DASH diet plan adherence score. p value <.05 was accepted statistically significant (28).

3. RESULTS

This study was conducted with 34 hypertensive male patients diagnosed with ACS. General information about the patients is shown in Table 1. The patients' mean age was 55.50±7.00 (38-64) years, all of them were married and living with their families, 32.4% were primary school graduates and 47.1% were employed in the private sector. In addition, 67.6% of the patients were diagnosed with STEMI'(ST Segment Elevation Myocardial Infarction)'and 64.7% reported a family history of heart disease. 44.1% of the patients declared that they had been diagnosed with hypertension 1-3 years ago, 64.7% of them did not regularly monitor their blood pressure, and 58.8% of them had not visited a dietitian before.

The patients' general eating and lifestyle habits are presented in Table 2. 64.7% of whom stated that they skipped the lunch meal and 20.6% of them thought that their nutrition was unhealthy. The rate of those who had the habit of adding salt without tasting was 50.0%, whereas the rate of those who preferred foods with little salt based on the salt content was 58.9%. In addition, 82.4% of the patients reported that they did not regularly physical activity. Also, the majority of them (64.7%) declared that they smoked cigarettes and did not consume alcohol (88.2%).

The findings related to the patients' DASH diet plan according to the food groups are summarised in Table 3. According to the findings revealed that 20.6% of the patients adhered to the grain-cereals group recommendation according to the DASH diet plan baseline, whereas this rate was 58.8% endline. At baseline, non-adherence to dairy products according to the DASH diet plan was 73.5%; in the end, this rate was 11.8%. The rates of non-adherence to vegetable and fruit consumption were 20.6% and 11.8%, respectively, baseline; these rates were 82.4% and 70.6%, respectively, endline. Adherence of patients to other nutrition and dietary behavior recommendations was found to be 5.9% at baseline and 55.9% endline. The total adherence to the DASH diet plan score was 2.86±1.10 baseline and 6.72±0.93 endline (p<.05).

Table 4 shows the changes of patients' MacNew Heart Disease Health-Related Quality of Life scores. Baseline and end of the study, the emotional, physical and social scores of the MacNew Heart Disease Health-Related Quality of Life scale sub-dimensions increased by 0.55±0.83, 0.39±0.69 and

0.51±0.74, respectively, and this difference was found to be statistically significant (p<.001). In addition, the overall MacNew Quality of Life scores of the patients increased by an mean of 0.45±0.55 endline compared to the beginning, and this increase was statistically significant (p<.001).

Table 5 presents the correlation of the changes in the 'MacNew Heart Disease Health-Related Quality of Life' scores with adherence to the DASH diet plan. Accordingly, it was found that the emotional score (r=0.390; p<.05), physical score (r=0.420; p<.05) and general score (r=0.368; p<.05) had a statistically significant correlation with adherence to the DASH nutrition plan.

Table 1. Characteristic details of the patients

	n	%
Age (years)		
38-49	11	32.4
50-59	9	26.5
60-64	14	41.1
(X̄±SD) (Minimum-Maximum)	55.50±7.00 (38-64)	
Marital status		
Married	34	100.0
Educational status		
Primary school	11	32.4
Secondary school	9	26.5
High school	10	29.4
University	4	11.7
Occupation		
Officer	6	17.6
Retired	12	35.3
Private Sector	16	47.1
ACS Type		
NSTEMI/USAP	11	32.4
STEMI	23	67.6
Family history of heart disease		
Yes	22	64.7
No	12	35.3
Time to diagnosis of hypertension (year)		
< 1	5	14.7
1-3	14	41.2
> 3	15	44.1
Regular blood pressure monitoring habits		
Yes	12	35.3
No	22	64.7
History of dietitian visit		
Yes	14	41.2
No	20	58.8
History/intervention of heart disease		
Yes	13	38.2
No	21	61.8

ACS: Acute Coronary Syndrome, NSTEMI: non-ST-elevation myocardial infarction, STEMI: ST-elevation myocardial infarction, USAP: Unstabil Angina Pektoris

Table 2. Dietary habits and lifestyle activities of the patients

	n	%
Main meal skipping and frequently skipped meal status		
Never	4	11.8
Breakfast	5	14.7
Launch	22	64.7
Dinner	3	8.8
Snack skipping and frequently skipped meal status		
Never	4	11.8
Mornings	17	50.0
Afternoon	8	23.5
Night	5	14.7
Reason for skipping meals		
Loss of appetite	12	50.0
Lack of time	6	25.0
Environment	6	25.0
Main meal (number/day)		
2	28	82.4
3	6	17.6
Snack meal (number/day)		
No	12	35.2
1	16	47.1
2	2	5.9
3	4	11.8
Healthy dietary thought		
Yes	10	29.4
Partial	17	50.0
No	7	20.6
Adding salt without tasting the food		
Yes	17	50.0
No	17	50.0
Salt prefer in food		
Unsalted	6	17.6
Low salted	20	58.9
Salty	8	23.5
Preference for milk and dairy products		
Fat free	2	5.9
Low-fat	13	38.2
Fat	19	55.9
Whole grain product consumption		
Yes	10	29.4
No	24	70.6
Regular physical activity*		
Yes	6	17.6
No	28	82.4
Smoking		
Yes	22	64.7
No	7	20.6
Quit	5	14.7
Number/day (X̄±SD) (n:22)	24.10±10.50	
Period (years) (n:22) (X̄±SD)	13.70±6.00	
Alcohol		
No	30	88.2
Quit	4	11.8

*At least 5 days a week for a total of 150 minutes

Table 3. *Assessment of patients' adherence to the DASH diet at at baseline and endline of the study*

Adherence variables	Baseline						Endline					
	Yes (1 points)		Partial (0.5 points)		No (0 points)		Yes (1 points)		Partial (0.5 points)		No (0 points)	
	n	%	n	%	n	%	n	%	n	%	n	%
Grains-cereals	7	20.6	5	14.7	22	64.7	20	58.8	8	23.5	6	17.6
Low-fat dairy products	4	11.8	5	14.7	25	73.5	14	41.1	16	47.1	4	11.8
Vegetable	7	20.6	9	26.5	18	52.9	28	82.4	4	11.8	2	5.8
Fruit	4	11.8	14	41.1	16	47.1	24	70.6	7	20.6	3	8.8
Meat, chicken, fish	8	23.5	10	29.4	16	47.1	22	64.8	10	29.4	2	5.8
Nuts, oilseeds, legumes	19	55.9	8	23.5	7	20.6	18	52.9	12	35.3	4	11.8
Fats and oils	7	20.6	9	26.5	18	52.9	14	41.1	16	47.1	4	11.8
Sugar/sugary food	4	11.8	7	20.6	23	67.6	12	35.3	10	29.4	12	35.3
Other suggestions	2	5.8	16	47.1	16	47.1	19	55.9	12	35.3	3	8.8
Total Score ($\bar{X}\pm SD$) (Minimum-Maximum)	2.86±1.10 (1.50-4.50)						6.72±0.93 (5.00-8.50)*					

§ *There is a statistically significant change compared to baseline of the study (p<.05).*

Table 4. *MacNew Heart Disease Health-Related Quality of Life scores of patients at baseline and endline of the study*

MacNew Heart Disease Health-Related Quality of Life Scale	Baseline		Endline		Change (Δ)		
	$\bar{X}\pm SD$	Min-Max	$\bar{X}\pm SD$	Min-Max	$\Delta\bar{X}\pm SD$	t	p[1]
Emotional (0-7)	4.11±0.82	2.68-5.95	4.67±0.59	3.59-5.57	0.55±0.83	-3.866	**<0.001**
Physical (0-7)	4.13±0.56	3.09-5.09	4.52±0.60	3.76-5.97	0.39±0.69	-3.312	**0.002**
Social (0-7)	4.23±0.83	2.05-5.28	4.74±0.25	4.27-5.25	0.51±0.74	-3.979	**<0.001**
Total (0-7)	4.27±0.48	3.36-4.95	4.73±0.31	4.00-5.17	0.45±0.55	-4.752	**<0.001**

p[1]: *Paired Sample t-Test, Δ: Last value – first value*

Table 5. *The relationship between the changes (Δ) in MacNew Heart Disease Health-Related Quality of Life scores at endline of the study and adherence to the DASH diet*

MacNew Heart Disease Health-Related Quality of Life Scale	r	p
Δ Emotional	0.390	**0.023**
Δ Physical	0.420	**0.013**
Δ Social	0.193	0.274
Δ Total	0.368	**0.034**

p: *Pearson correlation test, r: Correlation coefficient Δ: Last value – first value*

4. DISCUSSION

The present study was planned and conducted with 34 male participants to determine the effect of DASH diet on hypertensive patients' life quality diagnosed with ACS. According to the outcomes of the study, positive changes were determined in the patients' quality of life with DASH diet intervention.

Health-related-quality of life related to an individual's physiological, psychological and sociological level of life and well-being (29). The having of acute and chronic diseases, including ACS, negatively affects the individuals' quality of life of (30). Considering the structural functions of the heart in cardiac diseases, which is a life-threatening disease group, it may further affect the quality of life (31). In a study evaluating 85 ACS and 63 control groups' life quality, it was determined that patients diagnosed with ACS had higher level of anxiety, lower levels of general health perception, physical function, physiological capacity, social function, life belief, mental health and overall life quality compared to the control group (32). In another similar study, 24 patients' diagnosed with MI MacNew Quality of Life scores were evaluated, the general score of the patients was 4.6±1.0, the physical score was 4.4±1.2, the emotional score was 4.9±1.0 and the social score was 4.4±1.2 (33). Endline of another similar study, the physical score was found to be 4.8, the emotional score 5.1 and the social score 4.7 in MI patients (34). It was also found that 43.8% of coronary patients and MacNew Quality of Life scores in patients diagnosed with heart disease in overall as general 4.4±1.0; physical 4.6±1.5; emotional 4.4±0.9 and social 4.4±1.4 (35). The MacNew Quality of Life score found baseline of the present study was in accordance with the cross-sectional studies in the literature. This result may be associated with the physiological and psychological health problems, such as depression and breathing difficulties, of patients in relation to the risk factors of ACS.

Psychological (emotional or spiritual) disorders, such as depression, common in patients with ACS, are closely related to healthy nutrition and reduce the quality of life (36). Healthy, adequate and balanced nutrition may prevent the occurrence

of psychological disorders, facilitate treatment in case of possible diagnosis, and thus improve quality of life (37). In a randomized controlled design, 33 intervention and 34 control groups of patients diagnosed with major depression, aimed to investigate depression levels and changes at the end of 12 weeks. Dietary intervention was conducted by a dietitian and included whole grains (5-8 servings per day), vegetables (6 servings per day), fruits (3 servings per day), legumes (3-4 servings per week), low-fat dairy products (2-3 servings per day), raw and unsalted oilseeds (1 serving per day), fish (2 servings per week), lean red meat products (3-4 servings per week), chicken (2-3 servings per week), while sugar, salt and processed products were recommended to be consumed the least possible. As a result of this dietary intervention, similar to the DASH diet, it was found that individuals had more positive improvements in depression, anxiety, mood, self-confidence and well-being compared to the control group. Also, it was interpreted that healthy diet intervention and the role of dietitian is crucial, especially in patients with psychological disorders (38). In another study, low potassium-low magnesium-low calcium intake; low sodium-high potassium-high magnesium (DASH diet plan) intake and low sodium-low calcium intake in a randomised crossover design study; the most positive improvements were seen in the case of the diet based on the DASH diet plan (39). As a result of a study analysing the association between DASH diet and neuropsychological functions, it was found that the DASH diet plan had a negative correlation with depression, anxiety, stress and a positive correlation with quality of life (40). The present study' outcomes were consistent with the literature, and it is thought that the DASH diet' impacts on psychological condition is related to the reduces oxidative stress resulting from the high level of micronutrients with antioxidant properties, and the adequate intake of elements that improve neural functions such as high folate and vitamin B_{12} (41).

Physical well-being, which is another important parameter of quality of life, is closely related to healthy, adequate and balanced nutrition, especially the maintenance of muscle and bone health (42). The intake of high magnesium, potassium and vitamins with antioxidant properties (such as vitamin C and E) through the DASH diet; muscle weakness and loss can be prevented with improvements in energy metabolism, nerve conduction and muscle contraction; it can also reduce fatigue with increased oxygen capacity and consequently have a positive effect on physical well-being (43, 44). In a study assessing muscle mass according to dietary patterns, and it was found that individuals with a healthy diet (high consumption of vegetables, fruits, seafood, legumes, legumes, whole grains, dairy products) had higher muscle mass than individuals with a western-style diet (frequent consumption of red meat, fast food, cakes, sugary drinks) in both men and women (45). In another study, according to the food consumption records of 809 participants, a high antioxidant content diet (frequent consumption of vegetables, fruits, whole grains, pulp, fish) was positively associated with muscle mass and strength (46). In a study involving

522 male individuals with a follow-up of 15 years, based on food consumption frequency were grouped as western style, vegetable (vegetables and fruits) and traditional (vegetables, whole grains and animal-derived protein), and it was found that traditional dietary style adopters had higher muscle mass and muscle function compared to other groups (47). The diet planning of 100 patients with heart failure was calculated by a dietitian with 30% fat, 1.2 kg/g protein and the remaining proportion from carbohydrates (similar to the DASH diet), daily energy intake was calculated according to the their requirement, patients were advised to maintain this pattern for 20 weeks, and their adherence to the plan was checked by telephone contact every two weeks. As consequence of the study, more favourable changes were found in the patients' metabolic parameters, life quality and exercise capacity (48). In a study involving 43 male patients with CAD aged 42-76 years, within the scope of lifestyle changes, the nutritional planning of the patients was planned by a dietitian to meet 50-55% of the daily energy requirement from carbohydrates, 20-25% protein and 25-30% fat; it was aimed to reduce saturated fat intake, sugar and sugary drinks and sodium consumption (similar to the DASH diet). One-year results of the intervention were evaluated and significant increases were recorded in exercise duration and the capability to oxygenate skeletal muscle compared to baseline (49).

There is no study using experimental design of the DASH diet directly with ACS patients in the literature. Although this study is the first in the literature, it is in parallel with the results of other studies in which DASH diet components were partially included. Stated differently, a positive change was found in patients' overall quality of life parameters. Positive significant correlation was determined between adherence to the recommended DASH diet plan and changes in total MacNew Heart Disease-Related Quality of Life score, physical and emotional sub-dimension scores (p<.05). It is thought that the main reason for overall findings is that the DASH diet plan, which is one of the healthy eating patterns, includes the recommended food groups (such as high vegetables, fruits, oil seeds; low sugar, salt, fatty meat) and macro-micro nutrients associated with physical and psychological well-being. In addition, periodic communication with patients to increase compliance with the recommended diet may be effective for patients acting more consciously to improve their health after the diagnosis (50).

5. CONCLUSION

It was determined that there was a statistically significant relationship between the increase in emotional, physical and general scores patients' quality of life and adherence to DASH diet. Although it is possible to treat arterial diseases with the developing technology in the field of health, it is necessary to eliminate the risk factors that trigger the disease, lifestyle changes and healthy eating habits. Considering a multidisciplinary approach in heart diseases, as it should be in the management of many diseases, a treatment plan should be designed for the patient to maintain a healthier

and better life quality. More effective treatment may be achieved with lifestyle and healthy eating habits changes, medication compliance, social, physical and psychological support by conducting periodic interviews with patients. In addition, experimental design and long-term clinical studies are needed to more clearly explain the role of nutrition in cardiovascular diseases.

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Research idea: HÖY, NYA
Design of the study: HÖY, NYA
Acquisition of data for the study: HÖY, NYA, SA
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Interpretation of data for the study: HÖY, NYA, SA
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