

## THE RELATIONSHIP OF QUALITY OF LIFE WITH PSYCHOLOGICAL STATUS IN PATIENTS WITH CARDIAC SYNDROME X

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**Abstract.** *The indicators used for a comprehensive assessment of the patient's condition include the determination of quality of life (QL) and psychological status (PS), which can exacerbate cardiovascular prognostic factors. The quality of life and psychological disorders were assessed in 54 female and male patients diagnosed with cardiac syndrome X (CSX). It was found that the presence of symptoms of depression is associated with a decrease in QL according to the SF-36 scale. The deterioration of hemodynamic parameters was associated with a worsening of QL, as well as with an increase in anxiety-depressive disorders. In patients with CSX, cognitive function regressed as the severity of the disease increased.*

**Keywords:** *cardiac syndrome X, psychological status, quality of life, cognitive function.*

**Relevance of the problem.** Cardiac syndrome X (CSX) by definition is dysfunction or narrowing of the cardiac capillaries that causes angina in patients who have normal epicardial coronary arteries (CA) on coronary angiography (CAG) [1, 2, 5].

CSX is usually classified as one of the clinical forms of IHD, since the concept of “myocardial ischemia” includes all cases of imbalance in oxygen supply and myocardial demand for it, regardless of the reasons causing it (Gulati M., 2009; ESC, 2013).

Until a certain time, the clinical significance of CSX seemed rather limited [4]. Firstly, it seemed that this pathology occurs only in a relatively small group of patients (Kemp H.G., 1973; ESC, 2019; Zhu H., 2019). Secondly, it was believed that the prognosis for life in patients with CSC is significantly more favorable than in persons with classic damage to the epicardial arteries of the heart [3]. There is a point of view that the prognosis of patients with CSX worsens when they develop atherosclerosis of large coronary arteries, which, according to various sources, can occur in 30% of cases (ESC, 2019).

In recent years, more and more evidence has accumulated that depression and other psychological factors are independent risk factors for coronary artery disease [1] and should be considered in conjunction with such recognized risk factors as dyslipidemia, arterial hypertension and smoking (Belenkov Yu.N., 2016). It is typical for patients with atherosclerosis of the coronary artery that the indicators of anxiety and depression were quite balanced [1], while for patients with coronary artery disease, on the contrary, a sharp prevalence of indicators on the anxiety scale was characteristic [6,8]. In patients with CSX, in comparison with patients with coronary artery disease, there is often a connection between the onset of the disease and recent severe psychotraumatic situations (Tyrenko V.V., 2004; Trisvetova E.L., 2023). Patients with complaints of chest pain and angiographically normal coronary arteries demonstrate a more pronounced focus on their health than patients with organic cardiac pathology and healthy individuals [4,7]. It was

noticed that women with CSX were significantly better oriented regarding the prevalence of IHD among their relatives [5] than patients with IHD (Usenko E.V., 2018; Godo S., 2021).

**The purpose of the study** is to assess the quality of life and psychological status in patients with cardiac syndrome X.

**Material and methods.** A screening study was carried out on patients undergoing inpatient treatment at the Andijan branch of the Republican Scientific and Practical Center of Cardiology of the Republic of Uzbekistan, with chest pain and a CAG performed, from which individuals with unchanged coronary artery disease and chest pain were selected, in whom CSX was detected (54 people). The average age of the patients was  $48.6 \pm 7.2$  years. The diagnosis of CSX was established in accordance with the European guidelines for the treatment of stable coronary artery disease (ESC, 2013). The average follow-up duration was  $3.0 \pm 1.1$  years.

According to the objective examination, the diagnosis of CSX was established on the basis of three classical criteria (Camp N.G., 1973): anginal pain in the chest, positive stress test with physical activity (PE), unchanged KA according to CAG data [1, 5]. Exclusion criteria were: diabetes mellitus (DM), heart defects (HF), cardiomyopathies (CM), arterial hypertension (AH) grade II – III, left ventricular hypertrophy (LVH) of any etiology, obesity II-III, systemic connective tissue disease, stenotic coronary arteries during coronary angiography, LV systolic dysfunction. The comparison group consisted of 40 patients of similar age, diagnosed with coronary artery disease, stable angina FC I – II.

Statistical processing was carried out using the Statistics 10.0 software package, Microsoft Office Excel 2010. Numerical values are presented as: mean  $\pm$  standard deviation ( $M \pm sd$ ). To test the hypothesis of equality of means with normal distribution in two groups, Fisher's F test was used. When the distribution differed from normal, the nonparametric Mann-Whitney test was used.

**Results.** All CSX patients participating in the study underwent psychological diagnostics using a number of techniques aimed at studying the characteristics of mental states and personality traits. For the initial identification of anxiety and depression symptoms, the Hospital Anxiety and Depression Scale (HADS) technique was used. The results of the HADS questionnaire in CSX patients are presented in Table. 1. HADS questionnaire (Table 1), 25 (46.3%) patients with CSX showed severe anxiety symptoms. These indicators may indicate that the patients being studied are currently experiencing internal tension and anxiety, possibly caused by the symptoms of the disease and the severity of their physical illness. It is also important to note that 13 (24.1%) patients had severe symptoms of depression.

**Table 1**

**Results of assessing anxiety and depression symptoms in CSX patients (HADS questionnaire)**

<b>Index</b>	<b>CSX (n=54)</b>	
	<b>abs.</b>	<b>%</b>
Subclinical anxiety symptoms	4	7.4
Subclinical symptoms of depression	3	5.6
Clinically significant anxiety symptoms	25	46.3
Clinically significant symptoms of depression	13	24.1
Absence of significant symptoms of anxiety and depression	9	16.7
<b>Total</b>	<b>54</b>	<b>100.0</b>

To study the level of anxiety at the moment and personal anxiety, the “Self-Esteem Scale” technique was used, developed by Ch. Spielberg and adapted by Yu.L. Khanin [9] (Table 2).

An analysis of the data obtained using the method of Ch. Spielberg and Yu. L. Khanin showed (Table 2) that in patients with CSX there is an average – 28 (51.9%) and high – 26 (48.1%) levels personal anxiety, while a low level was not detected in any of the patients in this group. As for situational anxiety, in patients with CSX, medium – 29 (53.7%) and high – 25 (46.3%) levels of reactive anxiety were revealed. Low situational anxiety was also not recorded in any patient with CSX.

*Table 2*

*Self-esteem scale for patients with CSX (C. Spielberg and Yu. L. Khanin)*

Anxiety level	CSX (n=54)	
	abs.	%
<b>Reactive (situational anxiety)</b>		
Short	0	0
Average (moderate)	29	53.7
High	25	46.3
<b>Total</b>	<b>54</b>	<b>100.0</b>
<b>Personality anxiety</b>		
Short	0	0
Average (moderate)	28	51.9
High	26	48.1
<b>Total</b>	<b>54</b>	<b>100.0</b>

Based on these indicators, it can be assumed that the anxiety noted during this technique is a personal trait of this category of patients. This means that patients perceive a wide range of situations as threatening and react to them with a state of anxiety [8, 9]. In turn, it is important to note that the situation of the existence of the disease is perceived by the examined patients as a “significant problem” and is characterized by anxiety and tension, and even a decrease in safety. To study the presence and severity of depressive symptoms in patients was used Beck Depression Inventory method (Table 3).

*Table 3*

*Beck Depression Inventory in patients with CSX*

Degree of depression	CSX (n=54)	
	abs.	%
High	4	7.4
Moderate	11	20.4
Light	13	24.1
Norm	26	48.1
<b>Total</b>	<b>54</b>	<b>100.0</b>

Thus, according to the results of the Beck Depression Scale, the majority of patients with CSX (26/48.1%) do not have symptoms of depression. A mild degree of depression symptoms was observed in 13 patients (24.1%), a moderate degree – in 11 (20.4%), and a high degree – in 4 (7.4%) patients.

To assess the quality of life of patients was used “SF-36 Health Status Survey” questionnaire (Ware J.E. et al., 1993). Taking into account the task, the assessment of the quality of life was carried out in 54 patients with CSX and 40 comparable patients with angina pectoris and atherosclerotic lesions of the coronary artery proven by coronary angiography (stenosis more

than 75%) of 1-2 coronary arteries. The clinical characteristics of the examined patients are presented in Table 4.

Patients with coronary artery disease stable angina FC I-II, due to coronary atherosclerosis, were comparable with patients with CSX by gender (mainly women), age, severity of arterial hypertension, clinical picture of the disease.

*Table 4*

**Characteristics of the examined patients with CSX and IHD SA FC I-II**

<b>Sign</b>	<b>CSX (n=54)</b>	<b>IHD SA FC I-II (n=40)</b>
Age, years (M±st)	48.6 ± 7.2	53.2±5.6
Men	11 (20.4%)	23 (57.5%)
Women	43 (79.6%)	17 (42.5%)
Number of women in menopause	40 (74.1%)	15 (37.5%)
Number of women with preserved menstrual function	14 (25.9%)	2 (5.0%)
AG II	10 (18.5%)	31 (77.5%)
Angina pectoris 1 FC	0	6 (15.0%)
Angina pectoris 2 FC	0	29 (72.5%)
1-vessel lesion of the coronary artery	0	23 (57.5%)
2-vessel coronary artery disease	0	12 (30.3%)
History of AMI	0	9 (22.4%)
Diabetes	0	3 (7.5%)

SAG questionnaire, it turned out that the quality of life indicators in the group of patients with CSC are reduced and do not have significant differences with the quality of life indicators of patients with atherosclerotic lesions of the coronary artery (Table 5). Thus, indicators on such scales as GH (general health), PF (physical functioning), VT (vitality), RE (emotional state) in the group of patients with CSX were lower than in the group of patients with IHD.

*Table 5*

**Indicators of quality of life in patients with CSX and IHD SA FC I-II (M±m)**

<b>Scale</b>	<b>Group</b>		<b>R</b>
	<b>CSX (n=54)</b>	<b>IHD SA FC I-II (n=40)</b>	
G.H.	5 5.2 ±18.4	5 3.3 ±15.3	0.65
PF	5 8.6 ±21.1	5 2.6 ±32.0	0.37
R.P.	3 8.6 ±30.3	4 0.4 ±24.3	0.78
RE	4 8.4 ±38.8	4 3.5 ±33.7	0.74
SF	4 6.8 ±11.1	4 1.0 ±16.2	0.82
B.P.	5 8.3 ±19.9	4 6.9 ±17.6	0.07
VT	5 2.5 ±19.3	49.1 ±14.7	0.57
M.H.	5 6.8 ±16.1	5 8.6 ±19.9	0.69
PH +	4 5.1 ±7.6	4 4.5 ±7.4	0.45
MH +	42.7 ±7.9	3 7.3 ±7.2	0.45

Since, as noted earlier, we were able to monitor patients with CSX for an average of 3.0±1.1 years, at the end of the observation all patients were re-assessed for QOL. As it turned out, no

significant differences were obtained on all scales, but there was a certain negative trend towards a worsening of these indicators.

Thus, despite the absence of stenosing lesions of the coronary arteries, the quality of life of patients with coronary artery disease is reduced and practically does not differ from that of patients with angina pectoris against the background of coronary artery atherosclerosis. There is a tendency towards an increase in depressive disorders and a decrease in cognitive function.

**Conclusions.** 1. Half of the patients with cardiac syndrome X have anxiety and depressive disorders. The quality of life of patients with CSX is reduced and does not differ from that of patients with angina pectoris against the background of atherosclerosis of the coronary arteries. 2. The presence of depressive symptoms in patients with CSX is associated with a decrease in quality of life indicators on the SF-36 scale, such as GH – general health, VT – vital activity, SF – social functioning, MH – self-assessment of mental health, and is not associated with changes quality of life indicators assessed using the SAQ questionnaire.

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