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Evaluation of nutrition knowledge using the komPAN questionnaire in acute coronary syndrome patients hospitalized in an invasive cardiology unit A preliminary report

Ocena poziomu wiedzy żywieniowej za pomocą kwestionariusza komPAN pacjentów po ostrym zespole wieńcowym hospitalizowanych na oddziale kardiologii inwazyjnej. Doniesienie wstępne

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Abstract

Introduction. Cardiovascular diseases are the major cause of mortality in Poland. Thus, both primary and secondary prevention should include lifestyle modification, including proper nutrition. The aim of the study was to examine dietary habits and nutritional beliefs for the purpose of evaluating the nutrition knowledge of cardiac patients after an acute coronary syndrome [ACS; non-ST-segment myocardial infarction (NSTEMI) and ST-segment myocardial infarction (STEMI)] undergoing invasive treatment.

Material and methods. The study included 100 patients, including 35 women and 65 men aged 53.43 ± 10.11 years [mean ± standard deviation (SD)], admitted urgently due to ACS to the 2nd Department of Cardiology. The study used part C of the questionnaire: "Nutrition Beliefs" that consisted of 25 statements assessing nutrition knowledge. For each correct answer ("True" or "False"), 1 point was assigned, and for an incorrect answer or "Hard to say", 0 points were assigned. Then, the points were added up.

Results. It was found that only 20.8% (N = 21) of subjects followed dietary recommendations as advised by a physician. The majority of respondents were diagnosed with an excessive body mass: obesity in 35.4% (N = 35) of subjects, and overweight in 38.4% (N = 38) of subjects. Nutritional self-assessment was reported to be at a good level in 71.3% of patients (N = 72). However, the actual nutrition knowledge was found to be at a good level in only 6.9% (N = 7) of subjects.

Conclusion. Patient nutrition knowledge as assessed using the komPAN questionnaire was found to be mostly at a satisfactory level, despite high self-assessment results provided by the respondents. There is a great need for regular nutrition education.

Key words: cardiovascular diseases, nutrition knowledge, komPAN questionnaire

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Introduction

Cardiovascular diseases (CVDs) are the major cause of mortality in Poland. In 2013, more than 177,000 people died due to cardiac causes in Poland, amounting to 45.8% of all deaths, which translated to 461 deaths due to CVD per 100,000 population. Among CVD, the highest proportion of deaths, similarly to all Europe, was due to ischemic heart disease (23% or 41,000 of cardiac deaths in 2013), including myocardial infarction (9% or 15,000 of cardiac deaths) [1]. Acute coronary syndrome (ACS) is defined as cardiomyocyte death due to prolonged ischemia [2]. Myocardial infarction (MI) may be the initial manifestation of ACS or may occur repeatedly in patients with established ischaemic heart disease. The clinical classification of MI based on the management strategies, such as reperfusion therapy, includes ST-elevation myocardial infarction (STEMI) due to coronary occlusion leading to myocardial necrosis and persistent ST-segment elevation in the electrocardiogram (ECG) [2]. Non-ST-elevation myocardial infarction (NSTEMI) is a clinical syndrome caused by acute or progressive coronary obstruction [unstable angina (UA)] leading to myocardial necrosis without ST-segment elevation in ECG. The pathomechanism of UA and/or NSTEMI includes thrombosis on a preexisting ruptured plaque, progressive coronary lumen obstruction, arterial spasm, and myocardial oxygen supply and demand imbalance [2].

The aim of the study was to examine dietary habits and nutritional beliefs for the purpose of evaluating the nutrition knowledge of cardiac patients after ACS (NSTEMI or STEMI) undergoing invasive treatment.

Material and methods

The study involved 100 patients who were urgently admitted due to ACS to the 2nd Department of Cardiology, American Heart of Poland (Polsko-Amerykańskie Kliniki Serca), in Bielsko-Biała, Poland, including 35 women and 65 men aged 53.43 ± 10.11 years [mean ± standard deviation (SD)]. The study was performed between June and November 2017. All ACS patients underwent coronary angiography and/or percutaneous transluminal coronary angioplasty (PTCA) with implantation of 1–2 drug-eluting stents (DES) or were selected for coronary artery bypass grafting (CABG). The study included stable patients in appropriate mental condition who provided an oral consent for participation in the study. To avoid misunderstanding of instructions, questions, or the meaning of some questionnaire items, the questionnaire was filled in by the participants in a presence of an investigator.

The study used the komPAN questionnaire, developed in 2014 by the Study Group on Behavioural Determinants of Nutrition (Zespół Behawioralnych Uwarunkowań Żywienia) at the Committee of Human Nutrition Science, Polish Academy of Sciences (head: Prof. Jan Gawęcki). The internal validity of the questionnaire was verified in 2014–2015 in a national study performed by Prof. Lidia Wądołowska. The study used part C of the questionnaire: "Nutrition Beliefs" that consisted of 25 statements assessing nutrition knowledge. For each correct answer ("True" or "False"), 1 point was assigned, and for an incorrect answer or "Hard to say", 0 points were assigned. Then, the points were added up. Overall nutritional knowledge categories and recoding of the answers to the set of statements regarding food and nutrition are shown in Table 1.

The study also included basic anthropometric measurements. Body weight was measured in the morning, in fasting conditions, in light clothing without shoes. Weight circumference (cm) was measured using a standard anthropometric tape measure at mid-distance between the highest point of the iliac crest and the lowest point of the costal arch in the mid-axillary line [3]. Height was measured using the Tanita HR 100 stadiometer (TANITA Corporation).

Statistical analysis was performed using the IBM SPSS Statistics 25 software. Normal distribution of the analyzed variables was verified using the Shapiro-Wilk test. Differences between the groups were tested using univariate analysis of variance (ANOVA) or its non-parametric counterpart, the Kruskal-Wallis test. Statistical significance was set at $\alpha = 0.05$.

Results

In the study group, only 20.8% (N = 21) subjects followed dietary recommendations as advised by a physician. Most respondents had excessive body weight. Obesity was diagnosed in 35.4% (N = 35) of study subjects, and overweight in 38.4% (N = 38) of study subjects. Figure 1

Table 1. Recoding of the responses to the komPAN questionnaire on food and nutrition

Recoding		Respondent grouping	
Text label	**Points**	**Level of nutrition knowledge**	**Overall score**
"True"	1	Unsatisfactory	0–8
"False"	0	Satisfactory	9–16
"Hard to say"	0	Good	17–25

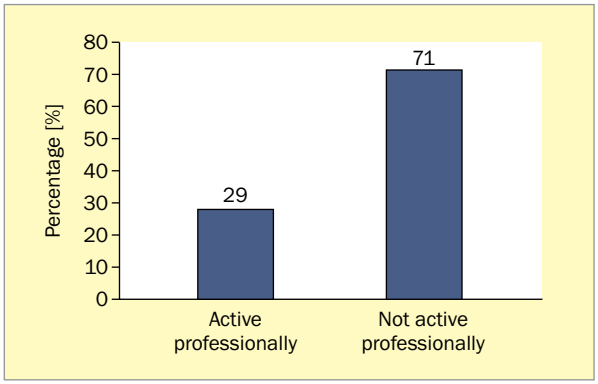

Figure 1. Characteristics of professional activity in the study group

Figure 3. Patient self-assessment of nutrition knowledge

Figure 2. Patient self-assessment of dietary habits

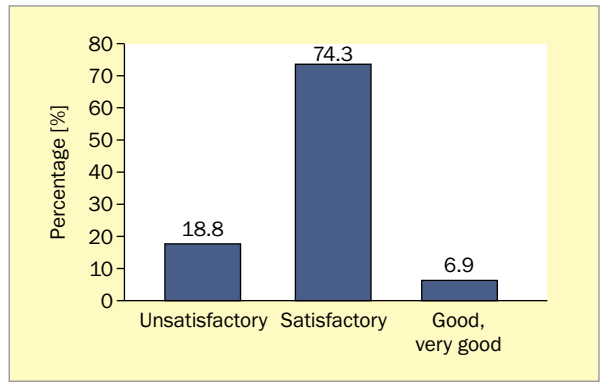

Figure 4. Assessment of nutrition knowledge among patients using the komPAN questionnaire

shows the breakdown of the study population in regard to professional activity.

The question "How do you rate your dietary habits?" was answered "good" by 71.3% (N = 72) of the respondents. Figure 2 shows answers to this question given by the respondents. Similarly, the question "How do you rate your nutrition knowledge?" was answered "good" or "very good" by 56.4% (N = 57) of the respondents. Figure 3 shows answers to this question given by the respondents.

In the second part of the study, the komPAN questionnaire was used to evaluate the actual nutrition knowledge of the respondents. It was rated as good in only 6.9% (N = 7) of the respondents. Results of the evaluation of nutrition knowledge in the study group are shown in Figure 4.

In addition, the study showed an association between the level of nutrition knowledge and the level of education in the study group ($p = 0.0076$ by ANOVA). Respondents with vocational education showed a significantly lower level of nutrition knowledge compared to the respondents with higher education ($p < 0.05$ by post-hoc Tukey test). Table 2 shows the relationship between the level of education and the level of nutrition knowledge in the study group.

The study showed no association between nutrition knowledge and professional activity, body mass index, gender, diet, and self-assessment of dietary habits and nutrition knowledge ($p > 0.05$).

Discussion

Technical and scientific advances have contributed to the discovery of relations between diet and health status, which has led to the concept of functional foods. It has been shown that in addition to valuable nutrients, foods also contain beneficial substances that have an impact on prevention, or even treatment of civilization-related diseases, including CVD [4]. For this reason, the role of dietary recommendations among lifestyle modifications in patients at high cardiovascular risk have been established for years [5]. Schuler et al. showed that slower progression of coronary artery disease resulted from modification of two risk factors over 12 months, including physical activity and change in dietary habits [6]. Thus, it seems important that rational CVD prevention be targeted at healthy lifestyle, including proper nutrition in both primary and secondary

Table 2. Assessment of the relationship between nutrition knowledge and education of the respondents

Level of education	Nutrition knowledge						*p
	N	Mean	SD	Median	Min	Max	
Primary	11	12.45	2.34	13.00	8.00	16.00	0.0076
Lower vocational	39	10.59	4.02	10.00	3.00	19.00	
Secondary (general or technical)	36	11.89	3.47	12.00	5.00	20.00	
Higher (bachelor, engineer, master degree)	15	14.27	2.52	14.00	10.00	20.00	

*Univariate ANOVA

prevention [7]. In our study group, nutrition knowledge was satisfactory in most respondents. In 62 randomly chosen patients with established ischemic heart disease and previous MI who were subjected to comprehensive cardiac rehabilitation, Piejko et al. [8] noted significant differences in the rates of western food consumption and nutrition errors which were attributed by the authors to a low level of nutrition knowledge and established poor dietary habits. Łuczak et al. [9] found that appropriate nutrition in patients with a prior MI depended significantly on their financial status. These authors also showed that patients' knowledge regarding cardiac rehabilitation was significantly related to their education level [9]. In our study, we also showed that the level of education had an impact on nutrition knowledge. Kobuszewska et al. [10] studied 191 patients admitted for coronary angiography and showed that men paid no attention to daily nutrition and composition of ingested foods. In addition, those patients had difficulties with identification of cholesterol-rich products [10]. Based on these results, the authors concluded that for CVD prevention, more attention should be paid to preventive efforts targeted at reduction of dietary risk factors, which are mostly related to inadequate level of knowledge among the studied patients [10]. These results are also consistent with the findings of the 2003–2005 WOBASZ study, multicenter national health survey that included 803 subjects with a history of CVD, including MI, coronary artery disease, heart failure, stroke, valvular heart disease, and previous PTCA or CABG. It was shown that the study group was characterized by a low level of knowledge on non-drug approaches to the prevention of cardiac disease, and a low quality of dietary habits [11].

Conclusions

Patient nutrition knowledge as assessed using the komPAN questionnaire was found to be mostly at a satisfactory level, despite high self-assessment results provided by the respondents. There is a great need for regular nutrition education both on an outpatient and inpatient basis in cardiology and cardiac rehabilitation units.

Due to a small study sample, the results should not be extrapolated more widely. However, the authors plan to continue their studies.

Conflict(s) of interest

The authors declare no conflicts of interests.

Streszczenie

Wprowadzenie. Choroby układu sercowo-naczyniowego są największym zagrożeniem życia w Polsce, a tym samym stanowią najczęstszą przyczynę śmiertelności. Dlatego prewencja pierwotna i wtórna powinna uwzględniać modyfikację stylu życia, w tym prawidłowe odżywienie. Celem pracy było badanie poglądów i zwyczajów żywieniowych pod kątem oceny wiedzy żywieniowej chorych reprezentowanych przez pacjentów oddziału kardiologicznego po ostrym zespole wieńcowym (ACS; zawał serca bez uniesienia odcinka ST [NSTEMI] i zawał serca z uniesieniem odcinka ST [STEMI]) poddanych leczeniu inwazyjnemu.

Materiał i metody. Badaniem objęto 100 chorych, w tym 35 kobiet i 65 mężczyzn w wieku 53,43 ± 10,11 roku (średnia ± odchylenie standardowe [SD]) przyjętych na II Oddział Kardiologii w trybie pilnym z powodu ACS. W badaniu posłużono się częścią C kwestionariusza „Poglądy na temat żywności i żywienia" składającego się z 25 pytań służących ocenie wiedzy żywieniowej. Wszystkim stwierdzeniom przypisano 1 punkt za każdą poprawną odpowiedź („Prawda" lub „Fałsz") i 0 punktów za odpowiedź błędną lub „Trudno powiedzieć", a następnie zsumowano punkty.

Wyniki. W badanej grupie jedynie 20,8% (n = 21) osób stosowało zalecenia żywieniowe na polecenie lekarza. Wśród większości respondentów rozpoznano nadmierną masę ciała: otyłość u 35,4% (n = 35), nadwagę u 38,4% (n = 38) badanych osób. Samoocenę sposobu żywienia na poziomie dobrym deklarowało 71,3% osób (n = 72). Jednak wiedza żywieniowa na poziomie dobrym dotyczyła zaledwie 6,9% (n = 7) badanych.

Wnioski. Wiedzę pacjentów oceniona za pomocą kwestionariusza komPAN zaprezentowano na poziomie dostatecznym mimo wysokiej samooceny respondentów. Istnieje duża potrzeba prowadzenia regularnej edukacji żywieniowej.

Słowa kluczowe: choroby układu sercowo-naczyniowego, wiedza żywieniowa, kwestionariusz komPAN

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