Original article

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CHANGES IN PSYCHOLOGICAL PARAMETERS AND HEALTH BEHAVIOR OF CORONARY AND NON-CORONARY PATIENTS FOLLOWING HOSPITALIZATION – A SIX-MONTH FOLLOW-UP

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The aim of the paper was to determine specific spontaneous changes in psychological and behavioral parameters in patients who had a myocardial infarction compared to non-coronary patients during a period of six months after hospitalization.

Thirty-three hospitalized patients with acute myocardial infarction (group K) and 30 hospitalized non-coronary patients (group C) were compared and than followed up for six months for the following psychological parameters: intensity of anxiety, intensity of depression, intensity of aggression, exposure to stressful life events; and risk health behaviors - alcohol consumption, cigarette smoking and lack of physical activity.

On admission, anxiety and depression were more pronounced in group K, as well as the exposure to stressful life events. After six months, the level of aggression in group K was lower compared to the initial measurement ($p<0,05$), exposure to stressful events was also lower ($p<0.01$), while physical activity was more frequently practiced ($p<0.01$). Anxiety and depression remained increased. In group C, such changes were not demonstrated after six months.

Increased anxiety and depression as well as decreased aggression and exposure to stressful life events six months after acute myocardial infarction were psychological changes specific of coronary patients, not reported in the group of non-coronary patients. *Acta Medica Medianae 2012; 51(1):12-19.*

Key words: *psychological state, risk health behavior, acute myocardial infarction, hospitalization*

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Introduction

Psychological reactions and health behavior following a myocardial infarction can influence the prognosis (1). Literature data demonstrate that distressful reactions in the form of intensified anxiety and/or depression impact morbidity and mortality after an acute coronary event (2). Suppressed aggression and competitiveness in type A personality have been described as important risk factors for the development of coronary heart disease. Risk health behaviours - alcohol consumption, cigarette smoking and lack of physical activity contribute to the development and progression of coronary heart disease, and a change of these habits is a part of coronary syndrome management (3). Researches by Gareth et al. from 2010 demonstrated that smoking habits, socioeconomic status and cognitive ability are both direct and indirect mediators of psychological influence on the prognosis of acute coronary events (4).

Our experience from consultative work points to unfavorable emotional reactions in the patients with acute coronary syndromes, as well as the presence of risk health behaviors, in spite of being informed about their harmful effect on the course of disease. At the same time, it has not been clarified yet what would be a further spontaneous development of psychological and behavioral parameters in patients who have sustained myocardial infarction. Also, can serious threat to life, that the patient becomes aware of during hospitalization, influence the changes in some psychological and behavioral characteristics?

The aim of our paper was to determine the changes in psychological and behavioral parameters in patients hospitalized due to an acute myocardial infarction, followed up for six months after hospitalization with respect to hospitalized non-coronary patients.

Patients and methods

The research was conducted at the Clinic of Cardiology, Clinic of Physical Rehabilitation and Clinic for Mental Health of the Clinical Center Niš. A prospective comparative study was carried out. The examinees were divided into two groups: group K consisted of 33 patients hospitalized at the Clinic of Cardiology due to an acute myocardial infarction, recruited by the method of consecutive admissions.

Group C involved 30 patients hospitalized at the Clinic of Physical Rehabilitation due to the lower extremity injury or surgery undertaken, without the diagnosis of coronary heart disease. According to their sociodemographic characteristics, the patients of this group matched the K group patients. Immediately after hospitalization, all patients received the cardiovascular and basic psychiatric assessment. For establishing the psychiatric diagnosis, the Mini International Neuropsychiatric Interview M.I.N.I. was used. A further procedure excluded the patients having any other psychiatric diagnosis or some life-threatening somatic disease. The initial assessment of psychological characteristics and health behavior was undertaken 7-10 days after hospitalization. For the estimation of psychological parameters, the following self-rating questionnaires were used: Beck Anxiety Inventory (BAI) for the estimation of presence and intensity of anxiety, whereby the values ≥ 8 were considered increased; Beck Depression Inventory (BDI) for the estimation of presence and intensity of depression, whereby the values ≥ 8 were considered increased; KON-6 sigma self-rating scale measuring the presence and intensity of aggession, in which the values ≥ 50 were regarded as elevated; Holms-Rahe self-rating scale (H-R) demonstrating the exposure to stressful life events in the previous year, the score ≥ 100 predisposes anxious reaction, and ≥ 300 a possibility of psychosomatic disease. Risk health behavior was estimated by the questionnaire related to: alcohol consumption in the form of socially allowed drinking without the diagnosis of alcoholism (2-3 times per week, without getting drunk, for more than one year), cigarette smoking (at least 20 cigarettes per day in the course of the last year), and the lack of physical activity (having a walk in duration of one hour three times per week). On discharge from hospital, the patients were advised how to carry out the dietetic-hygienic regime.

The final assessment of psychological and behavioural parameters was performed six months after the initial one at the Clinic for Mental Health, using the same instruments, (the differences were that Holms-Rahe self-rating scale estimated stressful life events in the past six months and questionnaire for the estimation of risk health behavior covered the period of past six months). The research was approved by the Ethics Committee of the Clinical Center Niš and written informed consent was obtained from the patients participating in the research.

Statistical analysis

The differences among the groups were determined by parametric statistics using the Studen's t-test and non-parametric statistics applying the chi-square test. Comparison of groups was conducted at the beginning of research and after six months. In addition, a longitudinal comparison of values was done at the initial and final measurements for each group alone. The values $p<0.05$ were considered statistically significant.

Results

In our sample, the patients who had sustained the firts myocardial infarction were in the sixth decade of life and there were no examinees under the age of forty. One half of the examinees of both groups were employed; the examinees were of both sexes, without differing in respect to the demographic parameters (Table 1). At the initial measurement, the level of depression in group K was borderline, however, significantly higher compared to C group examinees (BDI=8.67±3.94: 4.63±2.04; t=-5.02) for $p<0.01$. The level of anxiety in group K was mildly increased compared to control group in which anxiety was marked (BAI=8.15±4.37:4.83±2.60; t=-3.62), for $p<0.01$. The level of aggression was equally mildly increased in both groups (KON-6sigma=53.77 ±11.23 : 53.06±9.53, p value is insignificant). The score on the scale demonstrating the exposure to stressful life events in the prior year was significantly higher in group K (H-R=113.19±67.37: 66.27± 65.43; t=-2.88 for $p<0.01$) (Table 2). Risk health behavior was present in both groups; the absence of physical activity in the year preceding hospitalization was more reported in group K (84.84%:56.66%; $\chi^2=1.47$) $p<0.01$ (Table 3).

Table 1. Demographic group characteristics

Parameters		C n=30	%	K *n=33*	%
Education level	Elementary school	5	16.67	7	21.21
	High school	18	60	22	66.67
	College degree	7	23.33	4	12.12
Employment	Unemployed	8	26.67	8	24.24
	Employed	8	26.67	8	24.24
	Retired	4	13.33	7	21.21
	Manager	4	13.33	7	21.21
Marital status	Single	0	0.0	2	6.06
	Married	30	100	31	93.94
Sex	Male	22	73.33	26	78.79
	Female	8	26.67	7	21.21

Table 2. Psychological parameters at baseline

Psychological parameters	K n=30 X ± SD	E n=33 X ± SD	t	P
Anxiety	4.8 3± 2.60	8.15± 3,94	-3.62	<0.01
Depression	4.63 ± 2.04	8,67 ± 3.94	-5,02	<0.01
Aggression	53.77 ± 11.23	53.06 ± 9.53	0.27	n.s
Stressful events	66.27 ± 65.43	113.19 ± 67.37	-2,88	<0.01

Table 3. Risk health behaviour at baseline

Health behaviour	C n=30	%	K n=33	%	X^2	P
Smoking	18	60.00	20	60,60	0.00	n.s
Alcohol consummation	14	46,67	17	51,52	2.12	n.s
Physical inactivity	17	56,66	28	84,84	1.47	0.00

Table 4. Psychological parameters after six months

Psychological parameters	C n=30 X ± SD	K n=31 X ±SD	t	P
Anxiety	3.47± 1.80	9.71± 3.93	-7.94	0.00
Depression	3.20 ± 1.58	8.74 ± 4.13	-6.87	0.00
Aggression	53.61 ± 11.23	51.42 ±7.60	1.47	n.s
Stressful events	46.83 ± 55.61	91.65 ± 63.81	-2.92	<0.05

Table 5. Risk health behaviour after six months

Health behaviour	C n=30	%	K n=31	%	X^2	P
Smoking	17	56.66	12	38.70	0.00	n.s
Alcohol	9	30	11	35.48	0.21	n.s
Physical inactivity	26	86.66	19	61.29	5.07	<0.05

In the period between the initial and final measurements, there were two cases with fatal outcome (6.07%) in group K (K=31) due to coronary causes, whereas 11 (33.3%) patients from this group were re-hospitalized due to deterioration of the disease. One third of myocardial infarction patients, able to work, returned to their jobs, which is significantly less compared to one half of non-coronary patients, (50%: 32.25%, χ^2=8.11), for p<0.05. Psychological parameters remained statistically significantly elevated in group K in respect to group C even after six months (BDI=8.74±4.13 : 3.20±1.58, t=-6.87 for p<0.01; BAI=9.71±3.93 : 3.47±1.80, t=-7.94 for p<0.01; H-R=91.65±63.81 : 46.82±65.43, t=-2.92 for p<0.05) (Table 4). As far as risk health behavior is concerned, by comparing the groups after six months, it was found that the absence of physical activity was significantly lower in the group of myocardial infraction patients compared to non-myocardial infraction patients (61.29%: 86.66%. χ^2=5.07, for p<0,01). There were no statistically significant differences with respect to tobacco and alcohol consumption (Table 5).

Longitudinal follow-up and comparison of parameters in group K at the initial and final measurements demonstrated that the levels of anxiety and depression remained elevated; however, the level of aggression was significantly lower (KON-6 sigma=53.26±9.8 : 51.2±7.7, t=2.3, for p<0.05). The exposure to stressful events was also lower compared to the initial measurement (H-R=113.19±67.37 : 91.65±63.81, t=3.14), for p<0.05. In group C, different changes in psychological parameters were reported: scores of anxiety and depression were significantly lower at the final compared to the initial measurement, and were below the borderline values for depression and anxiety (<8), whereas the level of aggression was not significantly decreased. The exposure to stressful life events in this group was significantly lower in respect to the initial measurement (H-R=66.27±65.43 : 46.83±55.61, t=4.31) for p<0.01 (Table 6).

After six months, there were no registered changes in health behavior, as more than half of examinees of both groups continued to use tobacco; consumption of alcohol increased mildly, though not significantly. A positive change, which did not reach the level of statistical significance, reflected in higher level of physical activity, was reported in all patients (Table 7).

Discussion

Acute myocardial infarction affects the adult population, and can influence the quality of life and work ability (6,7). Increased anxiety has the etiopathogenic importance in the coronary heart disease, influencing thus the prognosis (8,9). In the literature, there has been described the syndrome

Table 6. Changes in psychological parameters between baseline and final measurement

Psychological parameters	Groups	Measurement	X	SD	t	P
Depression	C	Initial	4.63±2.04		4.16	0.000
		Final	3.20±1.58			
	K	Initial	8.77±3.97		0.04	n.s
		Final	8.74±4.13			
Anxiety	C	Initial	4.83±2.60		3.70	0.001
		Final	3.47±1.80			
	K	Initial	8.23±4.31		-1.74	n.s
		Final	9.71±3.93			
Life events	C	Initial	66.27±65.43		4.31	.000
		Final	46.83±55.61			
	K	Initial	113.19±67.37		3.14	n.s
		Final	91.65±63.81			
Aggression	C	Initial	53.77±11.23		-0.44	n.s
		Final	54.60±9.24			
	K	Initial	53.26±9.58		2.13	n.s
		Final	51.42±7.67			

Table 7. Changes in risk health behaviour between initial and final measurements

Parameter	Group	Measurement	n	%	χ^2	P
Physical inactivity	C	Initial	17	56.66	0.74	n.s
		Final	26	86.66		
	K	Initial	28	84.84	0.62	n.s
		Final	19	61.29		
Alcohol	C	Initial	14	46.66	0.08	n.s
		Final	9	30.00		
	K	Initial	17	51.51	1.67	n.s
		Final	11	35.48		
Smoking	C	Initial	18	60.00	0.07	n.s
		Final	17	56.66		
	K	Initial	20	60.60	3.07	n.s
		Final	12	38.70		

of "silent panic" which has its somatic equivalents (10), and occurs in the first three days following amyocardial infarction [Adamović, 2005]. Anxiety in group K patients was increased, unlike the situation in group C. Anxiety occurring in myocardial infarction patients was the reaction to the existential trauma as infarction is life-threatening. Anxiety manifested itself as restless legs syndrome, sweating, waves of chill and trembling, and stomach "nervousness". Our results are in keeping with other researches (11), which confirm the presence of mild anxiety following a myocardial infarction and other life-threatening diseases. The result differs from the finding of Albert et al., who describe the existence of phobic fear of panic intensity which leads to cardiac arrhythmias and increases the risk of cardiac mortality by 2-5 times (12). Depression is a recognized risk factor for coronary heart disease by the European Society of Cardiology (13). The presence of co-morbid major depression is three times more common in coronary patients compared to healthy individuals, but our research exclusively recruited the patients with mild depression i.e. depression symptoms without the diagnosis of depression. In literature, it is emphasized that depression higher than 10 on BDI bears higher risk of death or rehospitalisation in the year to follow, while depression lower than 10 carries a considerably lower risk (15). Increased mild depression is associated with bad compliance, giving up rehospitalisation program and maintaining unhealthy lifestyle: smoking, lack of physical activity and alcohol consumption (16,17), which is in keeping with our results related to maintaining risk health behaviour in coronary patients, in the period of six months. Assessment of depression was based on the affective and cognitive symptoms, with BDI being an adequate estimation instrument (15). Depressive syndrome, which was determined in one third of our patients, manifested itself as worry, reticence, disinterest in conversations and events in the family, frequent waking up at night, loss of appetite, negative predictions related to health condition. Aggressive behaviour of coronary patients described as A type (cognitive-behavioural personality traits) involved hastiness, competitiveness, lack of time, aversion to idleness, and consciously controlled aggression (17).

Increased aggression and hostility of coronary patients is associated with increased cardiovascular reactivity to interpersonal stressors and the present risk health behaviour (17,18). Mildly increased aggression observed in both groups of patients in our sample was interpreted as a reaction to the conditions of the disease and hospitalization, as the premorbid assessment lacks.

The exposure to adverse life events in the year prior to hospitalization is a potential source of a chronic distressful reaction, which can influence the heart function (6,19,20).

The acute myocardial infarction group was significantly more exposed to stressful life events when compared to control group patients. However, none of the patients had a score higher than 300, which predisposes psychosomatic disorders. Therefore, we could say that scores higher than 100, which make predispositions to anxious reactions, revealed that this kind of psychological reaction is also a significant precursor of myocardial infarction.

The most frequent stressful events were loss of job or loss of a close person, and financial problems. A higher score on the H-R scale opens questions about the role of mediators leading to stressful lifestyle, and therefore to the occurrence of myocardial infarction; among such mediators, anxiety can play a significant role.

Risk health behaviour habits (alcohol consumption, tobacco smoking and lack of physical activity) were reported in the examinees of both groups, with physical inactivity being significantly more frequent in the group of coronary patients. The examinees of group K lived in an urban environment, did not practice physical activities, and worked office jobs. Physical activity was present in one-half of control group examinees, and involved regular walks and easy household chores. Tobacco use was equally distributed among all examinees. Nicotine exerts toxic effects on arteriolar endothelium, initiating and accelerating thus the atherosclerotic process (21). Researches on the relationship between emotional state and smoking have demonstrated that smoking is an attempt to pacify dysphoric mood (21,22). The findings of Brumett et al.from 2003 did not confirm the association between smoking, sedentary behaviour and depression, as well as their influence on poor prognosis in depressed compared to non-depressed myocardial infarction patients. The research proved that smoking does not pacify but worsens dysphoria by intensifying attention towards negative cognition (23) and stands for an independent predictor of postmyocardial depression and anxiety. Our results indicate that smoking was present in one half of myocardial infarction patients, associted with mildly expressed anxiety and depression rections, which tells about a widespread smoking habit which is not always a defense mechanism in distress. Alcohol consumption in the form of socially approved custom without the diagnosis of alcoholism was more frequently reported in the group of coronary compared to control examinees, but not statistically significantly. The majority of consumers were men, convinced in the beneficial alcohol effects on the circulation and blood vessels.

After six months, at final measurement, only one third of employed coronary patients returned to their jobs, whereas 50% of control group examinees continued to work, which clearly shows that myocardial infarction significantly influenced the work abilities. Prolonged inability to work could have contributed to the patients' worries and anxiety, bearing in mind that in the majority of cases these people were financially responsible for their families.

Psychological parameters – anxiety and depression remained elevated in group K, and were significantly higher when comaped to group C after six months. Such finding can be iterpreted as a consequence of chronic insecurity because of health impairment due to myocardial infarction, decreased work ability and economic insecurity, but also as an an indicator of premorbid susceptability to distressful reaction which can play a role in the onset of disease, according to psychophysiological model (24,25). Prolonged mild depression reported in our coronary patients corresponds to the observations of Davidson et al. (26) who concluded that mild depression is the most common syndrome of coronary patients. Two individuals seeked psychiatric help due to dysthymic disorder in the six-month period (25,26). This is not in keeping with literature data which show that every fifth individual suffering from acute myocardial infarction suffers from the major depressive disorder as well, which increases the risk of morbidity (rehospitalisation, cardiac surgery, reinfarction, arrhythmia) and mortality (10,14). Follow-up of a larger number of patients in the long-term period might confirm the importance of mild depression for myocardial infarction prognosis.

The level of aggression after six months significantly decreased in group K, compared to the initial measurement, as well as the score for the exposure to stressful events, which may be the result of more peaceful lifestyle following a myocardial infarction and reactive withdrawal from social competitiveness. The feeling of being in a life-threatening situation, completely helpless during acute myocardial infarction could be experienced as a significant narcissistic injury by individuals who have built their self-esteem upon the feeling of omnipotence and consecutive success in competition. In that sense, lower levels of aggression with simultaneous maintaining of increased anxiety and depression can be considered as reactive turning the aggression towards oneself, i.e. depression equivalent. Risk behaviour habits did not significantly change in both groups of examinees. Irrespective of a terrible experience with myocardial infarction and advice given by cardiologist, only physical activity was more frequently practiced by K group participants, which was the result of the implemented rehabilitation program, and C group participants, who did it on a regular basis.

Literature data have confirmed that smoking cessation reduces a relative risk of mortality by 36% in coronary patients, while regular physical activity reduces the risk of anxiety and depression after myocardial infarction (7,9). The results indicate that behavior changes are insufficient as this is a common way to relieve tension and/or achieve satisfaction orally. The harmfulness of such behavior is likely to be neglected for these reasons. As already mentioned, maintaining the risk health behavior, in spite of being faced with a life-threatening disease, can be conditioned by maintaining a depressive reaction to disease as well. Secondary prevention of coronary heart disease depends on subjective experience of disease and convictions about necessary drugs' intake and changes in risk behavior. Byrn M., in the epidemiological study, emphasizes that only 29% of over 700 coronary patients change their health behaviors in spite of being aware that they are responsible for the coronary heart disease (3).This is in accord with our results and points to a possibility that other factors contribute to maintaining risk behavior and that informing patients is not sufficient for secondary prevention of coronary heart disease. The lack of symptoms such as pain in the chest, laboured breathing, fatigue can decrease the motivation for behavior changes after survived myocardial infarction. It is necessary to investigate which factors can improve the motivation for behavior changes in the chronic phase of the disease. Having analyzed the results of this research, we consider that it is necessary to evaluate the psychological state of a patient who has survived an acute myocardial infarction, and accordingly apply individualized therapeutic interventions. These interventions would be directed towards resolving the current psychological problem of a patient and improving the compliance associated with managing the risk health behavior.

Conclusion

In the period of six months following the first myocardial infarction, persistently increased anxiety and depression were observed in these patients, whereas the levels of aggression and exposure to stressful life events decreased. These changes were not reported in non-coronary patients. At the same time, some significant changes in the risk health behavior did not occur. Such relationship between the psychological and behavioral characteristics could contribute to an unfavourable course and prognosis of coronary heart disease. These spontaneous changes of psychological parameters during the course of post hospital recovery need further explanations. Psychological work with patients who have survived a myocardial infarction, within post-hospital rehabilitation, could contribute to the reduction of the risk factors.

References

1. Bjerkeset O, Nordahl H, Mykletun A, Holmen J, Dehl A. Anxiety and depression following myocardial infarction: gender differences in a 5-year prospective study. J Psychosom Res 2005; 58 (2): 153-61. [CrossRef] [PubMed]
2. Lynn D, Moser D, Riegel B, McKinley S, Meischeke H, Pelter M, et al. Comorbid anxiety and depression: The dynamic duo of death. Circulation 2008; 118: 770-1.
3. Byrne M, Walsh J, Murphy A. Secondary prevention of coronary heart disease: Patients beliefs and health related behaviour. J Psychosom Res 2005; 58 (5): 403-15. [CrossRef] [PubMed]
4. Gareth E H-J, Darren A S, Ian J D, Beverly AR. Direct and indirect pathways connecting cognitive ability with cardiovascular disease risk: socioeconomic status and multiple health behaviours. Psychosom Med 2010; 72: 777-85. [CrossRef] [PubMed]
5. Timotijević I, Paunović V. Instruments of clinical assessment in psychiatry. Institute of Mental Health, Beograd 2003. Serbian.
6. Brisson C, Leblanc R, Bourbonnais R, Maunsell E, Dagenais G, Vezina B, et al. Psychological distress in postmyocrdial infraction patients who have returned to work. Psychosom Med 2005; 67: 59-63. [CrossRef] [PubMed]
7. Panagopoulou E, Montgomery A, Benos A. Quality of life after coronary artery bypass grafting: evaluation the influence of preoperative physical and psychosocial functioning. J Psychosom Res 2006; 60 (6): 639-44. [CrossRef] [PubMed]
8. Annelieke MR, Elizabeth JM, Johan D, Peter J. Prognostic association of anxiety post myocardial infarction with mortality and new cardiac events: A meta-analysis. Psychosom Med 2010: 72: 563-69. [CrossRef] [PubMed]
9. Januzzi LJ, Stern AT, Pasternak RC, DeSanctis WR. The influence of anxiety and depression on outcomes of patients with coronary artery desease. Arch Intern Med 2000; 160: 1913-21. [CrossRef] [PubMed]
10. Adamović V. Psychosomaticd and consultative psychiatry. JP Službeni list SCG Beograd 2005; 61-63. Serbian.
11. Nikolić G. Anxiety and depression evaluation at patients with psychogenic chest pain versus ischemic chest pain patients [disertacija]. Nis: School of Medicine; 2009. Serbian.

12. Albert MC, Chae UC, Rexrode KM, Manson J, Kawachi I. Phobic anxiety and risk of coronary artery disease and sudden cardiac death among women. Circulation 2005;111: 480-87. [CrossRef] [PubMed]
13. Graham I, Atar D, Borch-Johnsen K, et al. European guidelines on cardiovascular disease prevention in clinical practice: full text. Fourth Joint Task Force of the European Society of Cardiology and other societies on cardiovascular disease prevention in clinical practice [constituted by representatives of nine societies and by invited experts. Eur J Cardiovasc Prev Rehabil 2007; 14(Suppl 2):S1-113. [CrossRef]
14. Fasure-Smith N, Lesperance F, Talajic M. Depression and 18 month prognosis after myocardial infarction. Circulation 1995; 91:999-1005. [PubMed]
15. Benedetto Dm, Linder H, Hare LD, Kent S. Depression following acute coronary syndromes: A comparison between the Cardiac Depression Scale and Beck Depression Inventory II. J Psychosom Res 2005; 60(1):13-20.
16. Strik JM, Lousberg L, Cheriex CE, Honig A. One year cumulative incidence of depression following myo cardial infarction and impact of cardiac outcome. J Psychosom Res 2004; 56(1): 59-66. [CrossRef]
17. Nikolić G, Miljković S, Stojković A, Manojlović S, Ćirić Z, Žikić O, et al. Influence of psychological and coronary parameters on coronary patients rehospitalization. Srpski Arhiv 2010; 138 (3-4): 154-61. Serbian. [CrossRef] [PubMed]
18. Bleil ME, McCaffery MJ, Muldoon MF, Sutton-Tyrrell K, Manuck BS. Anger-related personality traits and carotid artery atherosclerosis in untreated hypertensive men. Psychosom Med 2004; 66: 633-39. [CrossRef] [PubMed]
19. Ari H, Hanna K, Tiina L, Ichiro K, Antti U. Hostility, Anger Control, and Anger Expression as Predictors of Cardiovascular Disease. Psychosom Med 2010; 72: 556-62. [CrossRef] [PubMed]
20. Sloan RP, Bagiella E, Peter A, et al. Hostility, gender and cardiac autonomic control. Psychosom Med 2001; 63(3):434-40. [PubMed]
21. Ginzurk K, Solomon Z, Kolfman B, Karen G, Roth A, Kriwisky M, et al. Trajectories of posttraumatic stress disorder following myocardial infarction: a prospective study. J Clin Psych. 2003; 64(10): 1217-23.
22. Freedland K, Carney R, Skala J. Depression and smoking in coronary heart disease. Psychosom Med 2005; 67: 842-6. [CrossRef] [PubMed]
23. Brummett Bh, Babyak MA, Siegler MC, Mark DB, Williams RB, Barefoot JC. Effect of smoking and sedantery behavior on the association between depresive symptoms and mortality from coronary heart disease. Am J Cardiol 2003; 92: 529-32. [CrossRef]
24. Oxlad M, Stubberfield M, Stuklis R, Edwards J, Wade T. Psychological risk factors for cardiac-related hospital readmission within 6 months of coronary artery by pass surgery. J Psychosom Res 2006; 61(6):775-81. [CrossRef] [PubMed]
25. Bush DE, Ziegelstein RC, Tayback M, et al. Even minimal symptoms of depression increase mortality risk after acute myocardial infarction. Am J Cardiol 2001; 88:337-41. [CrossRef]
26. Davidson WK, Rieckmann N, Rapp AM. Definitions and distinctions among depressive syndromes and symptoms: Implications for a better understanding of the depression-cardiovascular disease association. Psychosom Med 2005; 67: S6-S9. [CrossRef] [PubMed]
27. Debra KM, Sharon McK, Barbara R, LynnVD, Hendrika M, Michele P, et al. Relationship of persistent symptoms of anxiety to morbidity and mortality outcomes in patients with coronary heart disease. Psychosom Med 2011; 73: 803-9. [CrossRef] [PubMed]
28. Nikolić G, Tasić I, Manojlović S, Samardžić Lj, Tosić S, Ćirić Z. Psychiatric syndromes associated with atypical chest pain. Vojnosanitet Pregl 2009; 4. Serbian. [in press]
29. Nikolić G. Acute myocardial infarction and Angina pectoris outcome related to coronary and psychological risk factors [master thesis]. Niš: School of Medicine; 2004. Serbian.
30. Aguilar D, Hicham S, Lemuel M, Eldrin L, Michael G, Rutherford J, et al. Alcohol consumption and prognosis in patient with left ventricular systolic dysfunction after a myocardial infarction. J Am Coll 2004; 43(11): 2015-21. [CrossRef] [PubMed]

PROMENE PSIHOLOŠKIH PARAMETARA I ZDRAVSTVENOG PONAŠANJA KORONARNIH I NEKORONARNIH BOLESNIKA NAKON HOSPITALIZACIJE-ŠESTOMESEČNO PRAĆENJE

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U mnogobrojnim studijama potvrđeno je da psihološko stanje i rizično zdravstveno ponašanje doprinose pojavi akutnog infarkta miokarda, ali i da utiču na dalji tok i ishod bolesti i rehospitalizaciju koronarnih bolesnika. Do sada nije istraživano kako se u spontanom toku menja psihološko stanje i zdravstveno ponašanje nakon hospitalizacije uslovljene infarktom miokarda.

Cilj našeg rada bio je da praćenjem utvrdimo specifične promene psiholoških i ponašajnih parametara kod bolesnika nakon akutnog infarkta miokarda u odnosu na nekoronarne bolesnike u periodu od 6 meseci nakon hospitalizacije.

Istraživanje je obavljeno upoređivanjem i prospektivnim praćenjem dve grupe bolesnika u periodu od 6 meseci: 33 hospitalizovana bolesnika sa akutnim infarktom miokarda (grupa K=33) i 30 hospitalizovanih nekoronarnih bolesnika (grupa C=30). Ispitivani su psihološki parametri: intenzitet anksioznosti, intenzitet depresivnosti, intenzitet agresivnosti, izloženost stresogenim životnim događajima i rizično zdravstveno ponašanje: konzumiranje alkohola, cigareta i fizička neaktivnost. Statističke značajnosti razlika između grupa utvrđene su pomoću Studentovog t-testa i hi kvadrat testa, pri čemu je vrednost $p<0.05$ smatrana statistički značajnom.

Na inicijalnom merenju utvrđeno je da su anksioznost (BAI=8.15±4.37 :4.83±2.60; t=-3.62) za $p<0.01$ i depresivnost (BDI=8.67±3.94: 4.63±2.04; t=-5.02) za $p<0.01$ bili izraženiji u K grupi, kao i izloženost stresogenim životnim događajima. Nakon 6 meseci nivo agresivnosti u K grupi bio je niži u odnosu na inicijalno merenje ($p<0.05$), izloženost stresogenim događajima manja ($p<0.01$), a fizička aktivnost više zastupljena ($p<0.01$). Održavale su se povišena anksioznost i depresivnost. U C grupi nisu registrovane ovakve promene nakon 6 meseci.

Anksioznost i depresivnost ostaju povišeni 6 meseci nakon akutnog infarkta miokarda, dok se nivo agresivnosti u ovom periodu snižava, kao i izloženost stresogenim životnim događajima. Navedene promene su specifične za koronarne bolesnike i nisu registrovane u grupi nekoronarnih bolesnika. *Acta Medica Medianae 2012;51(1):12-19.*

***Ključne reči**: psihološko stanje, rizično zdravstveno ponašanje, akutni infarkt miokarda, hospitalizacija*