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## Evaluation of the need for education of a patient with ischemic heart disease

Maciej Zajdel<sup>1</sup>, Bożena Baczevska<sup>1</sup>, Beata Kropornicka<sup>1</sup>, Cecylia Olszak<sup>1</sup>,  
Bożena Muraczyńska<sup>2</sup>, Alina Dzirba<sup>3</sup>, Robert Jan Łuczyk<sup>1</sup>

<sup>1</sup>Chair of Internal Medicine and Department of Internal Medicine in Nursing, Medical University of Lublin

<sup>2</sup>Department of Surgery and Nursing

<sup>3</sup>Medical Rescue Center, Medical University of Lublin

### ABSTRACT

Cardiovascular diseases are still a serious problem both in the world and in Polish society. It is estimated that in Poland they are responsible for almost half of deaths. The basis for counteracting this trend is first and foremost prevention of primary as well as secondary prevention. It seems that the main activity in this area is to conduct extensive educational activities aimed at both risk factors, prevention principles and the need to make changes in lifestyle. The study was conducted using the case-by-case study method, using the proprietary questionnaire for studying the level of knowledge about ischemic heart disease. In addition, for the purpose of a more complete assessment, techniques for observation, intelligence and document analysis were also used.

Based on the analysis of the results, a number of knowledge deficits were found in the patient both in terms of basic risk factors as well as the principles of prophylaxis of ischemic heart

disease. The study also shows that it is important to conduct education in the scope of the disease and the characteristic symptoms of myocardial ischemia, as well as the symptoms of myocardial infarction. Correct knowledge of these symptoms will allow for a faster diagnosis of life-threatening conditions and to take prompt and effective treatment. The obtained results of own research coincide with the research carried out by other Polish researchers.

**Key words:** ischemic heart disease, level of knowledge, prophylaxis, risk factors, atherosclerosis, health behaviors, education

## **INTRODUCTION**

Diseases of the cardiovascular system have been a serious problem for many years in both Polish and world society, because in Poland in 2015 they were just under half of deaths (46%) [4]. Within the indicated trend, ischemic heart disease plays a major role, as it is responsible for 23% of deaths due to cardiological reasons. The best way to counteract this unfavorable tendency is to conduct extensive activities aimed at preventing the development of the disease by eliminating factors that increase the risk of its occurrence. An equally important issue is undertaking secondary prevention, aimed at counteracting the deterioration of the quality of life of patients with already diagnosed cardiovascular disease. However, these activities require that the patient's level of knowledge about the influence of these factors on the development of coronary heart disease, as well as knowledge of the principles of leading a healthy lifestyle aimed at maintaining and improving the quality of life, should be effective. In addition, properly conducted preventive actions allow to prevent disability in the course of cardiovascular diseases. The narrowing of coronary arteries caused by atherosclerosis is mainly responsible for the development of ischemic heart disease. There are many factors affecting the formation of these changes. They can be divided into two main groups - modifiable and non-modifiable risk factors. [1,8,18].

The first group includes: smoking, hyperlipidemia and hypertriglyceridemia. As part of preventive measures, patients should be shown the adverse effect of smoking on the condition of the vessels and education in the need to quit smoking and the health benefits associated with it. At the same time, it is very important to seek to lower the level of cholesterol and triglycerides in the blood. The latest guidelines of the European Society of Cardiology (ESC) indicate the need to lower cholesterol, especially LDL, depending on the level of risk of

cardiovascular disease. In the case of low and moderate risk (SCORE <5%) up to <155mg / dl. High-risk patients (SCORE 5 - 10%, blood pressure  $\geq$  180/110 and the majority of patients with diabetes) up to <100mg / dl. Patients with very high cardiovascular risk (SCORE  $\geq$ 10%, patients with documented cardiovascular disease - previous myocardial infarction, acute coronary syndrome, arterial revascularization, arterial disease, furthermore diabetes with organ related complications) up to <70mg / dl. It is also important to maintain an adequate concentration of HDL cholesterol at a level of not less than 40mg / dl and 45mg / dl for men and women respectively. The level of triglycerides should not exceed 150mg / dl. A change in lifestyle in the form of a diet similar to the Mediterranean one - an increase in the amount of fruit and vegetables as well as fish, as well as whole grains - has a significant impact on achieving this state of affairs. However, products containing high amounts of saturated fat should be limited. The physical activity (moderate intensity - 5 times a week for 30 minutes or high intensity - 5 times a week for 15 minutes) is also beneficial in this respect. In the case of ischemic heart disease, the intensity and duration of physical activity should be determined by the attending physician [3,10,12].

Atherogenic effects on the vessels are also shown by hypertension and diabetes, which causes damage to the arteries by means of diabetic angiopathy. In order to prevent the occurrence of these lesions and their progression, it is necessary to ensure proper alignment of these diseases. The aim is to maintain blood pressure below 140 / 90mmHg. Limiting the supply of table salt to 2 - 3g has a beneficial effect on the control of blood pressure and is an essential factor in lifestyle modification in people with cardiovascular disease. In the case of diabetes, the level of hemoglobin glued below 7% should be maintained and the level of glycaemia after a meal should not exceed 135 mg / dl [8,12,14]. One should also not forget about the differences in the course of exacerbations of the disease in people suffering from diabetes - asymptomatic course of ischemia [6,8]. The excessively high level of insulin also has an adverse effect on the condition of coronary vessels, because it increases the amount of free radicals in the mechanism of inhibition of nitric oxide secretion [8]. Another factor predisposing to the development of ischemic heart disease is excessive body mass. The occurrence of abdominal obesity is particularly dangerous - waist circumference <94 cm in men and <80 cm in women. As part of preventive measures on this level, it is important to achieve a correct body weight (BMI in the range of 18.5 - 25.0 kg / m<sup>2</sup>) [1,2,5,12]. High fibrinogen concentration in the blood plasma significantly increases the risk of myocardial infarction in the case of unstable angina, as well as worsens the prognosis in case of its occurrence [19]. The high concentration of homocysteine also has an adverse effect on the condition of coronary arteries - it accelerates the progression

of atherosclerotic lesions and thrombotic changes. Prevention is based on the supplementation of folic acid and B vitamins - vitamins B6 and B12. In particular, it should be performed in patients with abnormal [8]. Some researchers also indicate the effect of iron bound to ferritin on the development of vascular endothelial damage through the mechanism of oxygen free radical formation affecting the development of atherosclerotic lesions in arterial vessels [13]. Non-modifiable risk factors for ischemic heart disease include gender, and it is estimated that men are twice as likely to develop ischemic heart disease. Another factor not subject to modification is age, with which the risk of disease increases [11,12]. Some socio-economic and psychological factors also have an impact on the development of cardiovascular diseases. It should be mentioned here the long-lasting stress, which is a consequence of the pressure imposed by the environment and the constant presence of situations that liberate him both at the professional and family level. It has also been shown that negative emotions of high intensity can cause the development of an acute coronary syndrome. It also indicates the important role of the socio-economic status - education and income. It has been shown that populations of a lower level, that is with a lower level of education, income are burdened with a higher risk of cardiovascular diseases. Such a condition in many cases results in more frequently occurring anti-health attitudes, such as: smoking, alcohol abuse or poor diet. Despite this, there are no preventive measures in place due to lack of knowledge, skills or possibilities and motivation in this area. The severity of anxiety and depression resulting from the isolation and deficit of social support is the cause of worsening the prognosis and survival rate after an acute coronary syndrome. This is related to the body's exhaustion and incorrect functioning of the autonomic system, as well as stimulation of inflammatory response of the organism, which results in the progress of atherosclerotic process [11,15,16,17]. It should also be noted that the family history of cardiovascular disease also predisposes to changes in coronary vessels by genetic predisposition to some of the precursor states of atherosclerosis [11, 12, 15].

## **OBJECTIVE OF THE WORK**

The aim of this study was to determine the patient's health behaviors and to assess the deficits of knowledge in the field of ischemic heart disease and its prevention.

## **A CASE REPORT**

The subject of the study was a patient at the Department of Cardiology of the Independent Public Clinical Hospital no. 4 in Lublin. A researcher at the age of 87, a teacher currently retired. The patient was admitted in an emergency because of: unstable angina. Based on the severity

of angina pectoris (CCS), its intensity has been assessed as class III. Before admission, he reported prolonged malaise, as well as shortness of breath occurring while taking little physical effort. The patient had coronary chest pain - according to the NRS scale, he had 7/10 points. Despite these symptoms, there was fear for life and palpitations. Patient treated for 25 years due to ischemic heart disease, history of myocardial infarction and coronary artery bypass grafting. The patient is burdened with many comorbidities such as: arrhythmias in the form of additional ventricular cramps, hypertension, irritable bowel syndrome, gout, and benign prostatic hyperplasia. The patient was overweight (BMI> 26.82), dysuria and dysuria, dizziness and lower limb edema. Correct allopsychic and autopsychic orientation. Using the MNA scale, an assessment of the nutritional status was carried out, which showed no risk of malnutrition. The study of independence and coping with everyday activities was done using the ADL IADL scale, on this basis it was found that the patient does not have greater deficits in this area.

## **MATERIAL AND METHODS**

The study was conducted in April 2017, using the individual case method, allowing for a comprehensive assessment of the patient's condition. As part of it, a number of research techniques were used to assess both the status of the subject and his knowledge of ischemic heart disease. The techniques of interview, questionnaire, observation, analysis of medical records and measurement should be mentioned here. The author's questionnaire created on the basis of collected literature on the subject was used to test knowledge. It contained questions about the patient's knowledge about the disease, its pathogenesis, basic symptoms, risk factors and prophylaxis. In addition, there were questions about: diagnostic pathways and possible treatment regimens. To perform a more complete assessment of the patient's situation, a number of standardized scales were also used: ADL, IADL, MNA, classification of angina according to CCS.

## **RESULTS**

The study of knowledge revealed a number of deficits in the nature of the disease. Particularly worrying is the fact that the patient does not know the typical symptoms of the disease. In addition, the subject was not able to properly characterize coronary pain. He stated that the symptomatic symptom of myocardium is stroke dyspnea, while he did not associate it with pain in the chest area. It was also incorrectly characterized by the symptoms of myocardial infarction as a weak chest pain with a prickly character radiating to the right upper limb. In addition, as the symptoms of myocardial infarction, the subject determined dyspnea, feeling of irregular

heartbeat and pinking of the skin. The patient also did not have adequate knowledge of the effects of drugs used to treat the disease, as well as their most common side effects. The patient had partial knowledge of the basic diagnostic tests performed to confirm the diagnosis of ischemic heart disease. He knew that coronary angiography was the invasive test for assessing coronary artery status, but he did not have sufficient knowledge about non-invasive tests used in the diagnosis of ischemic heart disease. Incomplete knowledge was also found in the area of knowledge of modified and non-modifiable risk factors. The right patient marked most of the factors listed, such as: low physical activity, high cholesterol, stressful situations and hypertension, and arterial hypertension. Worrying, however, is that the consumption of unsaturated fatty acids and a diet with a limited amount of table salt equates with factors that promote the development of the disease. In addition, the patient is not aware that arteriosclerosis is also affected by excessive body weight and diabetes. The respondent gave correct answers to questions about the correct values of cholesterol, triglycerides and glycemia, but he incorrectly answered the question about the proper blood pressure values. The patient has a partial knowledge on the prevention of ischemic heart disease. Based on the study, knowledge deficits in the impact of physical activity on the prevention and progression of coronary artery lesions were found. The subject did not have knowledge about the recommended intensity and frequency of making physical effort and its duration. In addition, an abnormal level of knowledge about the type of physical exercise dedicated to people with cardiovascular disease was found. The physical activity of the patient he undertakes is determined to be small, which according to him is limited only to the activities of everyday life and small works on the plot. The patient gave correct answers to questions about the correct diet recommended in the cardiovascular system diseases. Correctly defined products containing the largest amount of Omega 3 acids, as well as correctly indicated the recommended amount of dietary fiber, affecting the reduction of cholesterol. In addition, he correctly determined the daily amount of table salt in the diet of people suffering from cardiovascular disease, in particular hypertension. The subject also has knowledge about the percentage of individual nutrients in a properly balanced diet.

## **DISCUSSION**

One of the most important factors of preventive activities in the field of ischemic heart disease is keeping at an adequately high level of health education. This is particularly important because both this study and many other publications indicate the existence of significant knowledge deficits in this area. The analysis of the obtained results of this study, similarly to the

interpretation made by Kubica et al. [9], showed significant deficits in knowledge in many areas related to ischemic heart disease. Very worrying is the fact that the patient cannot correctly determine the characteristic symptoms of the disease, as well as does not know the symptoms of myocardial infarction. This deficit is a very important danger because the patient may not be connected to the life-threatening symptoms. It is comforting that the patient knows the correct values of cholesterol, triglycerides and glycemia. The patient had abnormal knowledge of normal blood pressure values, although the patient indicated hypertension as a predisposing factor for the development of coronary vessels. A similar state of affairs was found in the study by Kobuszevska et al. [7], because from this analysis it appeared that more than half of the study group did not have knowledge about the correct blood pressure values. Another important factor exerting a very significant influence on the development of atherosclerotic lesions is smoking. The subject has been smoking for over 20 years and the decision to quit was related to myocardial infarction at that time. As pointed out by Nowacka et al. [11], stopping smoking at the age of 70 means that the mortality rate is reduced by 54%, and 30% by the age of 70. In her research, she found that almost half of the smokers broke off the habit due to the diagnosis of cardiovascular disease. An important issue in the field of both primary and secondary prevention is undertaking physical activity. The results of our own research indicate the occurrence of deficits in this area. It should also be noted that the subject was characterized by low physical activity. This result is similar to the results of the research by Nowacka and colleagues [11] stating that the study group was also characterized by low physical activity. As part of the prevention of ischemic disease, an important issue is also a proper diet, requiring limitation of consumption of cholesterol and table salt, which have a significant impact on cardiovascular risk. Additionally, it is recommended to eat Omega 3 and dietary fiber. These ingredients allow to lower the level of LDL cholesterol, which exerts an atherogenic effect on arterial vessels. The subject in the balanced diet, which allowed to reduce the progression of the disease, had a relatively high level of knowledge. This fact fills with optimism, because the patient's proper diet allows to significantly reduce the risk of disease progression. These results do not fully cover the research problem posed and require more extensive research in this area.

## **CONCLUSIONS**

1. Deficits have knowledge about the nature of the disease, its symptoms and the characteristic symptoms of myocardial infarction.
2. The patient had partial knowledge of the most frequently performed diagnostic tests to confirm the ischemic heart disease.

3. The patient presents insufficient knowledge about the effects of drugs used in the treatment of ischemic heart disease and their side effects.
4. The patient knows the correct values of cholesterol, triglycerides and glycemia, and has a knowledge deficit in the field of blood pressure norms.
5. The patient has incomplete knowledge about the risk factors for ischemic heart disease and the principles of prophylaxis.
6. The patient has the correct knowledge about a healthy, balanced diet, recommended in the prevention of cardiovascular disease, but does not know the impact of physical activity on the prevention of these diseases.
7. A special emphasis should be placed on health education in the field of cardiovascular disease prophylaxis.



## BIBLIOGRAPHY

1. Budaj A. (i in.): *Choroba niedokrwienna serca* [w:] Gajewski P., Szczeklik A.: *Interna Szczeklika podręcznik chorób wewnętrznych*, Medycyna Praktyczna, Kraków 2014, s. 165 – 220.
2. Buraczyński T., Gotlib J.: *Ocena wiedzy pacjentów w fazie rekonwalescencji po zabiegu angioplastyki tętnic wieńcowych na temat eliminowania czynników ryzyka choroby wieńcowej jako elementu prozdrowotnego stylu życia*. *Medycyna Ogólna i Nauki o Zdrowiu*, 2014, tom 20, Nr 2, s. 199 – 207.
3. Cichocka A.: *Dieta śródziemnomorska w profilaktyce pierwotnej choroby niedokrwiennej serca*. *Endokrynologia, Otyłość i Zaburzenia Przemiany Materii*, 2005, tom 1, nr 3, s. 30 – 39.
4. Cierniak – Piotrowska M., Marciniak G., Stańczak J.: *Statystyka zgonów i umieralności z powodu chorób układu krążenia* [w.] Strzelecki Z., Szymborski J.: *Zachorowalność i umieralność na choroby układu krążenia a sytuacja demograficzna Polski*; Rządowa Rada Ludnościowa; Warszawa 2015.
5. Kara I., Zysnarska M., Borkowicz M., Maksymiuk T.: *Palenie tytoniu wśród osób hospitalizowanych z powodu choroby niedokrwiennej serca*. *Przegląd Lekarski*, 2009, tom 66, nr 10, s.727 – 728.
6. Kazik A., Poloński L.: *Nieme niedokrwienie mięśnia sercowego – wciąż wiele znaków zapytania*. *Choroby Serca i Naczyń*, 2007, tom 4, nr 3, s. 117 – 122.
7. Kobuszewska L., Sokołowska B., Kobus G., Urbańczuk M.: *Poziom wiedzy pacjentów kierowanych na koronarografię na temat prewencji wtórnej choroby wieńcowej*. *Problemy Higieny i Epidemiologii*, 2014, tom 95, nr 1, s. 165 – 169.
8. Kozek E.: *Choroba wieńcowa u chorych na cukrzycę – odrębności kliniczne*. *Diabetologia Praktyczna*, 2002, tom 3, nr 4, s. 197 – 211.
9. Kubica A. (i in.): *Ocena wiedzy dotyczącej profilaktyki i objawów choroby niedokrwiennej serca u osób hospitalizowanych w klinice kardiologii*. *Psychiatria w Praktyce Ogólnolekarskiej*, 2004, tom 4, nr 3, s. 135 – 141.
10. Nirav P. (i in.): *Impact of diabetes on heart failure incidence in adults with ischemic heart disease*. *Journal of Diabetes and Its Complications*, 2017, tom 31, s. 1597 – 1601.
11. Nowacka A., Gawel G., Rak A., Piórecka B.: *Styl życia pacjentów po pierwszym zawale a czynniki ryzyka choroby niedokrwiennej serca*. *Annales Universitatis Mariae Curie – Skłodowska Lublin – Polonia Sectio D*, 2003, tom 58, suppl. 13, s. 375 – 38.

12. Piepoli M. F. (i in.): *Wytyczne ESC dotyczące prewencji chorób układu sercowo – naczyniowego w praktyce klinicznej w 2016 roku*. Kardiologia Polska, 2016, tom 74, nr 9, s. 821 – 936.
13. Podolecki T., Wasilewski J., Poloński L.: *Potencjalna rola żelaza w etiopatogenezie choroby wieńcowej*. Choroby Serca i Naczyń, 2009, tom 6, nr 4, s.180 – 183.
14. Pres D., Gąsior M., Poloński L.: *Leczenie pacjentów z chorobą wieńcową i cukrzycą*. Choroby Serca i Naczyń, 2010, tom 7, nr 3, s.112 – 117.
15. Rząca M., Charzyńska – Gula M., Stanisławek A.: *Świadomość zagrożenia chorobą niedokrwienną serca u osób z grup ryzyka a zachowania zdrowotne*. Problemy pielęgniarstwa, 2011, tom 19, nr 3, s. 348 – 352.
16. Skrzypek M.: *Psychospołeczne uwarunkowania ryzyka choroby wieńcowej w świetle ustaleń grupy badawczej Statuskonferenz Psychokardiologie. W stronę kardiologii behawioralnej opartej na faktach*. Problemy Higieny i Epidemiologii, 2008, tom 89, nr 3, s. 316 – 321.
17. Skrzypek M.: *Společna geneza choroby wieńcowej z perspektywy cyklu życia*. Zdrowie Publiczne i Zarządzanie, 2011, tom 9, nr 2, s. 127 – 137
18. Szabla Z. (i in.): *Problemy pielęgnacyjne i stopień ich rozwiązania w ocenie chorych leczonych przezskórną angioplastyką wieńcową z powodu ostrego zespołu wieńcowego*. Problemy Pielęgniarstwa, 2008, tom 16, nr 4, s. 343 – 351.
19. Wasilewski J., Poloński L.: *Znaczenie fibrynogenu i właściwości reologicznych krwi w miażdżycy i chorobie wieńcowej*. Choroby Serca i Naczyń, 2010, tom 7, nr 2, s. 62 – 71.