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QUALITY OF LIFE IN PATIENTS WITH CHRONIC HEART FAILURE OF ISCHEMIC ETIOLOGY: ROLE OF ANXIETY AND DEPRESSIVE DISORDERS

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OBJECTIVE: To evaluate the quality of life (QoL) in patients with anxiety and depressive disorders (ADD) and chronic heart failure (CHF) of ischemic origin.

METHODS: The study involved 142 patients (85 men and 57 women, mean age 66,4 ± 10,5 years) with CHF NYHA II-IV functional class. To identify anxiety and depression were used Hospital Anxiety and Depression Scale (HADS), the scales of the Spielberger-Hanin and Beck's, QoL - Minnesota QoL Questionnaire "Living with Heart Failure» (MLHFQ) and the SF-36 questionnaire.

RESULTS: ADD prevalence in patients with CHF of ischemic etiology was 78.1 %, with the largest share in the combination of anxiety and depressive disorders. The deterioration of QoL was observed in all patients with CHF, but the most pronounced decrease in its registered patients with a combination of anxiety and depression. The obtained data was processed using the statistical suite Statistica 6.0 for Windows and presented as M ± σ (mean ± standard deviation).

CONCLUSIONS: The presence of ADD leads to a significant decrease in QoL of patients with CHF, the most significant of its deterioration observed in the combination of anxiety and depression.

The article presents the results of investigation of gastric mucosal microcirculation with the help of laser-Doppler flowmetry in acute phase of duodenal ulcer during 7 and 14-day eradication therapy. The study enabled to obtain some data on effectiveness of the two therapeutic eradication regimens as well as their impact on gastric mucosal microcirculation in the process of ulcer defects healing.

KEY WORDS: chronic heart failure, quality of life, , anxiety and depressive disorders

ЯКІСТЬ ЖИТТЯ ПАЦІЄНТІВ ІЗ ХРОНІЧНОЮ СЕРЦЕВОЮ НЕДОСТАТНІСТЮ ІШЕМІЧНОГО ГЕНЕЗУ: РОЛЬ ТРИВОЖНО-ДЕПРЕСИВНИХ РОЗЛАДІВ

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МЕТА ДОСЛІДЖЕННЯ: оцінити якість життя (ЯЖ) пацієнтів з тривожно - депресивними розладами (ТДР) і хронічною серцевою недостатністю (ХСН) ішемічного генезу.

МЕТОДИ: обстежено 142 пацієнта (85 чоловіків і 57 жінок, середній вік 66,4 ± 10,5 років) з ХСН II - IV функціональних класів за NYHA. Для оцінки тривожності і депресії використовувалися Госпітальна шкала тривоги і депресії (HADS), шкали Спілбергера - Ханіна та Бека, ЯЖ - Мінесотський опитувальник ЯЖ «Життя з серцевою недостатністю» (MLHFQ) і опитувальник SF-36. Отримані дані оброблялися за допомогою статистичного пакету Statistica 6.0 for Windows и надавалися у вигляді M ± σ (середнє ± стандартне відхилення).

РЕЗУЛЬТАТИ: Поширеність ТДР у хворих на ХСН ішемічної етіології склала 78,1 %, найбільш питома вага припадала на поєднання тривожного і депресивного афективних порушень. Погіршення ЯЖ визначалося у всіх хворих на ХСН, однак найбільш виражене його зниження реєструвалося у пацієнтів з поєднанням тривожності і депресії.

ВИСНОВКИ: Наявність ТДР призводить до достовірного зниження ЯЖ пацієнтів з ХСН, при цьому найбільш істотне його погіршення спостерігається при поєднанні тривожності і депресії.

КЛЮЧОВІ СЛОВА: хронічна серцева недостатність, якість життя, тривожно-депресивні розлади

КАЧЕСТВО ЖИЗНИ ПАЦИЕНТОВ С ХРОНИЧЕСКОЙ СЕРДЕЧНОЙ НЕДОСТАТОЧНОСТЬЮ ИШЕМИЧЕСКОГО ГЕНЕЗА: РОЛЬ ТРЕВОЖНО-ДЕПРЕССИВНЫХ РАССТРОЙСТВ

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ЦЕЛЬ ИССЛЕДОВАНИЯ: оценить качество жизни (КЖ) пациентов с тревожно-депрессивными расстройствами (ТДуР) и хронической сердечной недостаточностью (ХСН) ишемического генеза.

МЕТОДЫ: обследованы 142 пациента (85 мужчин и 57 женщин, средний возраст 66,4 ± 10,5 года) с ХСН II-IV функциональных классов по NYHA. Для оценки тревожности и депрессии использовались Госпитальная шкала тревоги и депрессии (HADS), шкалы Спилбергера-Ханина и Бека, КЖ – Миннесотский опросник КЖ «Жизнь с сердечной недостаточностью» (MLHFQ) и опросник SF-36. Полученные данные обрабатывались при помощи статистического пакета Statistica 6.0 for Windows и представлялись в виде M ± σ (среднее ± стандартное отклонение).

РЕЗУЛЬТАТЫ: Распространенность ТДР у больных с ХСН ишемической этиологии составила 78,1 %, наибольший удельный вес приходился на сочетание тревожного и депрессивного аффективных нарушений. Ухудшение КЖ отмечалось у всех больных с ХСН, однако наиболее выраженное его снижение регистрировалось у пациентов с сочетанием тревожности и депрессии.

ВЫВОДЫ: Наличие ТДР приводит к достоверному снижению КЖ пациентов с ХСН, при этом наиболее существенное его ухудшение наблюдается при сочетании тревожности и депрессии.

КЛЮЧЕВЫЕ СЛОВА: хроническая сердечная недостаточность, качество жизни, тревожно-депрессивные расстройства

According to WHO, ischemic heart disease (IHD) complications including chronic heart failure (CHF) are the most common disability and death causes of working-age population in economically developed countries [1]. Despite significant advances of contemporary cardiology, the present guidelines and treatment results in IHD and CHF patients remain unsatisfactory. CHF progression shortens life, and significantly decreases its quality [2, 3]. Thereby the quality of life (QoL) improvement problem in CHF patients is highly relevant.

As multiple clinical trials signify, affective disorders can reliably worsen clinical and functional condition, decrease physical exercise tolerance and have negative influence on treatment compliance in CHF patients [4, 5]. There is an opinion that anxiety and depressive disorders (ADD), could seriously affect QoL in this group of patients [5, 6, 7].

Actually, modern life conditions increase emotional stress and psycho-emotional disorders incidence grew to epidemic numbers [8]. Wherein revealed ADD in CHF several times above its frequency in population [8, 9].

The purpose of this study was to obtain the QoL in the ischemic CHF patients with ADD.

MATHERIALS AND METHODS

142 patients were under observation (85 male and 57 female, mean age 66,4±10,5) with NYHA II-IV CHF. All patients had angina pectoris of II-III functional class, 86 of them (60,6 %) had history of myocardial infarction. Observed patients received standard CHF and IHD therapy (angiotensin converting enzyme inhibitors – 78 %, β-blockers – 63 %, diuretics – 79 %, aldosterone antagonists – 84 %, angiotensin II receptor blockers – 19 %, digoxin – 31 %, ω-3-polyunsaturated acids – 17 %, aspirin – 92 %, statins – 86 %, nitrates – 71 %).

All patients signed informed consents before the study initiation. Exclusion criteria were age less than 18, history of acute coronary syndrome in last 2 months, mental disorders, significant impairment of cognitive functions, alcohol or drug abuse, other psychoactive drug intake, severe concomitant pathology, cerebrovascular accident, decompensated diabetes mellitus, uncontrolled arterial hypertension, acquired and congenital valvular heart disease, chronic kidney or liver disease, oncologic and other severe concomitant diseases.

To detect and obtain the severity of anxiety and depression we used Hospital Anxiety and Depression Scale (HADS), Spielberger and Beck scales; for QoL – SF-36 and Minnesota Living with Heart Failure Questionnaire (MLHFQ) were used.

HADS is comprised of 14 statements and has 2 subscales – one for anxiety (even list items), another for depression (odd list items). Each statement has 4 variants of response. In interpreting the sum index of both subscales is taken to consideration and three ranges of it corresponded to: absence of anxiety/depression – 0-7 points, subclinical anxiety/depression - 8-10 points, clinically significant anxiety/depression - 11 points and over.

Spielberger scale was used to study severity of anxiety in the current study. The test results correspond of reactive anxiety level

at the particular moment and of personal anxiety as a temper trait. Personal anxiety indicates a stable tendency of an individual to perceive a large range of situations as threatening and to respond to them with anxiety. Reactive anxiety is characterized by disturbance, tension, nervousness at a particular time interval. The self-esteem scale of personal and reactive anxiety includes 20 questions-opinions. For each question, there are 4 possible answer choices of different intensity degree. Total score may range from 20 to 80 points. In interpreting of results one should focus on the following anxiety estimates: less than 30 points – the lowest, 31 - 44 points – moderate, 45 and over – severe.

Beck scale is used for self-assessment of depression and is fairly sensitive test to track dynamics of depressive disorders, which allows it to assess the effectiveness of treatment. It covers 21 symptoms of depression: low mood, pessimism, sense of dissatisfaction with themselves, frustration, guilt, self-blame, irritability, death drive, inability to work, sleep, etc. When completing the form, a patient should mark the option boxes that best fit his condition. For each question there are four possible statements that reflect different degrees of self-esteem and match score 0-3. In interpreting results the following score correspond of:

1) at least 11 points - no depression,
2) 11-19 - early signs of depression,
3) 19-26 - minimal severity of depression,
4) 26-30 - moderate depression,
5) more than 30 - severe depression.

MLHFQ, which was used in the current study, is one of the most common, relatively easy, informative and CHF-adapted questionnaires [2, 3, 6]. All its items may be divided into four subgroups. The first one – for physical abilities limitations assessment (items 2 – need for afternoon nap; 3 – ability to walk or climb stairs; 4 - ability to work at home or on a personal plot; 5 – impossibility of day trips; 6 – restful sleep; 7 - difficulties in relationships with family and friends; 9 - ability for active recreation and light sports; 12 – severity of dyspnea; 13 – fatigue effect on QoL). The second subgroup is comprised of questions which reflect emotional factors, (items 17 - feeling like a burden to family; 18 – feeling of helplessness; 19 – feeling anxiety; 20 - inability to concentrate and memory loss; 21 – feeling depressed). Items 8 (inability to earn a living) and 10 (impossibility of normal sexual life) comprise the third subgroup because of the lack of a clear link with the other parameters and each other. The fourth subgroup of factors consists of items 1 (edema), 14 (need in hospitalization), 15 and 16, related to the cost of treatment and its adverse effects. A patient responds to 21 questions, marking a column corresponding to his or her perception of the state. 0 points for the answer that the particular complication of the condition is not remarcable, and 5 points mean the most significant complication for the last month. Scores are added, 0 points correspond to the best health, 105 points – to absolute critical illness.

At the same time such a good technique as MLHFQ is cannot assess all QoL components [8]. In this regard, current study also used common international practice questionnaire SF-36. It consists of 11 sections and allows you to evaluate the patient's satisfaction to his or her physical and mental well-being, social functioning, self-esteem and QOL reflects the severity of pain. SF-36 questionnaire consists of 36 questions. Results are presented as scores of 8 scales, higher score indicates better QoL (100 – full health). The following indices are quantified:

1. PF — physical functioning which reflects the degree of health limitation of physical activities (such as self service, walking, climbing stairs, weightlifting, etc.);
2. RP — role physical functioning, reflects the impact of physical condition on role functioning (job, casual activities);
3. BP — physical (body) pain, pain intensity and its ability to affect casual activities such as housekeeping etc.;
4. GH — general health, gives an evaluation of the patient’s health status in the present and treatment perspective;
5. VT — vitality (means feeling full of energy, or, on the contrary, exhausted);
6. SF — social functioning; determined by the degree to which physical or emotional condition restricts social activities and communication;
7. RE — role emotional functioning — influence of emotional state on the role functioning; involves an assessment of the extent to which emotional state interfere with work or other daily activities (including big

time waste, reducing the amount of work, reduction of its quality, etc.);

8. MH — mental health, evaluates mental health, characterizes by mood (for depression, anxiety, overall positive emotions). The scales group into two separate indices – «physical health component» and «psychological health component».

The obtained data was processed using the statistical suite Statistica 6.0 for Windows and presented as M ± σ (mean ± standard deviation). The significance of differences between independent groups was determined by Student's t-test. Minimal acceptable statistical significance was at $p<0.05$.

RESULTS AND DISCUSSION

According to the total index of HADS, Spielberger and Beck questionnaires ADD were revealed in 111 (78,1 %) patients, 23 (16,2 %) of them had isolated anxiety, 32 (22,5 %) – isolated depression, and 56 (39,4 %) had both anxiety and depression (Fig. 1).

Incidence of ADD among females was statistically higher than in males (93,0 % and 83,5 %, respectively).

Patients with ADD (n=111) were included in group 1, those without affective disorders (n=31) formed the 2nd group.

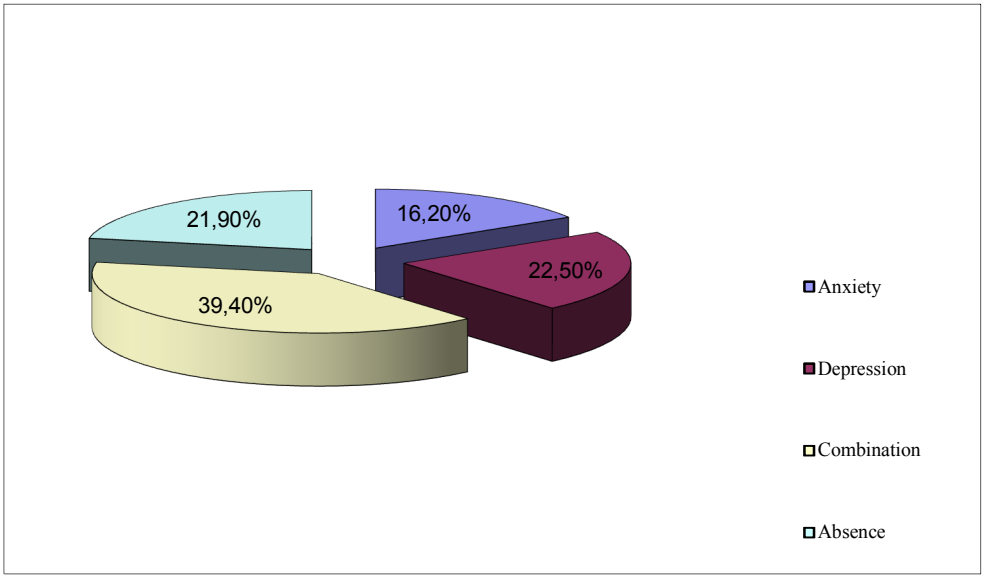

Fig. 1. ADD incidence in observed patients

ADD severity according to HADS, Spielberger and Beck questionnaires is presented in tab. 1

Table 1

Anxiety and depression severity (GPA) in the CHF patients with revealed ADD (M±sd)

ADD type	Used questionnaires, mean score		
	HADS	Spielberger	Beck
Anxiety	13,8 ± 2,5	41,6 ± 5,4 - personal 42,3 ± 4,8 - reactive	-
Depression	14,10 ± 3,7	-	27,2 ± 6,3

According to the scale of the Spielberger anxiety disorders were found in 77 (54,2 %) patients, 68 (47,8 %) had levels of both reactive and personal anxiety of «moderate» degree, 4 (2,8 %) had moderate personal and high reactive, 1 (0,7 %) - low personal and moderate reactive, and 5 (3,5 %) - high both personal and reactive anxiety.

When analyzing Beck scale survey depresssive disorders were detected in

83 (58,5 %) patients, and the minimal level of depression was detected in 7 (4,9 %), moderate - in 68 (47,8 %), severe - in 8 (5,6 %) patients.

The MLHFQ score of Group 1 patients averaged 62,4 ± 10,7, in Group 2 - 44,2 ± 9,5 ($p < 0.001$), indicating a significant decrease in QoL in patients with ADD compared with patients without affective disorders. QoL according MLHFQ in patients with various types of ADD and in their absence, is shown in Fig. 2.

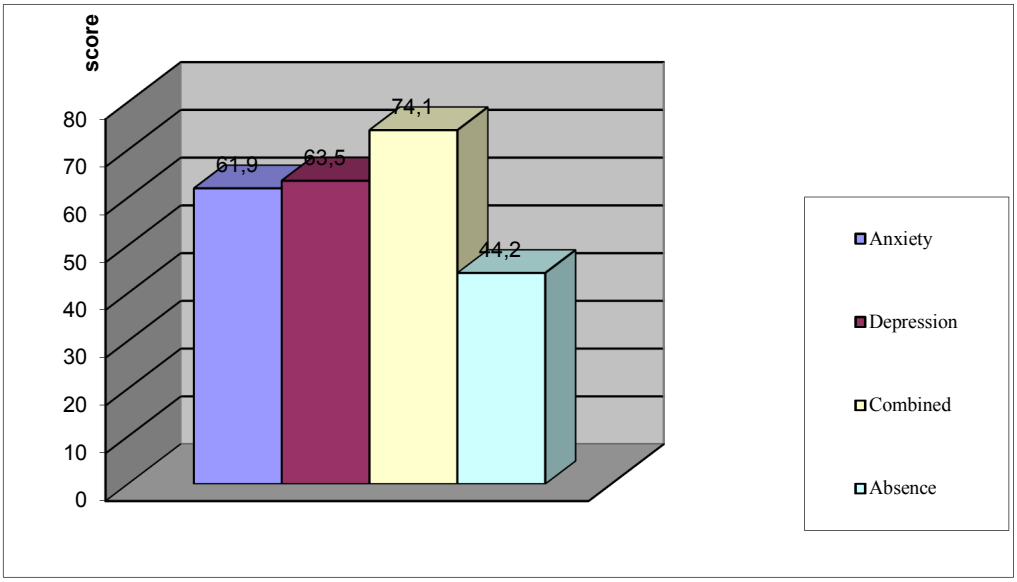

Fig. 2. QoL (according to MLHFQ) in patients with different types of ADD and in their absence

Thus, QoL indices in CHF patients with isolated anxiety were 61,9 ± 12,8, with isolated depression - 63,5 ± 14,1, in patients with a combination of anxiety and depression - 74,1 ± 15,2 points, those without mood disorders - 44,2 ± 13,3 points. Hence, QoL in patients with anxiety and depression alone or in combination was significantly worse ($p < 0.05$ all), than in patients without mental disorders. QoL study results based on SF-36 questionnaire are presented in tab. 2.

Table 2

QoL (by SF-36) in the patients with and without different ADD (M±sd)

Scale	Patients with anxiety (n=23)	Patients with depression (n=32)	Patients with anxiety and depression (n=56)	Patients without ADD (group 2) (n=31)
Physical functioning	45,3 ± 14,5*	42,0 ± 15,1*	36,8 ± 14,9**	61,9 ± 17,2
Role physical functioning	32,4 ± 9,7*	29,3 ± 11,88	22,6 ± 10,4**	52,3 ± 12,0
Physical pain	47,3 ± 11,7	46,8 ± 13,0	39,9 ± 10,1*	53,8 ± 14,2
Total health condition	40,5 ± 10,4*	41,3 ± 11,5*	34,0 ± 9,9**	51,4 ± 13,2
Vitality	47,7 ± 11,8	42,4 ± 13,2*	33,5 ± 14,7**	54,6 ± 13,3
Social functioning	51,8 ± 12,0*	50,3 ± 14,1*	43,2 ± 11,8**	67,2 ± 10,9
Role emotional functioning	45,8 ± 10,7*	46,5 ± 11,3*	29,4 ± 12,3**	65,9 ± 14,4
Mental health	49,4 ± 13,7*	48,0 ± 12,6*	42,3 ± 10,2*	62,5 ± 11,5

* - differences are statistically significant when compared to group 2, $p < 0,05$,
** - differences are statistically significant when compared to group 2, $p < 0,01$

The QoL deterioration was observed in all patients with heart failure, but the most pronounced its decrease was registered in patients with a combination of anxiety and depression. In patients without ADD, it was most significant in the scales of «role-physical functioning», «physical pain», «general health» and «vitality». The QoL scales of «role-physical functioning» and «general health» prevailed in the group of patients with anxiety alone; scales of «role- physical functioning0187», «general health» and «vitality» were predominant in the patients with isolated depression. A significant decrease in the scales of «role-physical functioning», «general health», «vitality» and «role-emotional functioning» in the analysis of QoL in patients with a combination of anxiety and depression was remarkable.

Thus, the prevalence of ADD in patients with CHF of ischemic etiology was 78,1 %, with the largest share in the combination of anxiety and depressive mood disorders group. The presence of ADD was associated with a significant decrease in QoL of patients with CHF, the most significant of its deterioration was observed in its combination with anxiety and depression.

The mechanisms of ADD negative impact on QoL in patients with CHF are complex and not fully understood. It is known that anxiety and depression come as additional factors in the reduction of their physical, mental and social activity, which are important components of QoL. In addition, the presence of physical symptoms that is directly caused by ADD (sleep disorder, loss or gain of weight, weakness, fatigue, etc.), also plays a role in the deterioration of QoL in these patients [10].

Importantly, the presence of ADD is associated with reduced efficiency of CHF treatment too, which could be explained by negative attitude of a patient to the therapy. It is shown that such patients have a low lifestyle and drug therapy compliance [11, 12].

The deterioration of QoL in the cohort of patients may also be due to the exacerbation of clinical manifestations of heart failure caused by the direct influence of anxiety and depression [13, 14]. The negative impact of ADD on the course and prognosis of CHF is implemented by a variety of pathophysiological mechanisms, among which activation of the hypothalamic-pituitary-adrenal axis, hyperproduction of proinflammatory cytokines, endothelial and platelet dysfunction are [15]. It is known that the activation of the hypothalamic-pituitary-adrenal axis, which is observed in anxiety and depression is often accompanied by rising levels of corticotrophin-releasing factor and adrenocorticotropic hormone production by the pituitary gland. It increases the production of cortisol and norepinephrine, increases heart rate and blood pressure, increases myocardial oxygen demand, reduces heart rate variability, promotes sodium and water retention, which paves the way for the progression of heart failure and the occurrence of life-threatening arrhythmias [9].

An equally important role in the negative impact of ADD on the cardiovascular system is played by overproduction of proinflammatory cytokines under their influence. In particular, patients with depression were found to have unusually high levels of interleukin-1, interleukin-6, tumor necrosis factor, C-reactive protein, which can also contribute to the progression of CHF, because of their accelerating effect on pathological remodeling of the left ventricle and its contractile dysfunction deterioration [15].

Thus, pathophysiological conditions accompanying anxiety and depression, undoubtedly contribute to the progression of CHF severity. On the other hand, the progression of CHF, in turn, exacerbates the patient's ADD, thus completing «vicious» cycle and contributing to the further worsening of their QoL.

CONCLUSIONS

The presence of ADD is associated with a significant decrease in QoL of patients with CHF, the most significant of its deterioration observed in the combination of anxiety and depression

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