Health behavior of patients after myocardial infarction

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ABSTRACT

Secondary prevention for patients after myocardial infarction in addition to pharmacotherapy includes lifestyle modification. Patients should strengthen their health, eliminating the negative health behaviors. The aim of the study was to analyze the health behavior of patients after myocardial infarction. The study included 268 patients. The research tool was a questionnaire developed by the authors. The analysis included changes in daily life of patients, paying attention to diet, attitudes towards smoking, physical activity and caring for health manifested in self-monitoring of blood pressure, regular visits to the doctor and taking medication regularly. The influence of gender, age, place of residence, education level on the declared changes, was studied. The results were statistically analyzed. It has been found that in the event of myocardial infarction, which a serious illness is, the patient's behavior and involvement in creating a healthy lifestyle changes. Patients attach more attention to eating habits, physical activity, and cessation of smoking. These declarations often refer to people in middle age, whereas young people do not undertake such efforts, especially against cigarette smoking. Majority of them self-monitor blood pressure, keep the files of measurements, systematically take medicines and visit the doctor as well as devote more time to rest and recreation. Complex, multi-specialized, and long-term care of patients after myocardial infarction is the most optimal model of preventive and therapeutic procedure in these patients. Qualified medical personnel with the active participation of patient's family members should carry it out.

Keywords: myocardial infarction, health-relation behavior, patient

INTRODUCTION

Cardiovascular diseases are one of the most serious health problems of the contemporary world. They lead to disability and are often the cause of death [2]. It is estimated that in most European countries, coronary artery disease is confirmed in 20.000-40.000 persons per million of habitants [13]. Annually in Poland there are hospitalized about 200.000 people with acute coronary syndrome (ACS), of which about 2/3 are patients with unstable angina (UA) and Non-ST Segment Elevation Myocardial Infarction (NSTEMI), the incidence of which increases as opposed to Myocardial Infarction with ST Segment Elevation (STEMI) [8]. Secondary prevention for patients after myocardial infarction, in addition to pharmacotherapy, includes lifestyle modification. Patients should strengthen their health, eliminating the negative health behaviors [6].

The aim of this study was to analyze changes in health behaviors of patients after myocardial infarction.

MATERIAL AND METHODS

The survey included 268 patients after myocardial infarct recovering in spa hospital, in Nałęczów town. The research tool was a questionnaire survey developed by the authors of the study and verified in a pilot study. There were analyzed changes in daily life of patients, with regard to diet, attitudes towards smoking, physical and professional activity, caring for health by self-measurement of blood pressure, regular visits to the doctor, and taking medication regularly. The influence of gender, age, place residence, education, and material conditions on the declared changes was analyzed.

The values of the analyzed quality parameters measured in the nominal scale were characterized with the use of size and proportion. The test of homogeneity χ^2 was used to find differences between the analyzed groups; the Spearman correlation coefficient was used to detect a relationship between those features. There was assumed 5% error of inference and the related significance level $p<0.05$, which indicated the existence of statistically significant differences or the relationships between the examined characteristics. Statistical analysis was based on STATISTICA 9.0 software (STATSOFT, Poland).

The study involved people aged 26-76 years. The average age of respondents was 54 ± 11.4 years. Most were men – 64.9% (174 persons), while the women accounted for 35.1%

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(94 persons). The average age of women was 51 ± 10.8 years, while of men – 55.6 + 11.4 years. The observed differences were statistically significant (t = 3.196; p = 0.001). The place of residence for the majority was a city – 187 persons (69.8%), while 81 persons (30.2%) represented the rural population. The majority of the surveyed were persons with vocational education – 103 persons (38.4%), subsequently subjects with secondary education – 85 people (31.7%), with higher education – 57 persons (21,3%) and elementary education was reported by 23 persons (8.6%). The most numerous group included the pensioners and emeriti – 95 persons (35%), subsequently, blue collar workers – 75 (28%), and people whose work requires physical and intellectual activity – 39 (14.6%), white collar workers – 59 people (22%). Most of the surveyed persons were married – 175 (65.3%), while 42 people (15.7%) were widows/widowers, 38 persons (14.2%) – maids/bachelors, while 13 persons (4.9%) were divorced. Good living conditions were confirmed by 123 persons (45.9%), satisfactory – by 112 subjects (41.8%), and very good – by 29 (10.8%), while bad conditions – by 4 persons (1.5%).

RESULTS

To determine whether and to what extent the health behavior of people after a heart attack changed, they were asked to answer questions about their everyday life. The question: „Have your eating habits changed?" was answered by the majority in the affirmative – 152 persons (56.7%), because they changed the diet prescribed by the doctor; the other group – 116 people (43.3%) did not make any changes in the daily diet. Significantly more often women declared changing of diet ($\chi^2 = 20.879$, d.f. = 1, p<0.05) (Fig. 1). They emphasized the increased consumption of fruits, vegetables, and dairy low-fat products; they reduced consumption of sweets and eliminated fast foods from the diet of their children.
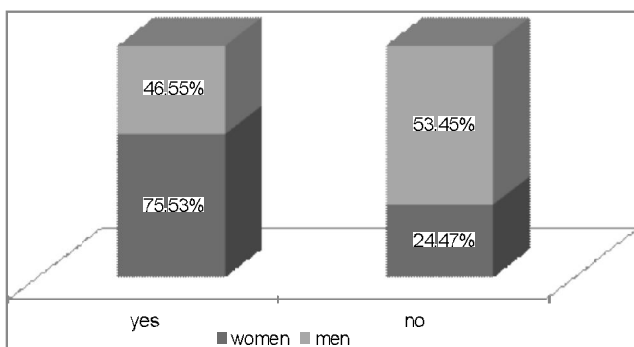

Figure 1. Change of diet declared by men and women

The age of respondents had a significant statistical impact on the style of diet ($\chi^2 = 40.621$, d.f. = 3, p<0 .05). The highest percentages of respondents declaring their adherence to medical recommendations were among those 30-50 years of age (78.7%), and in the oldest respondents, i.e. over 70 years of age (56.0%) (Fig. 2).
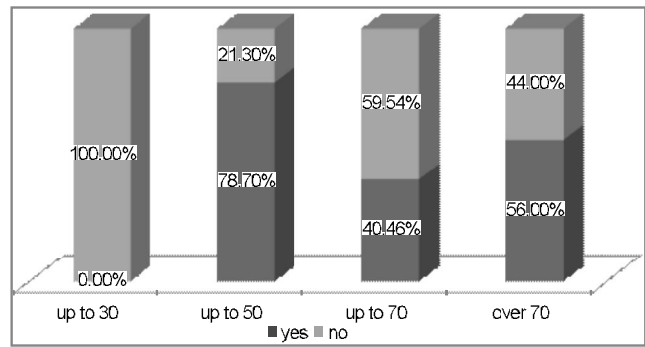

Figure 2. Change of diet declared by patients in different age groups

Significantly more often persons living in the city ($\chi^2 = 41.308$, d.f. = 1, p<0.05) and patients with higher and secondary education ($\chi^2 = 57.812$, d.f. = 3, p<0.05) declared changing eating habits (Fig. 3). The material conditions is a variable having a statistically significant impact on the use of proper diet as recommended by the doctor ($\chi^2 = 28.392$, d.f. = 3, p<0.05). Statistically significantly, more persons declaring very good and good physical conditions introduced changes in their diet. Respondents emphasized that the introduction of the healthy diet is associated with higher costs. They buy better quality meat, fish, use more often oil for cooking, buy large quantities of fruits and vegetables, eat low-fat dairy products.
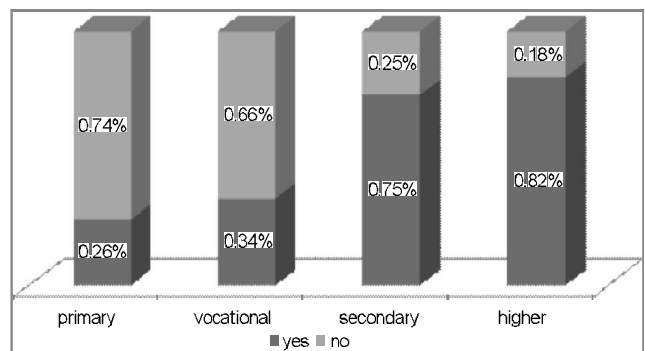

Figure 3. Changes in eating habits with regard to education level

The disease caused in some patients change in attitude towards smoking (Fig. 4). Almost 35% stopped smoking. This decision was associated with age ($\chi^2 = 72.681$, d.f. = 6, p<0.05). Persons aged between 30-50 years and persons 50-70 years (25.9%, 48.1%) significantly more often declared changing the attitude; the oldest respondents, i.e. those over 70 years of age are mostly non-smoking population – 83.3%. Particularly worrying is the fact that respondents below 30 years of age usually declared smoking over 20 cigarettes a day. Significantly more often smoking cessation was declared by the urban population ($\chi^2 = 27.81$, d.f. = 2, p<0.05).

Change in physical activity was declared by 147 patients (54.8%) and significantly more often involved women ($\chi^2 = 19.788$, d.f. = 1, p<0.05). Comparative analysis showed that almost 74% of women and only 45.4% of men made the
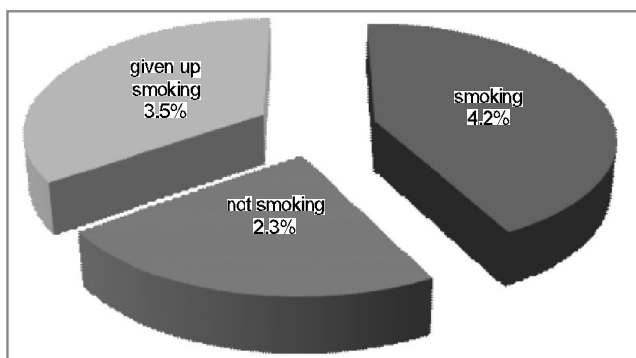
Figure 4. Respondents' attitudes towards smoking

change of physical activity as recommended by the doctor. Patients emphasized riding bikes, swimming, fast walking, and doing exercise every day. Such declarations significantly more often were stated by people aged 30-50 years (χ^2 = 22.817, d.f. = 3, p<0.05). The level of education was most significantly influencing the change in physical activity (χ^2 = 60.557, d.f. = 3, p<0.05) (Fig. 5). Proportion of persons declaring increase in physical activity rose with increasing levels of education, from 8.7% – for those with primary education to 86% – with higher education.
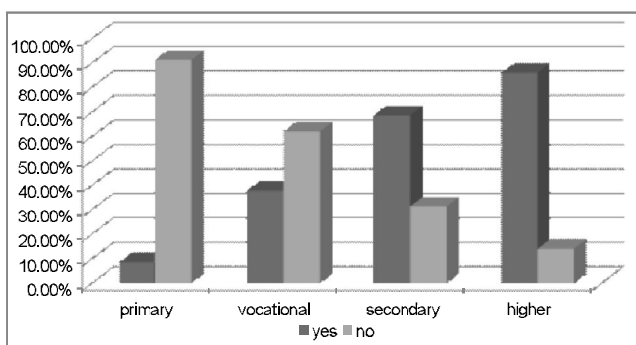

Figure 5. Change in physical activity in various categories of respondents' education

The illness influenced the changes in the professional activity. Most people – 92 (34.3%) got retired, 73 persons (27.2%) – took up lighter work, and 64 people (23.9%) – had a part-time job, while the changes did not affect 39 people (14.6%) (Fig. 6).
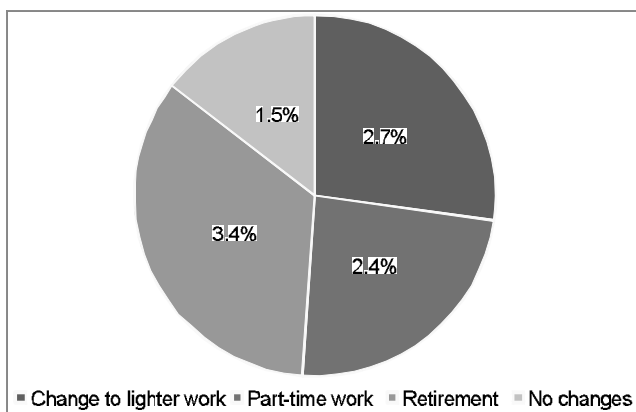

Figure 6. Changing professional activity after illness

Statistically significantly more women took up lighter work, and men were retired (χ^2 = 8.227, d.f. = 3, p = 0.04). In individuals from the youngest age group the disease did not result in any changes in their activity, while respondents over 50 years of age usually were retired (χ^2 = 121.34, d.f. = 9, p<0.05). There was also confirmed a relationship with education level (χ^2 = 46.967, d.f. = 9, p<0.05) – the lower level of education, the higher the proportion of persons who decide to retire.

Self-measurement of blood pressure was performed regularly by 148 people (55.2%), and irregularly by 106 people (39.6%), others – 14 persons (5.2%) were not controlling the blood pressure. The presented attitudes related to:
– gender – statistically significantly more women declared regular self-measurement of blood pressure (χ^2 =56.89, d.f. = 2, p<0.05), (w = 86.2%, m = 38.5%);
– age – regular measurement of blood pressure was found statistically significantly more frequently (χ^2 = 34.864, d.f.= 6, p<0.05) among people aged 50 years (65.7%) and the age of 70 years (51.9%), while those under 30 years of age declared in 100% irregular blood pressure measurements;
– place of residence – a statically significantly more often urban population was carrying out regular self-monitoring of blood pressure (χ^2 =21.817, d.f. = 2, p = 0.000) (Fig.7). It should be noted that as many as 12.3% of the rural population did not make self-measurement of blood pressure;
– education level – significantly more often people with higher and secondary education make regular measurements of the blood pressure (χ^2 = 13.793, d.f. = 6, p = 0.032) .
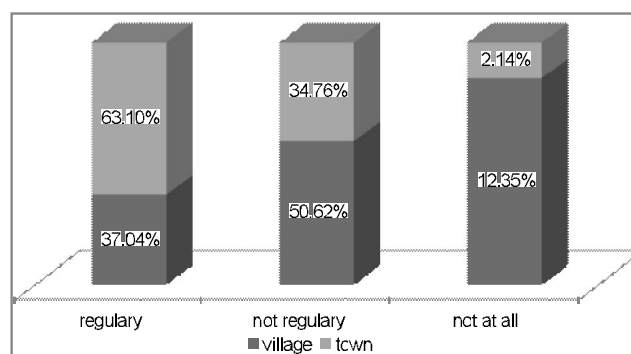

Figure 7. Self-measurement of blood pressure with regard to place of residence

All the respondents declared their regular taking medication and a significant proportion of respondents – 191 people (71.3%) regularly attended medical examinations. Significantly more often women underwent medical check (χ^2 =23.146, d.f. = 1, p<0.05), (w = 89.4%, m = 61.5%), and those subjects living in urban areas (χ^2 = 21.374; d.f. = 1, p<0.05), (city = 79.7%, village = 51.9%).

DISCUSSION

Myocardial infarction is an upsetting situation to the patient and his family. Direct threat to life appearing suddenly, causing a number of negative reactions in the psyche, is a potent stress, crisis; it touches bases hitherto human life and the relationship with the environment. It imposes the effort to adapt to life in a changed situation.

Patients with myocardial infarction are at high risk of recurrence of coronary events and premature death. In 8-10% of patients after a heart attack, the next event occurs within one year after discharge [4]. Lifestyle modification must be so fundamental and overriding purpose of secondary prevention of myocardial infarction. People with a history of myocardial infarction should be aware that the weight reduction and control is not a temporary proceeding, and the success can be achieved only through long-term changes in lifestyle, including proper diet and physical activity. The important role is attributed to physical exercise, cycling, swimming, and fast walking.

Proper diet reduces cardiovascular risk by weight loss, lowering blood pressure, and has a beneficial effect on lipid levels and glycemic control and reduced susceptibility to thrombosis [3]. According to the European Society of Cardiology (ESC), nutrition of patients after myocardial infarction should be differentiated. The aim is to balance energy intake with physical activity to maintain normal weight. Patients should be advised to consume large amounts of fruits and vegetables, choosing foods high in fiber (especially wholegrain cereal products).

Fatty fish, low-fat dairy products, and lean meats are recommended. Total fat intake should cover no more than 30% of energy requirements, and saturated fats should not exceed 1/3 of all dietary fats [11]. Patients should consume less than 300mg of cholesterol per day [10]. They should choose foods with a small amount of salt. Experimental and observational studies have shown that increased consumption of omega-3 PUFAs in the form of a diet rich in fatty fish or supplementation with omega-3 may reduce the risk of cardiovascular complications, including sudden cardiac death in patients at high risk [7]. The randomized trial conducted in a group of over 11 thousand patients after myocardial infarction (GISSI Prevenzione) showed that adding 1 g of omega-3 PUFAs per day to the Mediterranean diet significantly reduced total mortality and reduced by 30% the number of deaths from cardiovascular causes [7].

Physical activity has beneficial effects on the efficiency of the cardiovascular system, body weight, blood pressure, and cholesterol levels. Regular exercise can reduce the risk of premature death from cardiovascular disease by more than 50%, especially the risk of heart attack. They also affect the reduction in risk of death from all causes at more than 30-40%, which is confirmed in a recent publication by Warburton et al. [12]. Regular physical activity improves exercise tolerance, the overall efficiency of the cardiovascular system and well-being, even in elderly patients [4].

It is also necessary to stop smoking. Smoking relates to either the habit or the psycho-neural causes, often subconscious. Observational studies show that smoking cessation after myocardial infarction reduces mortality in subsequent years in non-smoking patients by at least 1/3 compared with those still smoking subjects [3]. Patients usually do not smoke during their stay in hospital, but a return to smoking is common. The duty doctor should take the necessary steps leading to the cessation of tobacco use by patients and offer advice and support.

Cardiovascular diseases, including heart attack, cause about 30% of incapacity pronounced in Poland [1]. According to the statistics in Poland, only about 50-60% of patients after myocardial infarction return to work [5]. It is a small proportion in comparison with western countries, where the percentage of these people varies from 70-95%. Return to work is an important element in the process of recovery after myocardial infarction. Numerous studies have shown that the activity of persons with prior myocardial infarction have beneficial effects on their health. In the group of working persons, lower mortality from cardiovascular diseases and fewer incidents of heart disease are noted. Persons who work after a heart attack live longer than those that have retired or got their pension. In patients who continue working after the heart attack there are also five times less neuroses and depressions noted [9]. It is therefore important to support the patient in restoring the professional activity that took place before the disease occurred.

Our own research demonstrated that a history of myocardial infarction is a strong stimulus to change habits and lifestyle. These studies have shown that age and sex, followed by such factors as education and financial situation most strongly determine lifestyle changes in patients after myocardial infarction. The women more likely than men pursued a model of healthy behavior, paying greater attention to health.

CONCLUSIONS

The event of a serious disease as myocardial infarction is, changes the patient's behavior and involvement in creating a healthy lifestyle. Patients attach more attention to eating habits, physical activity and smoking cessation. These declarations more often affect middle-aged people when such efforts are not taken by young people, especially against cigarette smoking. For the sake of their health, majority of patients check blood pressure by themselves, keep records of the measurements, systematically take medicines and visit their doctor, and spend more time for rest and recreation. Complex and multi-and long-term care of patients after myocardial infarction is the most optimal model of preventive and therapeutic procedures in these patients. It should be conducted by qualified medical personnel with the active participation of family members of the patient.

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