

## Psychosomatic Aspects of Chronic Heart Failure

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### Abstract

**The purpose** of this study was to investigate the psychosomatic correlations in CHF patients with anxiety and depressive disorders (DDs).

**Materials and Methods:** This study involved 102 patients (60 men and 42 women) with CHF functional class (FC) II-III (NYHA) in age from 41 to 65 (mean age, 56.3±2.7). 6MWT as a sub-maximal exercise test was used to determine functional capacity in patients. Patients' subjective assessment of dyspnea was conducted using the modified VAS in the form of a 10 cm long straight line. The personality characteristics were studied using the FPI. Depressive disorders were assessed by HAM-A and HAM-D. The average score of DD severity in the general group of patients was 11.36±2.24 points, which corresponds to a moderate depressive episode, according to HAM-D. Data analysis revealed that the degree of depressive disorders in the examined patients was a direct function of CHF severity. The severity of dyspnea was associated not only with the clinical-instrumental characteristics of CHF (LVEF, 6MWT), but also with the personality and the behavioral and psychological peculiarities of the patients: smoking, hypochondriac type of attitude towards the disease, sleep disorders, severity of depression and anxiety.

**Conclusion:** The obtained data demonstrate that mental disorders observed in CHF patients aggravate the severity of the patients' condition and decrease their adaptive capability, thus adversely affecting the course and outcome of the underlying disease. (*International Journal of Biomedicine. 2017;7(3):248-250.*)

**Key Words:** congestive heart failure • depression • anxiety • psychosomatic disorders

### Abbreviations

**6MWT**, the 6-minute walk test; **CHF**, chronic heart failure; **DD**, depressive disorder; **FPI**, the Freiburg Personality Inventory; **HAM-A**, the Hamilton Anxiety Rating Scale; **HAM-D**, the Hamilton Depression Rating Scale; **LVEF**, left ventricular ejection fraction; **QL**, the quality of life; **VAS**, the Visual Analogue Scale.

### Introduction

Chronic heart failure (CHF), being the final stage of most cardiovascular diseases, is a serious healthcare problem due to its high prevalence, progressive course and lower life expectancy.<sup>(1)</sup> Along with CHF, one of the most incapacitating diseases is depression. Epidemiological studies have demonstrated that the prevalence of depression

in patients visiting general practitioners varies from 5% to 57% depending on the assessment methods.<sup>(2,3)</sup> In addition, depression is hard to diagnose because its symptoms – lassitude, fatigability, apathy – are quite prevalent in the population, which impedes adequate treatment. CHF and depression have several common pathophysiological mechanisms: They are associated with activation of the sympathetic nervous system, hypercoagulation, and with enhanced production of pro-inflammatory cytokines, including interleukins (IL) 1, 3, 6, TNF- $\alpha$ .<sup>(4)</sup> The high social importance of the problem of early diagnosis and adequate treatment of psychic pathology comorbid with CHF necessitates research to improve therapeutic intervention in this patient category

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of psychosomatic correlations and types of attitudes towards the disease, as well as psychopathological manifestations and their mutual influences.<sup>(5)</sup> Thus, the urgency of the research is determined by the necessity to study psychosomatic correlations in CHF patients to increase the efficiency of preventive and curative interventions and patients' QL. The purpose of this study was to investigate the psychosomatic correlations in CHF patients with anxiety and depressive disorders.

## Materials and methods

### Patients

This study involved 102 patients (60 men and 42 women) with CHF functional class (FC) II-III (NYHA) in age from 41 to 65 (mean age,  $56.3 \pm 2.7$ ). The investigation was approved by local ethics committee, and written informed consent was obtained from all participants.

The inclusion criteria were CHF FC II-III (NYHA) and stable condition within over 1 month prior to study entry.

The exclusion criteria were acute decompensated heart failure; CHF FC IV; dysthymia, cyclothymia, bipolar disorder, schizophrenia; anti-depressant and anxiolytic drug therapy resistance (no effect after two previous therapy courses in adequate doses lasting more than one month); therapy with inhibitors of monoamine oxidase and neuroleptics of prolonged action; myocardial infarction (MI) within 3 months prior to study entry; severe cardiac arrhythmias and conduction disorders; chronic alcoholism.

CHF was diagnosed in the presence of two key criteria: 1) specific CHF symptoms (exertional dyspnea and/or dyspnea at rest, fatigability and limited physical activity, bilateral ankle edema), and 2) objective proofs that these symptoms are associated with damage to the heart rather than with any other organs (for example, lung diseases, anemia, renal failure).

Cardiovascular diseases prior to CHF development were as follows: arterial hypertension in 63(61.8%) patients, MI in anamnesis in 32(31.4%) patients, and stable angina in 48(47.1%) patients.

### Methods

6MWT as a sub-maximal exercise test was used to determine functional capacity in patients. Patients' subjective assessment of dyspnea was conducted using the modified VAS in the form of a 10 cm long straight line. The initial point of the line (0) means no dyspnea, the final point (10) means intolerable dyspnea. The patient marks a point on the line that corresponds with his or her perception of dyspnea.

The clinical-psychopathological method included a detailed analysis of general anamnestic data (social status, complaints during examination and their characteristics, occupational hazards, comorbidities, smoking status), disease course peculiarities (disease onset, duration, hospitalization frequency), and description of psychopathological symptoms and syndromes, and their dynamics, in the process of treatment. The experimental-psychological methods used questionnaires. The personality characteristics were studied using the FPI. The intensity of depressive disorders was assessed by HAM-A

and HAM-D. The statistical analysis was performed using the statistical software STATISTICA 6.0. A probability value of  $P < 0.05$  was considered statistically significant.

## Results and Discussion

The most frequent manifestations of CHF were dyspnea and palpitation on exertion, as well as fatigability. Nocturnal cough was revealed in 30% of the patients and paroxysmal nocturnal dyspnea in 24%. Analysis of FPI data showed that typical personality traits of the CHF patients were neuroticism, depressiveness, emotional lability, and decreased sociability. Most patients (54%) displayed a combination of two dominating types of attitude towards the disease. In 30% of the cases, one dominating type was successfully revealed; in 16% of patients, it was impossible to unambiguously define the prevailing types of attitudes towards the disease. Among mixed types, most frequently encountered were anxious-neurasthenic (13%), neurasthenic-depressive (10%), paranoiac-depressive (8%), and egocentric-hypochondriac (6%) types.

The clinical-psychological testing showed that all CHF patients had depressive disorders of various degrees of manifestation. The average score of DD severity in the general group of patients was  $11.36 \pm 2.24$  points, which corresponds to a moderate depressive episode, according to HAM-D. For a more detailed analysis of affective disorders in the examined cohort, we assessed the manifestation of each symptom according to HAM-D and HAM-A. The degree of anxiety manifestation was  $17.6 \pm 3.2$  points, which corresponds to a high degree. Most expressed were such symptoms as agitation, general somatic symptoms, daily fluctuations, and somatic anxiety. Less expressed were the following symptoms: retardation, gastro-intestinal somatic symptoms, suicidal intentions, depersonalization and derealization, and obsession and compulsion.

Data analysis revealed that the degree of depressive disorders in the examined patients was a direct function of CHF severity. The increase in the severity of depressive disorders with the increase of the CHF FC may be explained by more severe symptoms, in particular, severe dyspnea/suffocation that grows as the disease progresses. Under a stable condition of the circulatory system, the degree of anxiety and depressive disorders was directly proportional to the duration of the disease. The highest indices of anxiety and depression severity were obtained in patients who continued smoking even after the onset of the CHF symptoms. We established that the severity of dyspnea was associated not only with the clinical-instrumental characteristics of CHF (LVEF, 6MWT), but also with the personality and the behavioral and psychological peculiarities of the patients: smoking, hypochondriac type of attitude towards the disease, sleep disorders, severity of depression and anxiety. Psychosomatic disorders in CHF patients may aggravate their subjective perception of respiratory discomfort, which is reflected in QL and frequency of drug administration (Table 1). Thus, our study revealed certain correlations between the indices of anxiety and depressive disorders, clinical-instrumental

data, types of attitudes towards the disease, personality characteristics, and QL. The obtained data demonstrate that mental disorders observed in CHF patients aggravate the severity of the patients' condition and decrease their adaptive capability, thus adversely affecting the course and outcome of the underlying disease.

**Table 1.**

**Impact of behavioral, clinical-instrumental and psychological parameters on the severity of dyspnea in CHF patients**

Variable	Investigated factors	F-criterion	P
Dyspnea	Smoking	4.98	0.0007
	LVEF	7.21	0.0001
	6MWT	5.36	0.0002
	Total anxiety score	4.12	0.0055
	Total depression score	3.69	0.022
	Hypochondriac type of attitude towards the disease	4.23	0.009
	Insomnia	6.12	0.0001
	Gender	3.24	0.038

#### **In conclusion:**

- Personality features typical of CHF patients are neuroticism, signs of depressive reaction in emotional state and behavior, lower communication need, and severe mood swings. Prevalent attitudes of CHF patients towards the disease are anxiety and hypochondria, followed by neurasthenia and depression, and then least frequent, egocentrism and paranoia.
- The CHF patients are characterized by lower QL. The score of their mental health, vitality and social

functioning does not reach even half of the absolute norm; the indices of general health and physical functioning make less than one third of the normal values; and the levels of emotional and physical role functioning have minimal values.

- Finally, the study disclosed the basic factors associated with CHF severity: the intensity of clinical symptoms (dyspnea, rapid fatigability, decompensation and hospitalization frequency), smoking, LVEF, marital status, and psychosomatic factors (anxiety and depressive disorders).

## **Competing interests**

The authors declare that they have no competing interests.

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