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ADHERENCE TO LONG-TERM THERAPY IN CARDIOVASCULAR PATIENTS WITH ATRIAL FIBRILLATION

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Abstract

Atrial fibrillation is one of the most common diseases, often a complication of other diseases. Atrial fibrillation occurs in about 1-2% of cases in the entire population, the number of such patients is increasing, among them a significant number of patients of young working age who lead a socially active life. In accordance with the structure of mortality, the death rate from strokes is very significant, and one of the main causes of stroke is the presence of atrial fibrillation in the patient. The incidence of strokes in patients of any etiology with atrial fibrillation is 5% per year. More than 40% of patients with severe chronic heart failure also have atrial fibrillation.

Therefore, adequate hypotensive, antiarrhythmic, anticoagulant therapy, as well as compliance with medical recommendations on lifestyle and treatment of concomitant conditions is a necessary condition for improving the quality and duration of life.

Given that non-compliance of patients with coronary heart disease and atrial fibrillation leads to more frequent hospitalizations and a worse prognosis and the development of additional risks of cardiovascular events, it is important to study the impact of individual clinical factors on improving adherence to long-term therapy.

The study included 116 subjects (56 – Test arm and 60 – Control arm). The Test arm included subjects with persistent and permanent atrial fibrillation; the Control arm consisted of subjects with sinus rhythm. The study objective was to evaluate the features of adherence to long-term therapy in patients with atrial fibrillation and no evidence of cognitive impairment.

Keywords: *atrial fibrillation, complacence, long-term therapy, chronic heart failure.*

Introduction

According to the World Health Organization (WHO), cardiovascular diseases remain the main cause of mortality in the world. About 17.5 million people worldwide died of cardiovascular diseases in 2018, being 31% of the total mortality (including 7.4 *mln* of the coronary heart disease (CHD) and 6.7 *mln* stroke cases, often with atrial fibrillation (A - fib) [*WHO, 2018*]. About 80% of acute vascular events could have been prevented. The death toll from cardiovascular causes in Russia is nearly 40%, mostly of the 25-64 working age group. Physical state, treatment satisfaction, emotional condition, motivation and expectations about treatment are crucial factors that may affect the curation commitment. However, these are all very subjective criteria [*Naumova E, Shvarts Y, 2006; Ghisi G et al., 2014; Moazzami K et al., 2015; Zhao S et al., 2015*]. Our expectations and preferences are individual. Now there is no universal assessment of personal features criterion [*Sa-*

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bate E, 2003; Naumova E, Shvarts Y, 2006; Kolandaivelu K et al., 2014, Zhao S et al., 2015]. Special attention should be paid to patients with CHD and atrial fibrillation, since adequate antiarrhythmic and anticoagulant therapy reduces the risk of cardiovascular complications, and not performing medical appointments significantly worsens the prognosis of these patients [*Lim H et al., 2004; Camm A et al., 2010; Fuster V et al., 2011, Davis R et al., 2012*]. However, it is important to study the compliance of patients with atrial fibrillation to take other groups of medications. Non-compliance with medical recommendations in patients with atrial fibrillation, in addition to personal characteristics, social level, gender and age, may be based on the presence of cognitive and psychological disorders that make it difficult for the "doctor-patient" system to work [*Sabate E, 2003; Kolandaivelu K et al., 2014*].

Atrial fibrillation remains an important global problem and is becoming more frequent as the population grows old [*Camm A et al., 2010; Akimova N et al., 2011; Fuster V et al., 2011; Davis R et al., 2012; Xiong Q et al., 2015*]. Assessing the factors that affect the compliance of patients with AF it is impossible not to focus on the impact of cognitive disorders. Atrial fibrillation, in addition to severe cerebral complications such as acute cerebrovascular accident resulting from thromboembolism, contributes to hypoperfusion of vital organs by reducing cardiac output. Deterioration of cerebral blood flow contributes to the formation or progression of cognitive dysfunction, along with coronary pathology, chronic heart failure and rhythm disorders can be determining factors that affect non-compliance, that is, non-compliance with medical recommendations [*Lim H et al., 2004; Akimova N et al., 2011; Davis R et al., 2012; Derevnina E et al., 2012*]. A non - compliance depends on the severity of coronary disease, congestive heart failure and arrhythmia existence [*Naumova E, Shvarts Y, 2006; Camm A et al., 2010; Lowers N et al., 2012*]. Little was known about the problem of arrhythmia existence in this combination. The problem of patients commitment to long - term therapy from a position of anticoagulation therapy was better examined [*Fuster V et al., 2011; Van Gelder I et al., 2017*]. However, it was equally important to assess other drug effects on patient's stable conditions. The non-compliance was the most frequent cause (about 5%) of the primary and repeated hospitalization among patients with the coronary pathology [*Mountantonakis S et al., 2012; Steinberg B et al., 2012; Thrift A et al., 2017; Zulling L et al., 2017*]. Therefore, the study of treatment adherence in patients with atrial fibrillation is to some extent an example of how health resources can be organized to optimize long-term treatment of chronic conditions and are aimed at preventing or slowing the development of complications.

The aim of this study was to assess the clinical factor's influence, including atrial fibrillation, on the commitment to a long-term therapy of patients with different forms of a coronary heart disease.

MATERIALS AND METHODS

There were studied hospitals (Saratov State Medical University Clinical Hospital named after S.R Mirotvortsev, cardiological department) and ambulatory patients with an A - fib to achieve this goal. All patients younger than 74 years were to have a coronary heart disease, sinus rhythm with the history of A - fib (permanent or persistent). Patients with the high blood pressure persistent, complications of the cardiac infarction, angina pectoralis IV functional class under anticoagulation therapy, severe forms of the congestive heart failure (CHF), stroke and cognitive impairment might be non - compliant and were not included in the study.

Two groups of patients have been formed when applied to the randomization method using Statistica 6.0. The experimental group included 56 patients with the ischemic heart disease in con-

To overcome it is possible, due to the uniting the knowledge and will of all doctors in the world

nection with A - fib, an average age was 62.3 ± 4.9 years (33 men and 23 women of them). 60 patients with ischemic heart disease without A - fib, average age was 58.5 ± 5.8 years, formed a comparison group. Both groups were comparable to the age, gender, clinical features and medicines. They received a regular standard therapy. We considered the medication by nitrates, antiplatelet, statins, angiotensin-converting enzyme-inhibitors (IACE), calcium channel blockers (BCC) and beta - blockers.

All the patients were invited for a check - up in 6 months after discharge from hospital. During the visit we made the comparison of treatment with recommended treatment to compliance assessment (table 1).

Statistical processing of the results was carried out using a special program Statistica 6.0. Data distribution was checked for normality. If the distribution of the values in the samples was different from the normal distribution, we used the non-parametric analysis (Kendall, Gamma rates). There were applied methods of non-parametric correlation analysis and Gamma (G) rate to assess the relationship between considered clinical factors (different forms of ischemic heart disease, congestive heart failure) and drug admission.

Table 1

Main clinical and demographic patients with coronary heart disease with and without A-fib profiles, n (%)

Characteristic	Patients	
	with	without
Average age, years (M ± SD)	62.3 ± 4.9	58.5 ± 5.8
Male	33 (59.0)	31 (52.0)
Female	23 (41.0)	29 (48.0)
Arterial hypertension	54 (98.0)	59 (99.0)
Past cardiac infarction	34 (53.6)	28 (46.6)
Angina pectoralis	47 (61.0)	39 (65.0)
A - fib persistent	17 (30.4)	0
A - fib permanent	39 (69.6)	0
2nd - 3rd cardiac failure FC (NYHA)	32 (57.0)	29 (48.3)

Results

When analyzing the results we revealed a reliable connection between A – fib in ischemic disease patients and recommended drug admission (table 2).

Patients with the acute cardiac infarction were more committed to angiotensin-converting enzyme-inhibitors, statins and beta - blockers admission: G=0.4448; p<0.05; G=0.4016; p<0.05 and G=0.6134; p<0.05 respectively.

The cardiac failure existence was strongly correlated with statins admission (G=0.4429; p<0.05)

Table 2

Correlation analysis results (Gamma rate, p<0.05) of the relationship between coronary heart disease and cardiac failure with drug admission main forms existence and continuation of medication in an with and without A - fib. patients

Group of drugs	Acute cardiac infarctus		CHF		Past cardiac infarction		Angina pectoralis	
	with	without.	with	without.	with	without	with	without
Antiplatelets	0.0285	0.4757*	-0.1489	-0.5842	-0.5271*	0.0322	-0.6689	0.2878
Nitrate	0.3521	0.1851	-0.5189*	-0.3441	0.1627	0.4857	-1.0000	-0.1437
IACE	0.4448*	-0.1469	-0,2635	-0.1851	0.2095	0.2705	1.0000	-0.3103
BCC	-0.5882	-0.4757*	-0.1386	0.3617	0.2134	-0.2343	-0.4117	0.0793
Statins	0.4016*	0.4857*	0.4429*	0.1722	0.1239	0.0072	-0.1914	-0.2307
Diuretics	-0.0716	-0.3498*	0.4693*	0.4319*	0.1428	0.2847	0.7766	0.0703
Beta - blockers	0.6134*	-0.0419*	-0.2683	0.1925	-0.1864	0.4857*	0.3084	-0.1437

Notes: ** – received connections were credible, p<0.05*

and diuretics (G=0.4693; p<0.05) on the one hand, and reduced incidence of a nitrate admission equally relevant (G=-0.5189; p<0.05).

At the same time, it should be noted that the commitment to antiplatelet admission decreases in A - fib patients with the history of cardiac infarction (G=-0.5271; p<0.05). It seemed paradoxical. However, according to a REACH study it was shown that 25% of patients with the history of cardiac infarction stopped receiving an antiplatelet [*Lim H et al., 2004; Van Gelder I et al., 2017; Zulling L et al., 2017*]. About 12% of patients with the history of cardiac infarction stopped recommended course of action, including antiplatelets in one month after leaving hospital [*Fuster V et al., 2011; Lowers N et al., 2012*]. None of the credible linkages in A - fib and angina pectoralis, arterial hypertension patients with the continuation of recommended treatment have been detected.

The similar search was carried out in a group of patients without A - fib. The results are presented in table 2.

It should be noted that patients with acute cardiac infarction without A - fib, reliably more often continue to take antiplatelets (G=0.4757) and statins (Gamma =0.4857), (p<0.05). Commitment to using calcium channel blockers, diuretics and beta-blockers in these patients reliably declined and stood at: G=-0.4757, G=-0.3498 and G=-0.0419, (p<0.05) respectively.

The cardiac failure existence coincided with the increase of the frequency of the diuretics application (G=0.4319; p<0.05). Past cardiac infarction correlates with the improvement of beta-blockers reception (G=0.4857; p<0.05). There was no strong correlation between stable angina existence and further drug application as in patients A - fib group.

DISCUSSION

Thus, when comparing correlation results in both groups, we can postulate the following tendencies:

there is a trend of statins commitment increasing in patients with acute cardiac infarction,

diuretics are most frequent in developing cardiac failure regardless of A - fib in ischemic disease patients.

Combination of an A - fib, acute cardiac infraction and cardiac failure is more compliant for beta-blockers, statins and diuretics application. Non-A - fib patients status is more compliant for using beta-blockers only in cardiac infarction history. Growth of infarction in these patients coincided with better use of antiplatelets and statins.

CONCLUSION

Acute coronary events, cardiac failure accession besides presence or absence of A - fib can affect continuation of drug use.

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