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PREVALENCE OF RISK FACTORS, COMORBIDITY AND EMOTIONAL DISTURBANCES IN PATIENTS WITH MYOCARDIAL INFARCTION AND ATRIAL FIBRILLATION

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ABSTRACT — In patients with myocardial infarction and atrial fibrillation, the relationship of risk factors, the structure of comorbid conditions, and the severity of psychoemotional disorders were evaluated. 138 patients of the cardiology department were examined. Such prevailing risk factors as increased alcohol consumption, high salt intake, overweight combined with depressive disorders; a constant form of atrial fibrillation linked to nicotine addiction and associated with anxiety disorders were found in patients with myocardial infarction with a paroxysmal form of atrial fibrillation. These factors should be considered when choosing treatment and rehabilitation options.

KEYWORDS — myocardial infarction, atrial fibrillation, comorbid conditions, anxiety-depressive disorders.

INTRODUCTION

The diagnosis and management of patients with comorbid pathology remains one of the most difficult tasks in clinical practice. Most patients with cardiovascular diseases in real medical practice are characterized by a combination of two or more diseases and conditions, that is, comorbidity [1, 2]. For the correct planning of treatment and prophylactic measures, it is necessary to carefully study not only the structure of risk factors and the frequency of synchronously occurring diseases in patients with myocardial infarction, but also the severity of emotional disorders in various forms of atrial fibrillation [3, 6].

Objective

to assess risk factors, the structure of comorbid conditions and the severity of psychoemotional disorders in patients with myocardial infarction with various forms of atrial fibrillation.

MATERIALS AND METHODS

138 patients (63 men, 75 women) who were

hospitalized in the cardiology department of the City Clinical Hospital No. 7 GBUZ with a diagnosis of myocardial infarction with atrial fibrillation were examined. Depending on the form of atrial fibrillation, the patients were divided into 2 groups: the 1st consisted of 83 (60,1%) patients with a paroxysmal form, the 2nd group — 55 (39,9%) with a constant form. The examination was carried out in the first three days of hospitalization of patients. Conducted: general clinical examination, the lipid spectrum of blood plasma (total cholesterol, low and high density lipoproteins, triglycerides; mmol/l) was determined while taking lipid-lowering drugs (atorvastatin at a dose of 40–80 mg/day).

To assess the emotional state, the HADS anxiety and depression questionnaire was used [7], which included 14 statements in 2 subscales: *anxiety* (odd points), *depression* (even points). Interpretation of the results was carried out by evaluating the total indicators of each subscale: 0–7 points — the absence of reliably expressed symptoms of anxiety / depression; 8–10 points — subclinically expressed anxiety/depression; 11 and above points — clinically expressed anxiety and depression.

For early identification of people at risk and alcohol abusers, we used the AUDIT test [4], developed in 1989 by the WHO working group. The test contains a series of 10 questions: three questions on consumption, four questions on addiction and 3 questions on problems related to alcohol consumption. To assess the degree of nicotine addiction, the Fagerstrom test [5, 8] was used, which determines the relationship between an individual score and the severity of manifestation of nicotine addiction. Interpretation of the test results: from 0 to 3 points — a low level of dependence, 4–5 points — an average level of dependence, 6–10 points — a high level of dependence.

When studying the consumption of table salt with food, the methodology recommended for epidemiological studies was used, which is based on the assessment of the use of sodium chloride with food in public canteens [9]. So, if people, judging by the survey, never add food, then this corresponds to the use of a small amount of table salt per day. In those cases

when the food is salted after the test, this corresponds to a moderate intake of table salt and if the food is salted without trying, then a conclusion was drawn about the increased use of sodium chloride.

Body mass index — (BMI) — a value that allows you to assess the degree of conformity of a person's weight to his height and, thereby, indirectly assess whether the mass is insufficient, normal or excess (obesity) in relation to established standards. The body mass index is calculated by the formula: $BMI = M/P^2$, where M is body weight, kg, P is height, m. Values and interpretation of BMI: 16 or less pronounced weight deficit; 16-18 insufficient (deficit) body weight; 18-25 norm; 25-30 overweight (obesity); 30-35 first degree obesity; 35-40 obesity of the second degree; 40 or more obesity of the third degree (morbid).

To analyze and evaluate the obtained data, standard methods of descriptive statistics were used: calculation of average values and standard deviation ($M \pm \sigma$) for a normal distribution. For comparison of groups, the Student t-test was used (for quantitative variables). The value of $p < 0.05$ was taken as the level of statistical significance. For statistical processing of the obtained results, Statistica version 10 programs were used.

RESULTS

As can be seen from the data given in Table 1, in patients with a paroxysmal form of atrial fibrillation, an average degree of nicotine dependence predominates, then weak and high, but not very high. However, in patients with a constant form, a weak, high, and less often very high degree was more often recorded in the absence of an average degree of nicotine addiction.

In the analysis of adherence to alcohol (Table 2) it was found that, in patients with a paroxysmal form of atrial fibrillation, safe and dangerous use was more common. In patients with a constant form, in most cases, safe, then dangerous and less harmful use of alcohol was recorded. Alcohol dependence was not recorded in any group. The number of points was: $3,0 \pm 1,4$ and $11,5 \pm 3,5$ ($p < 0,001$) in patients with paroxysmal form and $5,5 \pm 1,5$, $12,5 \pm 1,5$ and $17,4 \pm 1,3$ ($p < 0,001$) with a constant form of atrial fibrillation, respectively.

A study of the consumption of table salt with food among those examined with MI (Table 3) showed that moderate and high consumption is more often recorded among people with both paroxysmal and persistent forms of atrial fibrillation, and less often, low.

As can be seen from the data given in Table 4, in patients with myocardial infarction with a paroxysmal form of atrial fibrillation, overweight prevails compared with the constant form, while in patients with a

constant form — obesity ($p = 0,006$; test χ^2).

Thus, in patients with myocardial infarction with a paroxysmal form of atrial fibrillation, the structure of risk factors is dominated by an average degree of nicotine addiction, dangerous alcohol consumption, high salt intake and excess body weight, and with a constant form of atrial fibrillation, a mainly weak and high degree of nicotine addiction is recorded, harmful use of alcohol and obesity.

From the data presented in Table 5 it is seen that from concomitant pathologies in patients with a paroxysmal form, vascular diseases of the brain, endocrine system and gastrointestinal tract predominate ($p = 0,013$; test χ^2), while in patients with a constant form the frequency increases diseases of the brain, kidneys and endocrine system.

When studying lipid metabolism, in all patients with both constant and paroxysmal forms of atrial fibrillation while taking statins, the target values of the parameters of total cholesterol, LDL, and TG were not achieved.

So in patients with paroxysmal atrial fibrillation, the level of total cholesterol was $3,8 \pm 1,03$; LDL — $2,2 \pm 0,7$; TG — $1,2 \pm 0,5$; in patients with a constant form, respectively $4,09 \pm 1,03$; $2,4 \pm 0,9$; $1,2 \pm 0,6$, which reflects the likelihood of progression of atherosclerosis and requires enhanced lipid-lowering therapy.

When studying anxiety disorders in patients with myocardial infarction with atrial fibrillation, it was found that in individuals with paroxysmal and persistent atrial fibrillation, no statistically significant changes were detected. As can be seen from Fig 1, in patients with myocardial infarction with a paroxysmal form of atrial fibrillation, in most cases there was no anxiety, then subclinical and less clinically severe anxiety was recorded. In patients with myocardial infarction with a constant form of atrial fibrillation, in contrast to persons with a paroxysmal form, the frequency of subclinical and clinically severe anxiety increased. In the 1st group, among persons with no anxiety, the level on the HADS scale was $3,59 \pm 2,0$ points, with subclinically expressed anxiety — $8,9 \pm 0,8$ points, with clinically expressed anxiety — $12,0 \pm 0,1$ points; in patients of the 2nd group, respectively, $3,6 \pm 1,8$; $8,8 \pm 0,7$; $12,0 \pm 0,9$ points.

When studying depressive disorders (Fig. 2), among patients of the 1st group, the frequency of subclinical and clinically severe depression was higher than in the 2nd group. In the first group, among people with no depression on the HADS scale, its level was $4,2 \pm 1,8$ points, with subclinically expressed depression — $8,8 \pm 0,7$ points, with clinically expressed depression — $12,5 \pm 0,5$ points; in the 2nd group, respectively — $3,7 \pm 2,0$; $8,5 \pm 0,7$; $13,0 \pm 0,1$ points.

Table 1.

Nicotine addiction	Atrial fibrillation						p <
	Paroxysmal (n=19)			Constant (n=12)			
	n	%	Number of points	n	%	Number of points	
Low degree	7	36,8%	2,1 ± 0,7	5	41,6%	3,6 ± 0,4	-
Medium grade	9	47,3%	4,9 ± 0,2	-	-	-	-
High degree	3	15,7%	6,95 ± 0,7	5	41,6%	6,3 ± 0,4	-
Very high	-	-	-	2	16,7%	9,0 ± 0,8	-

Table 2.

Alcohol consumption	Atrial fibrillation			
	Paroxysmal (n=30)		Constant (n=23)	
	n	%	n	%
Safe use	22	73,3%	16	69,5%
Dangerous use	8	26,6%	5	21,7%
Harmful use	-	-	2	8,6%
Alcohol addiction	-	-	-	-

Table 3.

Salt intake	Atrial fibrillation				p <
	Paroxysmal (n=83)		Constant (n=55)		
	n	%	n	%	
Low	9	10,8%	5	9,0%	-
Moderate	57	68,6%	38	69,0%	-
High	17	20,4%	12	21,8%	-

Table 4.

BMI	Atrial fibrillation			
	Paroxysmal (n=83)		Constant (n=55)	
	n	%	n	%
Normal	23	27,7%	14	25,4%
Excess	44	53,0%	17	30,9%
Obesity	16	19,2%	24	43,6%

Table 5.

Accompanying illnesses	Atrial fibrillation			
	Paroxysmal (n=83)		Constant (n=55)	
	n	%	n	%
Respiratory diseases (COPD, bronchial asthma, pneumonia)	10	12,0%	6	10,9%
Endocrine Disease (Diabetes)	22	26,5%	18	32,7%
Gastrointestinal diseases (peptic ulcer, chronic gastritis)	18	21,6%	4	7,27%
Anemia	8	9,6%	3	5,45%
Vascular diseases of the brain (acute cerebrovascular accident, chronic cerebral ischemia)	25	30,1%	31	56,3%
Kidney disease (chronic pyelonephritis)	7	8,4%	8	14,5%

Thus, in patients with a paroxysmal form of atrial fibrillation, the emotional burden is characterized by predominance of depressive disorders, and in the constant form, anxiety, which must be taken into account when constructing further rehabilitation programs.

CONCLUSION

In patients with myocardial infarction with a paroxysmal form of atrial fibrillation, the predominant risk factors are: dangerous alcohol consumption, high salt intake and overweight combined with depressive disorders in the form of subclinical and clinical depression, and with a constant form of atrial fibrillation, a

high degree of nicotinic dependence and mild anxiety disorders: subclinically and clinically severe anxiety, which must be taken into account when carrying out preventive, rehabilitation measures and the solution of expert issues.

Conflict of interest

All authors declare that there is no potential conflict of interest requiring disclosure in this article.

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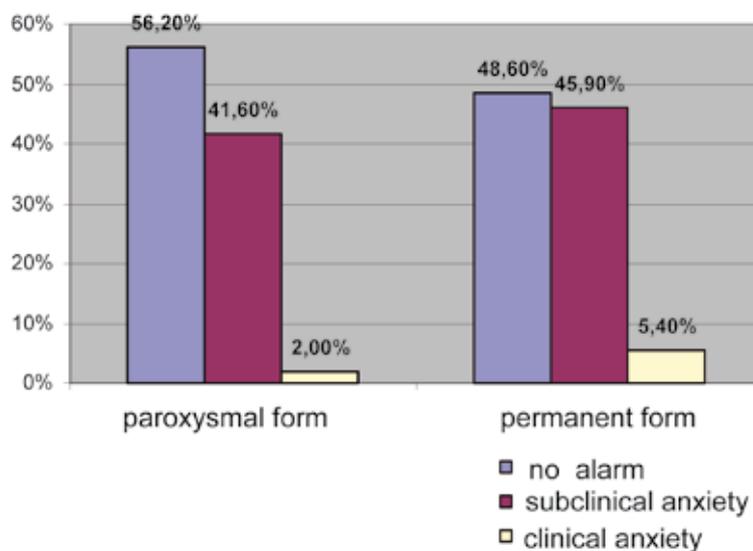


Fig. 1. The structure of anxiety disorders in patients with myocardial infarction with atrial fibrillation

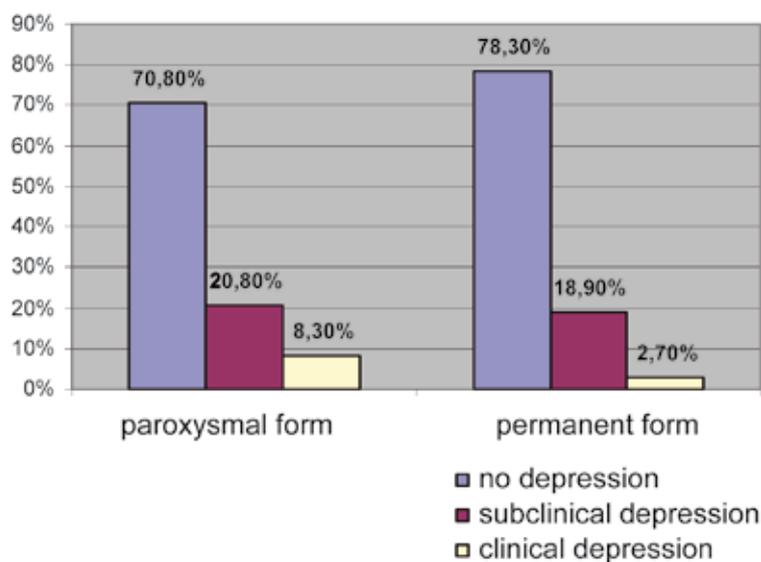


Fig. 2. The structure of depressive disorders in patients with myocardial infarction with atrial fibrillation