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**CHRONIC HEART FAILURE AND DIABETES MELLITUS TYPE 2:
QUALITY OF LIFE AND POSSIBILITY OF ITS CORRECTION****ХРОНІЧНА СЕРЦЕВА НЕДОСТАТНІСТЬ ТА ЦУКРОВИЙ ДІАБЕТ 2-ГО ТИПУ:
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Abstract. Chronic heart failure of ischemic origin complicated by concomitant diabetes mellitus type 2 is characterized by significant decreasing of the quality of life in general, and of physical and psychological welfare, self-service and independence of action, same as personal implementation particularly. Inclusion of telmisartan to the scheme of complex treatment of the patients with chronic heart failure and diabetes mellitus type 2 results in the improvement of the patients' quality of life as well as its main components.

Key words: chronic heart failure, diabetes mellitus type 2, quality of life, telmisartan.

Резюме. Хронічна серцева недостатність ішемічного генезу, ускладнена супутнім цукровим діабетом 2-го типу, характеризується вираженим зниженням якості життя хворих в цілому та фізичного/психологічного благополуччя, самообслуговування, незалежності дій та особистісної реалізації зокрема. Включення телмісартану до схеми комплексного лікування хворих на хронічну серцеву недостатність та цукровий діабет 2-го типу супроводжується вірогідним покращенням показника загального сприйняття якості життя та його основних компонентів.

Ключові слова: серцева недостатність, цукровий діабет 2-го типу, якість життя, телмісартан.

Diabetes mellitus (DM) – one of the leading medical-social problem of the modern society due to its high incidence, frequent comorbidity with concomitant pathology, increased mortality, high risk of chronic vessel complications [4]. In Ukraine, same as in the world, the number of diabetic patients is continuously increasing mainly due to people with diabetes mellitus type 2, number of which totally in the population of the patients with this disease is around 90% (Pankiv V.I., 2010). DM is characterized by increased levels of blood glucose and free fatty acids, which is associated with the number of disorders such as central obesity, dyslipidemia, increased level of plasma markers of inflammation, hypercoagulation with decreasing of blood fibrinolytic activity, vascular damage and hypertension. The combination of these pathological manifestations, known as metabolic or insulin resistance syndrome, is associated with high risk of cardiovascular and cerebrovascular diseases [2, 3, 11].

The aim of the research was to determine the impact of chronic heart failure and diabetes mellitus type 2 on the quality of life of elderly and senile patients.

Study design and ways of investigation. With the help of the

modern instrumental non-invasive methods of investigation a comprehensive survey of 108 patients with chronic heart failure of ischemic origin and diabetes mellitus type 2, who were hospitalized to the cardiological department of the Chernivtsi Regional Hospital for War Veterans, was conducted. The average age of the patients was 76,04±1,84 years. All examined patients according to their comorbidities were randomized into the following subgroups: I – patients with HF without DM type 2 (n=32), II – patients with HF, complicated by concomitant DM type 2 (n=76). The control group for comparative studies comprised 24 people without HF and DM type 2, whose age was not significantly different from the average age of the patients of the experimental groups.

Chronic heart failure in the examined patients was a result of coronary artery disease (stable angina pectoris of II and III functional class (classification of the Canadian Heart Association, 1976), which was verified in the anamnesis due to stress tests, and post-infarction cardiosclerosis, documented by electrocardiography before the beginning of the study) and corresponded IIA stage of chronic heart insufficiency due to the classification of M. Strazhesko and V. Vasilenko. The diagnosis of DM type 2 was established after corresponding examination rec-

ommended by WHO (1999), the American Diabetes Association (1997, 2003) and consultation of the endocrinologist. The average duration of diabetes was 3,2±1,11 year. All the patients had mild and moderate degree of the diabetes mellitus.

All patients received basic therapy of the main and concomitant diseases which included beta-blockers, antithrombotic drugs, statins, ACE inhibitors, metabolic drugs, if necessary – nitrates, hypoglycemic drugs of sulfonylurea (glimepiride, glibenclamide). Moreover to achieve the objective of the investigation telmisartan was prescribed additionally. Therefore, patients with heart failure and diabetes mellitus type 2 were randomized into subgroups according to the prescribed treatment: IIA subgroup – patients who received only basic therapy (26 people); IIB subgroup (30 patients) – those for whom in the scheme of the standard treatment substitution of ACE inhibitor by angiotensin II receptor blocker telmisartan (MIKARDIS®, Boehringer Ingelheim) was conducted. At the same time we want to emphasize that the standard protocol of the treatment of the patients with chronic heart failure and diabetes mellitus type 2 was not violated, as the group of patients who received optimized treatment with telmisartan was constituted of the patients who failed to achieve compliance on the long-term usage of ACE inhibitors.

Telmisartan was prescribed in a daily dose of 40 mg after meals. Duration of hospital treatment was 21-24 days, in addition, it was recommended to continue treatment with telmisartan up to 3 months.

Quality of life was determined by the questionnaire Mezzich J. E., Cohen M., Ruiperez N. et al, 1999.

Results of the investigation. The data obtained during questioning are displayed in Table 1. The level of physical welfare was the highest in the patients of the control group (6,2±0,56 points) dominating over the corresponding figure in the group of patients with chronic HF up to 1,37 times (4,5±0,48 points, p<0,05), and up to 2,82 times (2,2±0,11 points, p<0,05) – in patients with chronic HF and DM type 2. Value of the index of psychological and emotional welfare in the patients of the control group was 57% more than in the patients with heart failure, its lowest value was determined in the patients of II group – 2,1±0,25 points, which differs significantly from the patients of the control group (p<0,05) and the patients of the I group (p<0,05).

Table 1 Quality of life in patients with chronic heart failure with concomitant diabetes mellitus type 2 (M±SEM)

Figure	Control group (n=12)	Patients with CHF (n=32)	Patients with CHF and DM type 2 (n=76)
Physical welfare	6,2±0,56	4,5±0,48*	2,2±0,11* #
Psychological/Emotional welfare	6,8±0,35	3,9±0,62*	2,1±0,25* #
Self-service and independence of activity	9,4±0,62	6,3±1,11*	4,1±0,14* #
Workability	5,4±1,08	2,5±0,60*	3,8±0,09* #
Interpersonal interaction	9,3±0,31	7,2±0,54	5,6±0,37*
Socio-emotional support	8,5±1,0	6,5±1,13	3,7±0,49* #
Public support	8,6±0,65	6,4±1,03	4,6±0,32*
Personality implementation	7,4±0,64	5,7±0,52	2,8±0,40* #
Religious implementation	8,4±0,77	8,3±0,85	5,7±0,53
Overall perception of quality of life	8,0±0,33	6,1±0,64*	4,6±0,15* #

Note: * – difference is valid comparing to the control group (p<0,05); # – difference is valid comparing to the patients with chronic heart failure (p<0,05)

The lowest level of self-service and independence of activity was detected in the patients with chronic HF and diabetes mellitus type 2 (4,1±0,14 points), having been significantly different from the corresponding value in the group of patients with heart failure of ischemic origin (6,3±1,11 points, p<0,05), and the control group (9,4±0,62 points, p<0,05) (Fig. 1).

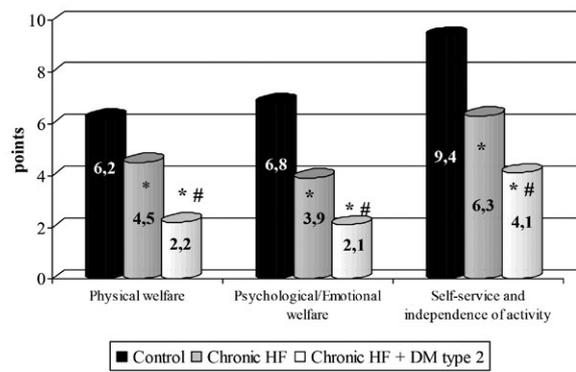


Fig.1. Physical, psychological/emotional welfare, self-service and independence of activity in patients of chronic heart failure and diabetes mellitus type 2

Note: * – difference is valid comparing to the control group (p<0,05); # – difference is valid comparing to the patients with chronic heart failure (p<0,05)

Workability index was higher in patients of both experimental groups than in the patients of the control group. Thus, both in the patients with isolated HF and in the patients with combined course of chronic HF and diabetes mellitus type 2 the difference between the corresponding values was statistically significant, same as comparing to the patients with control group (2,5±0,60 points and 3,8±0,09 points to 5,4±1,08 points, correspondingly, p<0,05). The level of interpersonal interaction and socio-emotional support was statistically significantly lower in comparison with the control group only in the patients of II experimental group. The lower value of this figure in the patients with chronic heart failure was statistically improbable comparing with patients of control group (Fig. 2).

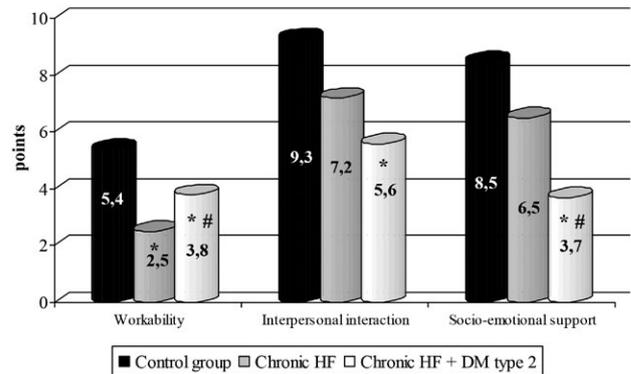


Fig. 2. Workability, interpersonal interaction and socio-emotional support in patients of chronic heart failure and diabetes mellitus type 2

Note: * – difference is valid comparing to the control group (p<0,05); # – difference is valid comparing to the patients with chronic heart failure (p<0,05)

The level of public support in the patients of I experimental group was statistically improbable lower than in the control group (6,4±1,03 against 8,6±0,65 points, p>0,05). In the patients with chronic heart failure and diabetes mellitus type 2 the following figure was 4,6±0,32 points, having been statistically significantly different from the patients of the control group (p<0,05). Figure of the personal implementation was the highest in the patients of control group (7,4±0,64 points). Due to the chronic heart failure of ischemic origin its decreasing to 5,67±0,52 points was determined, though we found no statistically significant difference comparing to the control group (p>0,05). The lowest level of personal implementation was detected in the experimental II group of patients with HF and DM type 2 (2,8±0,40 points, p<0,05 comparing with both control and I group). Index of religious implementation was almost equal in all investigated groups (Fig. 3.).

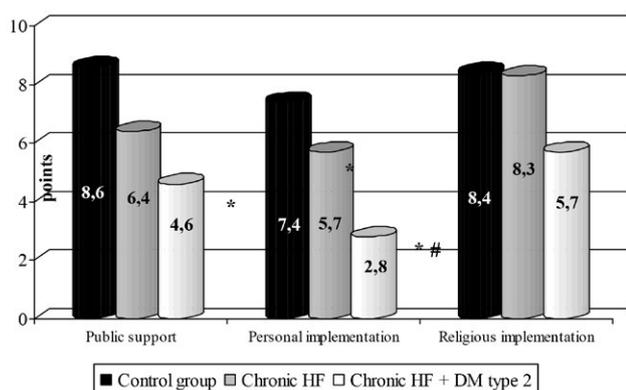


Fig. 3. Public support, personal and religious implementation in patients of chronic heart failure and diabetes mellitus type 2

Note: * – difference is valid comparing to the control group ($p < 0,05$); # – difference is valid comparing to the patients with chronic heart failure ($p < 0,05$)

Comparing with the control group overall perception of quality of life in patients with chronic heart failure was lower by 23%, and in patients with heart failure and diabetes mellitus type 2 – by 42% respectively ($p < 0,05$ in both cases) (Fig. 4).

Therefore, in patients with chronic heart failure of ischemic origin complicated by concomitant diabetes mellitus type 2 we determined significant decreasing of the quality of life in general, and of physical and psychological welfare, self-service and independence of action, same as personal implementation particularly.

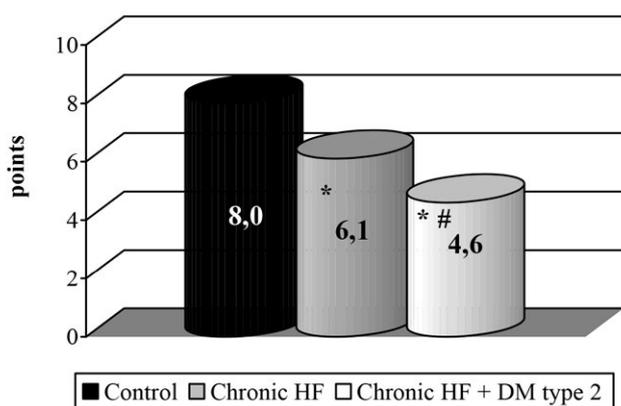


Fig. 4. Overall perception of quality of life in patients of chronic heart failure and diabetes mellitus type 2

Note: * – difference is valid comparing to the control group ($p < 0,05$); # – difference is valid comparing to the patients with chronic heart failure ($p < 0,05$)

As a result of the analysis of the quality of life of patients of both experimental subgroups in the dynamics of differential treatment we have noted its significant improvement as well as positive dynamics of changes of its main components (Table 2).

Due to the table data, in the IIA experimental group during treatment we managed to achieve significant increasing of the figure of physical

welfare by 59% comparing with one before treatment ($p < 0,001$), psychological and emotional welfare – by 130% ($p < 0,001$), workability – by 27% ($p < 0,02$), overall perception of quality of life – by 13% respectively ($p < 0,02$). Figures of self-service and independence of activity, interpersonal interactions, socio-emotional, public support as well as the figure of religious implementation as a result of the traditional treatment undergo no significant changes.

Figure 2 Quality of life in patients with chronic heart failure and diabetes mellitus type 2 in the dynamic of the complex treatment

Figure	Control group (n=12)	Standard treatment (n=56)		Treatment with telmisartan (n=20)	
		Before treatment	After treatment	Before treatment	After treatment
Physical welfare	6,2±0,56	2,2±0,09	3,5±0,28 \square	2,3±0,13	6,4±0,34 \square
Psychological/Emotional welfare	6,8±0,35	2,0±0,19	4,6±0,52 \square	2,1±0,27	6,5±0,47 \square
Self-service and independence of activity	9,4±0,62	4,1±0,19	4,9±0,93	4,0±0,37	5,2±1,11
Workability	5,4±1,08	3,7±0,08	4,7±0,41*	3,9±0,12	6,1±0,60 \square
Interpersonal interaction	9,3±0,31	5,9±0,42	5,8±0,29	5,4±0,28	7,2±0,46*
Socio-emotional support	8,5±1,0	3,7±0,39	3,9±0,49	3,7±0,57	6,2±0,20 \square
Public support	8,6±0,65	4,4±0,29	4,8±0,27	4,9±0,47	6,1±0,14*
Personality implementation	7,4±0,64	2,7±0,39	3,6±0,37	2,9±0,21	5,9±0,28 \square
Religious implementation	8,4±0,77	5,6±0,48	5,9±0,22	5,9±0,53	7,4±0,39
Overall perception of quality of life	8,0±0,33	4,6±0,13	5,2±0,19*	4,7±0,11	8,2±0,33 \square

Note: * – difference is significant comparing values before and after treatment ($p < 0,02$); \square – difference is significant comparing values before and after treatment ($p < 0,001$)

At the same time, the inclusion of telmisartan to the scheme of the complex treatment resulted in the statistically significant improvement of the overall perception of the quality of life by 1,74 times ($p < 0,001$), particularly accompanied by improvement of physical welfare by 2,78 times against corresponding value before treatment ($p < 0,001$), psychological and emotional welfare – by 3,09 times ($p < 0,001$) and workability – by 1,56 times ($p < 0,001$), interpersonal interaction – by 1,33 times respectively ($p < 0,02$). In addition, in the patients of IIB group we have noted the improvement of the values of socio-emotional support by 67% ($p < 0,001$), public support – by 24% ($p < 0,02$) and personal realization – by 103% ($p < 0,001$).

Conclusions. In patients with chronic heart failure of ischemic origin complicated by concomitant diabetes mellitus type 2 we determined significant decreasing of the quality of life in general, and of physical and psychological welfare, self-service and independence of action, same as personal implementation particularly. Inclusion of telmisartan to the scheme of complex treatment of the patients with chronic heart failure and diabetes mellitus type 2 results in the improvement of the patients’ quality of life as well as its main components.

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CORONARY ARTERY DISEASE, DIABETES MELLITUS TYPE 2 AND ANEMIA: CLINICAL PECULIARITIES OF THE COMBINED COURSE

ІШЕМІЧНА ХВОРОБА СЕРЦЯ, ЦУКРОВИЙ ДІАБЕТ 2-ГО ТИПУ ТА АНЕМІЯ: КЛІНІЧНІ ОСОБЛИВОСТІ ПОЄДНАНОГО ПЕРЕБІГУ

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Abstract. The article deals with the clinical features of the combined course of coronary artery disease with the concomitant diabetes mellitus type 2 and anemia. Every fourth patient with coronary artery disease in the form of stable angina and concomitant diabetes mellitus type 2 does not complain for typical angina pain in the heart region during physical exertion, a significant part of these patients do not use nitroglycerin because of absence of typical clinical picture of the main disease, 30% of the patients with stable angina and diabetes mellitus type 2 do not represent the typical irradiation of the angina pain. Complication of coronary artery disease and diabetes by the concomitant anemia of different degrees of severity leads to the increasing of the daily frequency of angina, significant prevalence of pain irradiation and increasing of the need in anti-angina drugs.

Key words: coronary artery disease, diabetes mellitus type 2, anemia, clinical course.