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The impact of affective disorders on self-assessment of the quality of life in patients with chronic coronary artery disease

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ABSTRACT

Aim. To determine the differences in self-assessment of social functioning by patients with chronic coronary artery disease (CAD), depending on the presence of comorbid affective disorders (ADs).

Materials and methods. Using the Social Adaptation Self-Evaluation Scale (SASS), which makes it possible to assess the degree of social functioning and satisfaction with various aspects of social life, we studied the features of the social functioning of heart hospital patients with chronic CAD with (n = 248) and without AD (n = 291). In 290 patients (average age 56.6 ± 6.7 years) with chronic CAD, chronic ADs (45%) were revealed; depressive episodes (DEs) were diagnosed for the first time in 24% of patients, and 24.5% of patients had recurrent DEs. Bipolar disorder was found in 6.5% of cases. Qualitative and quantitative parameters were investigated using the Mann – Whitney U test and Student's t-test. To assess the frequencies, the Pearson's chi-squared test was used.

Results. The mean total SASS score in the patients with chronic CAD with AD corresponded to difficult social adaptation (33.7 [29.5; 39]), while the patients without AD had good social adaptation score of 40.8 ± 6.3 ($p < 0.05$). In the group without AD, patients with normal social adaptation prevailed (n = 215; 73.8%), while patients with AD more often had difficulties with social adaptation (n = 148; 59.7%). In the CAD patients, depending on the presence of AD, the frequency of disturbances in various spheres of social adaptation differed: employment, interest in and pleasure from activities, disposition of income, pleasure from and interest in seeking information, social support ($p = 0.001$).

Conclusion. Higher frequency of pronounced impairment in social functioning in patients with chronic CAD with AD determines the need for taking this fact into consideration when planning rehabilitation measures in this group of patients.

Keywords: affective disorders, chronic coronary artery disease, self-assessment of quality of life and social functioning, gender differences

Conflict of interests. The authors declare the absence of obvious or potential conflict of interest related to the publication of this article.

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Conformity with the principles of ethics. All patients signed an informed consent. The study was approved by the local Ethics Committee at the Mental Health Research Institute of Tomsk NRMC of RAS (Protocol No. 115 of 26.11.2018).

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Влияние аффективных расстройств на самооценку качества жизни у больных хронической ишемической болезнью сердца

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РЕЗЮМЕ

Цель – определить различия самооценки социального функционирования пациентов с хронической коронарной болезнью в зависимости от наличия коморбидных аффективных расстройств (АР).

Материалы и методы. С помощью опросника самооценки социальной адаптации (SASS), позволяющего оценить уровень социального функционирования и удовлетворенность различными аспектами социальной жизни, изучены особенности социального функционирования больных кардиологического стационара с хронической ишемической болезнью сердца (ИБС) с АР (n = 248) и без (n = 291). У 290 пациентов (средний возраст – 56,6 ± 6,7 лет) с хронической ИБС выявлялись хронические АР (45%), депрессивные эпизоды (ДЭ) впервые возникшие диагностированы у 24% пациентов, а рекуррентные ДЭ – у 24,5%. В 6,5% случаев обнаружено биполярное аффективное расстройство. Качественные и количественные показатели исследованы с помощью U-критерия Манна – Уитни и T-критерия, для оценки частот применялся метод $\chi 2$ по Пирсону.

Результаты. Общий средний балл по SASS у больных хронической ИБС с АР соответствовал уровню затрудненной социальной адаптации 33,7 [29,5; 39], а группе без АР – хорошей социальной адаптации 40,8 ± 6,3 (p < 0,05). В группе без АР преобладали пациенты с нормальной социальной адаптацией (n = 215; 73,8%), а у больных с АР социальная адаптация была чаще затруднена (n = 148; 59,7%). У пациентов хронической ИБС в зависимости от АР различалась частота нарушений в разных сферах социальной адаптации: занятость, интерес и удовольствие от деятельности, распоряжение своими доходами, удовольствие и интерес от поиска информации, социальная поддержка (p = 0,001).

Заключение. Более высокая частота выраженного нарушения социального функционирования пациентов с хронической ИБС и АР определяет необходимость учета данного факта при планировании реабилитационных мероприятий в данной группе пациентов.

Ключевые слова: аффективные расстройства, хроническая ишемическая болезнь сердца, качество жизни, половые различия

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INTRODUCTION

Socio-demographic and psychosocial factors contribute to the development of depression and cardiovascular diseases (CVDs). Since psychosocial risk factors (RFs) influence the prognosis of CVDs, their screening using standardized questionnaires in persons with high cardiovascular risk (CVR) and patients with CVDs with subsequent correction is of great importance [1]. Depression in patients with coronary artery disease (CAD) is the most significant factor determining their quality of life [2–4].

In the third National Health and Nutrition Examination Survey (NHANES III), major depression or a suicide attempt in the medical history is associated with a practically 15-fold increased risk of developing CAD in females and more than 3-fold increased risk in males [5]. A prospective study of mental health detected that females under 40 years with depression have a 6-fold increased risk of developing CAD than females of the same age without depression, and depression appeared to be not associated with CAD in males and the elderly. On the whole, scientific data confirm a closer association of depression and CAD in females of a younger age.

Recent reviews concerning the association between depression and CAD were limited by unavailability of data about the course of depression. Mainly, they assumed an association between specific biological or socio-demographic variables and depression at the initial level, however, a response to antidepressant therapy in patients with concomitant CAD was studied less [6, 7]. Besides, many RFs for coronary pathology are known to be markers of depression and low response to antidepressant therapy, for example, elevated inflammatory markers, absence of physical activity, and thyroid disorders [8].

F. Vitinius et al. [9] detected an association of an older age, absence of data on experienced myocardial infarction, and higher heart rate variability with a favorable outcome of depression. At the same time, hyperuricemia, high triglyceride level, NYHA functional class III, state after resuscitation, and the use of thyroid hormones, antidiabetic drugs, pain relievers, beta-blockers, and antihyperuricemic and anticholinergic agents had an adverse impact on the depression score according to the Depression Subscale of the Hospital Anxiety and Depression Scale (HADS-D) [10]. When evaluating complete blood count and blood biochemistry tests, no significant differences were found between the groups, and concomitant diseases did not have a significant impact on the results. Studies on the contribution of affective disorders (AD) to self-assessment of social functioning and quality of life in patients with chronic CAD are few.

The aim of the study was to determine the differences in self-assessment of social functioning and quality of life in patients with chronic CAD with concomitant AD and without it.

MATERIALS AND METHODS

At a heart hospital, two groups of patients with chronic CAD were formed: group 1 – with detected AD ($n = 248$), group 2 – without AD ($n = 291$). In 290 patients (under 70 years) with chronic CAD, chronic ADs (45%) were detected, newly identified depressive episodes (Des) were diagnosed in 24% of patients, and recurrent DEs – in 24.5% of cases. In 6.5%, of cases bipolar disorder was detected. In 91.7% of cases, depression was accompanied with anxiety (54.8%) [11]. 248 patients from this group filled in the self-evaluation scale of social adaptation, of them 194 individuals were males (78.2%) and 54 – females (21.8%). The average age in the AD group was 56.6 ± 6.7 years. The average age of males was 57.2 ± 6.5 years, and the average age of females was 59.3 ± 7.1 years ($p = 0.04$).

According to the Beck's Depression Inventory, the depression score in the AD group was 9 [6; 13], which corresponded to a clinically significant level. The severity of anxiety in the AD group reached 38 according to the Sheehan Patient-Rated Anxiety Scale [22,5; 58]. AD lasted 10 [1.5; 20] years. CAD more often developed against the background of a manifested AD.

Group 2 included patients with chronic CAD without AD ($n = 291$) under 70 years. The average age in the group without AD was 55.8 ± 7.1 years. Males in group 2 prevailed (84.5%, $n = 246$), females comprised 15.5% ($n = 45$). The average age of males in group 2 was 56.9 ± 6.9 years, and the average age of females was 60.7 ± 6.4 years ($p = 0.001$).

The mean score according to the Beck's Depression Inventory in this group was less than 6, namely 2 [1; 3], which was clinically insignificant, no anxiety and depressive disorders (F3, F4, F06.3-F06.4) were detected. The severity of anxiety according to the Sheehan Patient-Rated Anxiety Scale in the group without AD scored 17 [11; 27], which corresponds to its absence as a clinical syndrome.

Groups 1 and 2 did not differ in sex, age, and severity of the physical condition (functional class of angina of effort (FC AE) and functional class of chronic heart failure (FC CHF), presence of concomitant diseases (transient ischemic attack (TIA) / acute cerebrovascular accident (ACVA)). However, they differed in the presence of glucose tolerance disorder (GTD) and diabetes mellitus (DM), the method of CAD therapy, recentness of myocardial infarction (postinfarction cardiosclerosis (PICS)), and exercise tolerance (ET) with veloergometry (VEM) (Table 1).

Table 1

Comparative characteristics of some aspects of the physical state of patients with chronic CAD with and without AD

Parameter	Group 1 (CAD + AD)	Group 2 (CAD)	*p*
Functional class of angina of effort, *Me* [Q_1; Q_3]	2 [2; 3]	2 [2; 3]	–
Functional class of CHF, *Me* [Q_1; Q_3]	2 [1; 3]	2 [1; 3]	–
Duration of CAD, years, *Me* [Q_1; Q_3]	3.5 [1.5; 8]	3.5 [1.5; 8]	–
The incidence of PICS, %	73.6 (183/248)	66.3 (193/291)	–
Recentness of PICS, months, *Me* [Q_1; Q_3]	21 [5; 60]	33 [11; 72]	**
LV EF, %, *Me* [Q_1; Q_3]	64 (52; 86]	62 [53; 65]	–
ET, Watt, *Me* [Q_1; Q_3]	25 [25; 50]	50 [25; 75]	**
Six-minute walk test, m, *Me* [Q_1; Q_3]	350 [250; 432]	450 [350; 500]	–
The incidence of GTD (or DM), %	32.9 (or 166)	24.3 (or 220)	**
The incidence of TIA (or ACVA), %	6.5 (or 232)	3.4 (or 281)	–
Frequency of conservative treatment for CAD, %	31.5 (78/248)	5.8 (17/291)	***

Note: LV EF – left ventricular ejection fraction.
** $p < 0.05$; *** $p < 0.001$.

The groups did not differ in gender ($p = 0.07$). GTD and DM were statistically significantly more often absent in patients without AD – 75.7% vs. 67.1% in the group with AD ($p < 0.05$). ACVA and TIA were more often revealed in the group with AD, 6.5% vs. 3.4% in the group without AD ($p > 0.05$). Endovascular interventions for CAD treatment were significantly more often used in the group without AD, while patients with AD usually received conservative treatment (31.5% vs. 5.8% in individuals without AD, $p < 0.001$).

To study self-evaluation of social adaptation, a scale with the same name was used, which allowed to assess subjective evaluation of patients' satisfaction with various spheres of their life and their level of social functioning [12]. Statistical processing of data was performed using Statistica 8.0 software (StatSoft Inc., USA).

Parametric parameters were assessed using the Student's *t*-test for independent samples (with a normal distribution of variables); nonparametric parameters were analyzed using the Mann – Whitney *U* test. To assess the frequencies, the Pearson's chi-squared test was used.

RESULTS

The mean total SASS score in the patients with chronic CAD with AD corresponded to difficulties in social adaptation (33.7 [29.5; 39]), while the patients without AD had good social adaptation score of 40.8 ± 6.3, which showed statistically significant differences ($p < 0.05$). In the group without AD, patients with normal social adaptation prevailed (73.8%), and patients with AD more often had difficulties in social adaptation (59.7%) (Table 2). 2.8% of patients with AD and CAD were characterized by social maladaptation, 37.5% of patients had normal adaptation in society.

Below, parameters of self-assessment and the presence of parameters of social functioning and quality of life according to the SASS in the study groups are presented (Table 3).

Table 2

Differences in the level of social adaptation in patients with chronic CAD with and without AD

Level of social adaptation	Social maladaptation (score up to 22)	Difficulties in adaptation (score 23–35)	Normal adaptation (score 36–52)	Very good adaptation (score of more than 53)
Group 1	2.8% (7/248)	59.7% (148/248)	37.5% (93/248)	0
Group 2	0	21.4% (62/291)	73.8% (215/291)	4.8% (14/291)

Table 3

Differences in self-assessment of parameters of social functioning and satisfaction with various spheres of life between patients with chronic CAD depending on the presence of AD

Parameter	Presence of the symptom according to self-assessment data in the patients with CAD and AD	Presence of the symptom according to self-assessment data in the patients with CAD without AD	*p*
Employment / unemployment	56.0% (139/248)	41.4% (120/291)	***
Interest in employment	39.5% (98/248)	15.7% (46/291)	***
Satisfaction with employment	47.7% (118/248)	25.7% (75/291)	***
Interest in hobbies	28.4% (70/248)	5.7% (17/291)	***
Quality of spare time	69.3% (172/248)	28.6% (83/291)	***
Seeking communication with family	25.0% (62/248)	8.6% (25/291)	***
Assessment of family relationships	27.3% (68/248)	7.1% (21/291)	***
Number of contacts outside the family	38.6% (96/248)	21.8% (63/291)	***
Active behavior in relationships outside the family	78.4% (194/248)	58.6% (171/291)	***
Assessment of relationships with other people on the whole	29.5% (73/248)	17.1% (50/291)	n/a
Appreciation of relationships with others	25.0% (62/248)	8.5% (25/291)	***
The frequency of other people's seeking communication with the patient	18.6% (46/248)	32.9% (96/291)	***
Patient's compliance with social norms	6.8% (17/248)	0% (0/291)	***
Involvement in community activities	69.6% (173/248)	64.3% (187/291)	n/a
Satisfaction from search for information	39.8% (99/248)	25.7% (75/291)	***
Interest in acquiring information	34.1% (85/248)	21.4% (62/191)	***
Difficulties in expressing an opinion	10.2% (25/248)	5.7% (17/291)	***
Feeling rejected	4.5% (11/248)	0% (0/291)	***
Importance of physical attractiveness	47.7% (118/248)	35.7% (104/291)	**
Difficulties in disposing income	31.9% (79/248)	11.4% (33/291)	***
The ability to control life	52.2% (129/248)	38.6% (112/291)	***

Note: the studied phenomenon is presented as moderately or significantly pronounced (according to the SASS, 1 and 0 points). N/a – not available.

In patients with chronic CAD, depending on the presence of AD, the frequency of essential disturbances in various aspects of social adaptation differed significantly ($\boldsymbol{p} < 0.001$). When analyzing the ability to work in the group with AD, it was revealed that disability was found in 18.7% (46 / 248) of patients, 40.7% (101 / 248) of patients were temporarily disabled, 30.8% (76 / 248) of individuals were retired, and 9.9% (25 / 248) of patients did not work.

In the group without AD, the ability to work differed as follows: disability was found in 12.1% (35 / 291) of patients, 63.8% (186 / 291) of patients were temporarily disabled, 10.3% (30 / 291) of individuals were retired, and 8.6% (25 / 291) did not work. Thus, in the group with AD, retired individuals were revealed statistically significantly more often ($p < 0.05$), and in the group without AD, the patients statistically significantly more often ($p < 0.05$) were temporarily disabled.

Employment, interest in it, and satisfaction from work also statistically significantly differed in the groups. 31.9% of the patients with AD and 11.4% of individuals without AD stated that they "often" or "always" experience difficulties in disposing their income.

The assessment of the quality of spare time appeared to be significantly low (69.3% of persons with AD vs. 28.6% without AD). Up to 39.8% of patients with AD and 25.7% of persons without AD reported a significant decrease in satisfaction from and interest in searching for information. The sphere of hobbies had essential disturbances (28.4% of persons with AD vs. 5.7% of patients without AD). It may be due to a decrease in hedonism, as well as limited activity and exercise tolerance.

Before the assessment of satisfaction with social relationships, marital status and the presence of children were investigated. In the group without AD, 88.7% (256 / 291) of patients were married and 2% of patients were childless. In the group with AD, 77.2% (191 / 248) of patients had a partner, and 11.1% of patients had no children (females statistically significantly more often than males lost their children or were childless). Females more seldom had a spouse ($p = 0.03$). It may be associated with the fact that females more seldom were married repeatedly than males ($p = 0.02$).

38.6% of patients with CAD and AD were not satisfied with relations in the family, as opposed to 21.8% of patients without AD. A quarter of the patients with AD did not seek communication and support in the family (vs. 8.6% in group 2).

A quarter of patients with CAD and concomitant depression regarded relations with other people insignificant (as opposed to 8.5% of CAD patients without depression). 29.5% of patients with AD negatively assessed relations with other people on the whole, compared with 17.1% of individuals in the group without AD. Probably, due to this fact, 78.4% of persons with AD (vs. 58.6% of people without AD) were not active in relations outside the family.

47.7% of patients with AD and 35.7% of individuals without AD reported unimportance of their physical attractiveness as one of the self-assessment parameters. 10.2% of persons with AD and 5.7% of patients without AD identified difficulties in expressing their opinion. 32.9% of patients with AD, predominantly males (vs. 18.6% of patients without AD), thought that people around were not willing to communicate with them. The level of involvement in community activities was low in both groups without statistically significant differences (69.6% vs. 64.3%; $p > 0.05$). At the same time, a feeling of being rejected was noted by 4.5% of patients with AD and no one from the group without AD. Non-compliance with social norms was reported by 6.8% of patients with AD and no one in the group without AD. These data confirm pronounced passive-aggressive behavior and negativism in patients with AD.

52.2% of persons with AD (vs. 38.6% of patients without AD) had a significantly decreased ability to shape their close circle of friends according to their desire. These disturbances may be associated with AD symptoms based on anergia and low mood and anhedonia associated with it. Patients with CAD and AD are characterized by disturbances of social functioning in many spheres of life, which are more severe and more frequent than in patients with chronic CAD without AD.

DISCUSSION

Mental disorders lead to profound changes in most parameters of the quality of life. Parameter values of self-assessment of social functioning in these patients are worse than in patients with CVDs [13]. Depressive disorders affect the quality of life more than other mental diseases. In mood disorders, the social role and social activity are impaired, and recovery from concomitant physical health disorders decreases. Depressive rumination, pessimism, and passivity prevent emergence of compliance (patients do not adhere to doctor's prescriptions, do not participate in rehabilitation activities, and recover more slowly). In the group of patients with chronic CAD and AD, retired and disabled individuals are revealed significantly more often ($p < 0.05$), and in the group without AD patients are statistically significantly more often ($p < 0.05$) temporarily disabled.

Doctors and patients assess professional and social aspects of the quality of life differently, opposite to identification of the clinical and physical status. The revealed differences in the quality of life influence the diagnostic approach and subsequent treatment strategy. Therefore, the use of self-assessment questionnaires at runtime is important in the assessment of psychosocial functioning when measuring the quality of life. The use of clinical scaling systems allows to register the severity of the disease, the efficiency of the therapy, and adverse effects of drugs.

In patients with chronic CAD and AD, low involvement in community activities, small circle of friends, and distrustful and hostile attitude to surrounding people are revealed, which deprives them of the opportunity to receive social support in stressful situations and during illness. For lonely people, deprived of the support from relatives, relationships outside the family are essential. Weak ties outside the family do not allow them to receive necessary support from their friends or other people. The presence of social support essentially lowers or reduces to a minimum negative influence of distress and positively affects mental health.

The conducted study shows a relationship between depressive disorders and satisfaction with life and the level of social functioning [14]. Depressive disorders significantly reduce the level of social functioning and the quality of life in patients, especially communication with people around and the ability to shape their inner circle as they wish. The present study allows to suppose that AD may result in the development of CAD in females of a younger age who face adverse events in their lives and have chronic stress and no social support. Social functioning may be considered as an external factor in self-assessment of the quality of life. Relationships, work, and spare time have principal effects on the quality of life.

Patients with chronic CAD, depending on the presence of AD, were characterized by differences ($\boldsymbol{p} < 0.001$) in the frequency of moderate or severe disturbances in such spheres of social adaptation as work, disposition of income, interest in and satisfaction with activities, search for information, interests and hobbies, quality of spare time, and physical unattractiveness. This also concerned social support (absence of a spouse, childlessness, and loss of children). The patients with AD had statistically significant differences in dissatisfaction with family relationships, unwillingness to seek communication and support, devaluation of relationships with people and attributing negative attitudes to others (it was mostly typical of males with AD), and inability to shape the inner circle as they wish.

The ability to interact with people around; choice of situations according to needs, feeling of autonomy and healthy self-esteem; a mission to realize the potential; friendly relationships with others; and the presence of a goal in life are essential for satisfaction with life [15]. A direct correlation of these components with satisfaction with life and assessments of happiness and depression was revealed. Patients with CAD and AD showed low satisfaction with some spheres of life and pronounced disturbances of social functioning. It is necessary to consider these factors in treatment of CAD and planning of rehabilitation measures in this group of patients. Patients' self-assessment of their state not always coincides with the objective severity of clinical symptoms, but it should be used for assessing the efficiency of the conducted measures.

CONCLUSION

Low involvement in social activities was typical of both groups of patients with chronic CAD, irrespective of the presence of AD. Social functioning and self-assessment of the quality of life by patients with AD and chronic CAD were significantly more often impaired, compared with CAD patients without depression. They more often had no support from a spouse and offspring (experienced loss of children or were childless). In patients with chronic CAD, depending on the presence of AD, significant differences were noted in the frequency of disturbances in different spheres of social adaptation ($\boldsymbol{p} < 0.001$), such as work, satisfaction from work and spare time, disposition of income, social support, dissatisfaction with relationships (in family and society) with devaluation of relationships with people and projection, physical attractiveness, and ability to control the life.

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