

## THE ROLE OF SEVERITY OF CHRONIC HEART FAILURE IN THE DEVELOPMENT OF COGNITIVE IMPAIRMENT

Khayriyeva Mukhsina Farxodovna

Bukhara state medical Institute

**Abstract.** Chronic heart failure (CHF) is an inevitable consequence of the development of all cardiovascular diseases. Emphasis is placed on psychosocial factors in the onset and development of many diseases, which underscores the relevance of research to determine the role of cognitive impairment (CD) in the process of chronic heart failure.

**Keywords.** cognitive disorders, cardiovascular diseases, Chronic heart failure.

Thus, in the recommendations for the prevention of cardiovascular disease in Europe, among the factors influencing the occurrence of cardiovascular disease - gender, age, growing up in unsatisfactory conditions, smoking, hypertension, diabetes, dyslipidemia, cognitive disorders are also risk factors. included. One of the major problems among cardiovascular disease (CVD) today is that chronic heart failure (CHF) is an inevitable consequence of the development of all cardiovascular diseases. At the same time, the role of psychosocial factors in the development, maintenance, or even development of many diseases is becoming increasingly important. However, these two postulates require in-depth analysis and reliable confirmation of the effects of cognitive impairment (CB) on chronic heart failure. Thus, early detection of patients with chronic heart failure and study of their features of cerebral hemodynamics and cognitive impairment are important. The study examines the incidence of SV in a patient with systolic insufficiency, the degree of influence of SV on cerebral circulation and the incidence of cognitive impairment, which is directly related to SV left ventricular function. Neuropsychological examination should use methods that allow a systematic assessment of the cognitive functions of these patients, as they reveal the characteristics of cognitive impairment in patients with heart failure and determine their forms of change with increasing severity of heart failure. Moderate cognitive dysfunction is more common among patients with chronic heart failure. According to various authors, neuropsychological examination reveals a decrease in attention, memory, performance, and mental reactions, especially in patients with chronic heart failure. In particular, when examining patients older than 50 years, the results of all neuropsychological tests in the control group were significant when studying attention, memory, executive functions, and rate of mental reactions in patients with Chronic Heart Functional Function II (FC) (New York Heart Association NYHA classification). low was detected. The presence of cognitive impairment in patients with chronic heart failure affects the ability of patients to accurately assess their condition and to follow the recommendations given by the physician and to control the symptoms of chronic heart failure. In addition, a decrease in the ability to think and make the right decisions significantly

reduces patients' ability to self-serve. It is these facts that explain why so much attention has been paid to the study of the functional capabilities of this category of patients.

According to various authors, neuropsychological examinations of patients with chronic heart failure have revealed impaired attention, memory, cognitive functions, rate of mental reactions, as well as visual impairment (Almeida OP et al., 2001; Vogels RL et al., 2009; Gaviria; M. et al., 2011; Almeida OP et al., 2012). In particular, according to New York (New York Heart Association, New York Heart Association), attention, memory, cognitive functions, and mental reaction rate were studied in 43 patients over 50 years of age with functional heart failure class II-III (FS). a statistically significant decrease in the performance of all neuropsychological tests relative to the control group was observed (8). Cognitive deficits in patients with chronic heart failure affect patients' ability to be aware of their condition and to follow physician recommendations, as well as their ability to control the severity of chronic heart failure symptoms et al., 2007. Disorders defined by the ability to self-manage the ability to receive information, interpret it, plan one's actions, and make decisions are specific to patients with chronic heart failure (7). In addition, impairment of the ability to reason and make the right decision significantly limits patients' ability to self-medicate. It is these facts that explain why so much attention has been paid to the study of cognitive impairment in this category of patients (8).

Chronic heart failure (CHF) is one of the most common and prognostically uncomfortable complications of cardiovascular disease. (1.2). The problem of chronic heart failure is becoming increasingly relevant in elderly patients. The trend of increasing population in the elderly, new cases of patients with chronic heart failure is constantly growing and requires the search for new approaches to optimize such patients at different stages of care, both inpatient and in care. (4). The occurrence of somatic and affective disorders in some patients, along with cardiac pathologies, makes it difficult to make a correct diagnosis of the disease in a timely manner. The negative impact of these diseases on the course and prognosis of the disease, adherence to treatment, quality of life, the formation of an adequate response to the disease cause additional difficulties in treatment and communication problems (6).

In his scientific work, Andrei Viktorovich (3.4) considered the development of a program such as an outpatient training program for the treatment of chronic heart failure as a new method of treating patients.

Chronic heart failure is an important medical, social, and economic problem, representing a new epidemic of cardiovascular disease (SVD), affecting approximately 5.8 million people in the United States and more than 23 million citizens worldwide (9). In Western countries, the prevalence of chronic heart failure varies from 1% to 2% (5-10 people per 1,000) and is 10% or more among people over the age of 70 (2). In our country, the prevalence of chronic heart failure detected on the basis of clinical signs reached 11.7%, the variability in different regions ranged from 7 to 17%. In hospitalized patients, the diagnosis was confirmed in 78.8% of cases (5). The main clinical-epidemiological and economic indicators of chronic heart failure (prevalence, etiology, prognosis, mortality) significantly affect the age, sex, ethnic and social differences of the studied population. Thus, chronic heart failure is higher in developed countries than in developing countries. However, by 2050, an increase in the number of cases of chronic heart failure will be clearly detected in underdeveloped industrialized countries (2).

## the role of severity of chronic heart failure in the development of cognitive impairment

A group of researchers report a link between the severity of heart failure and cognitive impairment. According to other authors, no such correlation has been identified. The Trojano L. study found that 43% of patients with FS II had 3 out of 5 cognitive impairments, compared with 57.9% in patients with III-IV FS (Trojano L. et al., 2003).

**The purpose of the study.** To study the severity of cognitive impairments and the possibilities of drug-assisted correction of them at different stages of chronic heart failure.

### Materials and research methods

For the purpose of examination, 77 patients with chronic heart failure, control group - 40 people, patients with chronic heart failure I-21, patients with chronic heart failure II A-31, patients with chronic heart failure II B-20 participated. The collected materials were thoroughly processed. Clinical and statistical analysis methods were used. Primary documents and materials were statistically verified and found to be reliable. The results of the initial inspection are shown in the table in the manual, clearly indicating the level of accuracy, reliability and evidence of the inspections performed. Selected to detect cognitive impairment in the study, the MMSE test was used to detect cognitive impairment, the Shulte test, as well as the "Frontal Dysfunction Battery" (FDB) test, according to the SF-36 questionnaire to determine quality of life.

According to the results of the neuropsychological screening examination, the examiners found no signs of dementia. When assessing cognitive function on screening criteria, patients with chronic heart failure I showed slightly lower results on the MMSE scale than patients without chronic heart failure.

### Results of screening for cognitive function in patients with chronic heart failure I and control groups

Tests	Patients with chronic heart failure		Patients without chronic heart failure		P
	N1	Median and quartiles	N2	Median and quartiles	
MMSE	21	29[28;30]	40	28[28;29]	0,013019
FDB	21	18[18;18]	40	17[17;18]	0,013743
SCHT	21	10[10;10]	40	10[10;10]	0,084480

*Note: N - number of patients; MMSE is a short scale for assessing mental status; FDB - frontal dysfunction battery; CChT- clock drawing test; r is the difference in reliability \*  $r < 0.01$ .*

When evaluating cognitive function on screening criteria, patients with chronic heart failure showed lower results on the FDB scale than patients without chronic heart failure ( $r = 0.016$ ).

### Results of neuropsychological examination on screening scales in patients with chronic heart failure II A and control groups

Tests	Patients with chronic heart failure II A.		Patients without chronic heart failure		P
	N1	Median and quartiles	N2	Median and quartiles	
MMSE	31	29[28;30]	40	29[28;30]	0,136171
FDB	31	17[17;18]	38	18[18;18]	0,015545
SCHT	31	10[10;10]	39	10[10;10]	0,873903

Note: *N* - number of patients; *MMSE* is a short scale for assessing mental status; *FDB* - frontal dysfunction battery; *CChT*- clock drawing test; *r* is the difference in reliability \*  $r < 0.01$ .

When evaluating cognitive function according to screening measures, patients with chronic heart failure I showed slightly lower results on all scales than patients without chronic heart failure.

**Results of neuropsychological examination on screening scales in patients with chronic heart failure II B and control groups**

Tests	Patients with chronic heart failure II B		Patients without chronic heart failure		P
	N1	Median and quartiles	N2	Median and quartiles	
MMSE	20	28[27;29]	35	29[28;30]	0,018787
FDB	20	17[16;18]	39	18[18;18]	0,001985*
SCHT	20	9[8;10]	39	10[10;10]	0,724997

Note: *N* - number of patients; *MMSE* is a short scale for assessing mental status; *FDB* - frontal dysfunction battery; *CChT*- clock drawing test; *r* is the difference in reliability \*  $r < 0.01$ .

According to the results of the evaluation of cognitive function screening measures, no statistically significant differences were found when comparing cognitive function indicators according to the extended neuropsychological examinations in patients with stage II A and II B heart failure.

Thus, according to the results of a pair comparison of neuropsychological examination of patients without chronic heart failure and patients with stage II A and II B of chronic heart failure, dysfunction of fronto-subcortical structures and parieto-temporal-occipital areas, as well as visual memory (II) zritelno-prostranstvennymi narusheniya) was found to be associated with more manifestations.

Thus, the fronto-subcortical type of cognitive impairment in the CHF PB stage is more pronounced in the early stages of the disease. Obvious dysfunction of the parieto-temporal-occipital areas of the brain and the appearance of visual memory (visual-prostranstvennymi narusheniya) disorders are associated with both FC III and IIB levels of chronic heart failure.

**Conclusion.** Thus, according to the results of the study, an increase in the severity of chronic heart failure leads to an increase in the incidence of cognitive impairment. Chronic heart failure impairs the activity of the fronto-subcortical structures of the brain. According to the results of the extended neuropsychological test, chronic heart failure leads to a decrease in the speed of information processing, reduces the concentration, distribution and variability of attention, reduces short-term, operational, logical memory. chronic heart failure disrupts the executive functions of the brain. chronic heart failure does not affect the stability of attention and associative memory.

**Literature**

1. Damulin, I.V. Cognitive disorders in dysmetabolic and vascular lesions of the brain: Method, manual / I.V. Damulin, L.M. Antonenko. Moscow, 2008 .-- 40 p.
2. Damulin, I.V. Light cognitive impairment of vascular genesis: Method, manual / I.V. Damulin. Moscow, 2006 .-- 39 p.
3. Druzhinin, V.N. Psychology of general abilities / V.N. Druzhinin. 2nd ed., Extended. and add. SPb .: Peter, 1999 .-- 368 p.

## the role of severity of chronic heart failure in the development of cognitive impairment

4. Damulin, I. V. Pathogenetic, diagnostic and therapeutic aspects of vascular cognitive impairment / I.V. Damulin // Consilium medicum. Neurology. 2006. - T. 8, No. 8. - S. 15-18.
5. Zakharov, V.V. Cognitive disorders in old and senile age: Method, guide for the doctor. / V.V. Zakharov, N.N. Yakhno. M., 2005. -432s.
6. Zakharov, V.V. Cognitive dysfunctions as a medical and social problem / V.V. Zakharov // Doctor. 2006. - No. 5. - S. 19-20.
7. Kozlovsky, O.V. Diagnostics of intelligence / O.V. Kozlovsky // M. : JSC BAO-PRESS; LLC ID RIPOL classic, 2005.736 p.
8. Kozlovsky, O. V. Diagnostics of intelligence / O.V. Kozlovsky // M. : BAO-Press; RIPOL classic, 2005.736 p.
9. Kuznetsov, A.N. Handbook of cerebral Doppler / A.N. Kuznetsov, I.A. Voznyuk. M. : Spectromed, 2004. -- 82 p.
10. Levin, O.S. Cognitive impairments in the practice of a therapist: diseases of the cardiovascular system / O.S. Levin // Consilium Medicum. 2009. - No. 11 (2) - S. 55-61.
11. Pugovkin, A.P. Cerebral circulation in norm and pathology: A guide for medical students and clinical residents / A.P. Pugovkin, V.A. Sorokoumov. SPb., 2001. -- 35 p.
12. Imomjonovich I. I. et al. Immunogenetic changes in kidney transplantation //International Engineering Journal For Research & Development. – 2021. – T. 6. – №. 3. – C. 3-3.
13. Imomjonovich I. I., Amirkulovna A. G. Methods of early detection of rejection in a kidney transplant from a relative donor //Academicia Globe: Inderscience Research. – 2021. – T. 2. – №. 05. – C. 293-295.
14. Basantsova N.Yu., Tibekina L.M., Shishkin A.N. The role of the autonomic nervous system in the development of cerebrocardiac disorders // Neurology and Psychiatry. 2017. No. 11. P. 153-
15. Basantsova N.Yu., Shishkin AN, Tibekina LM, Ivanov AO .. Cerebrovisceral disorders in patients in the acute period of ischemic stroke against the background of metabolic syndrome // Bulletin of St. Petersburg University. Series 11. Medicine. 2017.Vol. 12, No. 3.P. 289-301.
16. Kamchatnov P.R., Chugunov A.V., Osmayeva Z.Kh., Minaev D.P. Chronic cerebrovascular diseases: treatment options // Consilium Medicum. 2019.No. 2.P. 102-106.
17. Tibekina L.M., Basantsova N.Yu. Modern ideas about the participation of the ANS in the development of cerebrocardiac disorders // Health is the basis of human potential: problems and ways to solve them. 2016. No. 2. S. 647-649.
18. Tarride JE, Lim M, DesMeules M, et al. A review of the cost of cardiovascular disease. Can J Cardiology 2009; 25 (6): 195-202.
19. Kopylov F. Yu. Psychosomatic aspects of cardiovascular diseases (arterial hypertension, coronary heart disease, atrial fibrillation): avtoreferat dis. doct.nauk: 14.00.062009. Russian (Kopylov F.Yu. Psychosomatic aspects of cardiovascular diseases (hypertension, coronary heart disease, atrial fibrillation): abstract of thesis ... Doctor of Medical Sciences: 14.00.06. 2009).
20. National recommendations for the diagnosis and treatment of CHF, IV revision 2013. Heart Failure 2013; 7 (81): 380-2. Russian (National guidelines for the diagnosis and treatment of CHF, IV revision, 2013. Heart failure 2013; 7 (81): 380-2).
21. Shum K, Alperin P, Shalnova S. Simulating the impact of improved cardiovascular risk interventions on clinical and economic outcomes in Russia. PLoS One 2014;9 (8): 103280.
22. Málek F. Arterial hypertension and chronic heart failure. Cor et Vasa 55 (3): 259-63.
23. Syrkin AL, Poltavskaya MG, Drobizhev MYu, Dzantieva AI. Socio-demographic clinical and psychopathological features of patients with ischemic heart disease with chronic heart failure. Vrach 2005;9: 14-6. Russian (Syrkin A.L., Poltavskaya M.G., Drobizhev M.Yu., Dzantieva A.I. Socio-demographic clinical and psychopathological characteristics of patients with coronary heart disease with chronic heart failure. Doctor 2005; 9: 14-6) ...
24. Temnikova EA. Chronic heart failure in older people. Lechashii vrach 2013; 10: 81-4. Russian (Temnikova E.A. Chronic heart failure in older persons. Attending physician 2013; 10: 81-4).
25. Mikhailov VB. Emotional and cognitive impairment in persons who underwent myocardial infarction. Ukrainskii vestnik J. Psychonevrologii 2010; 2 (63): 63-7. Russian (Mikhailov V.B. Emotional and cognitive impairments in persons who have had myocardial infarction. Ukrainian Bulletin of Psychoneurology 2010; 2 (63): 63-7).
26. Zakharov VV, Vakhnina NV. Cognitive and emotional-behavioral disorders in patients with discirculatory encephalopathy. Consilium Medicum (Suppl.) 2013; 2: 10-5. Russian (Zakharov V.V., Vakhnina N.V. Cognitive and emotional-behavioral disorders in patients with discirculatory encephalopathy. Consilium Medicum (Appendix) 2013; 2: 10-5).
27. Xayriyeva, M. F., and B. G. Gafurov. "Specific features of brain mri examination in patients with chronic heart failure." (2021).
28. Xayriyeva M. F. Disorders Of Cognitive Functions In Chronic Heart Deficiency And Their Clinical Condition //Новый день в медицине. – 2021. – №. 1. – C. 212-216.