

GENDER-AGE FEATURES AND POSSIBILITIES OF PREDICTING THE QUALITY OF LIFE IN PATIENTS WITH MYOCARDIAL INFARCTION WITHOUT ELEVATION OF ST-SEGMENT

Gender-age features and possibilities of predicting the quality of life in patients with myocardial infarction without elevation of ST-segment

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Summary. Predicting the course of acute myocardial infarction without ST-segment elevation is one of the priority tasks of modern cardiology.

The aim of the study – to analyze gender and age features and possibilities of predicting the quality of life in patients to assess the quality of life with myocardial infarction without ST segment elevation.

Materials and Methods. We examined 200 patients with acute myocardial infarction without ST-segment elevation (NSTEMI) aged 38 to 80 years. All patients were examined according to the current treatment protocol for patients with acute coronary syndrome without ST segment elevation. Quality of life assessment was performed according to the valid MIDAS-35, which was conducted on the 5–7 day of hospitalization.

Results. It was found that there are no statistically significant gender differences in the overall quality of life score on the MIDAS-35 scale. Also, there is a connection with the deterioration of quality of life and increasing age requirements.

Conclusions. Predicting quality of life in this category of patients encourages the use of early invasive strategy in this category of patients.

Key words: NSTEMI; quality of life; MIDAS-35.

Гендерно-вікові особливості та можливості прогнозування якості життя у пацієнтів з інфарктом міокарда без елевації ST-сегмента

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Резюме. Прогнозування перебігу гострого інфаркту міокарда без елевації ST-сегмента є одним із пріоритетних завдань у сучасній кардіології.

Мета дослідження – проаналізувати гендерно-вікові особливості та можливості прогнозування оцінки якості життя у пацієнтів з інфарктом міокарда без елевації ST-сегмента.

Матеріали і методи. Ми обстежили 200 пацієнтів із гострим інфарктом міокарда без елевації ST-сегмента (NSTEMI) віком від 38 до 80 років відповідно до діючого протоколу лікування пацієнтів із гострим коронарним синдромом без елевації ST-сегмента. Оцінку якості життя проводили за валідною шкалою MIDAS-35, яку проводили на 5–7 добу госпіталізації.

Результати. Встановлено, що відсутні статистично значущі гендерні відмінності у величині загального бала якості життя за шкалою MIDAS-35. А також зв'язок із погіршенням показників якості життя та збільшенням вікового цензу.

Висновки. Прогнозування показників якості життя у даній категорії пацієнтів спонукає до застосування ранньої інвазивної стратегії даної категорії пацієнтів.

Ключові слова: NSTEMI; якість життя; MIDAS-35.

INTRODUCTION

The priority of modern cardiology is to improve the diagnosis and treatment of myocardial infarction (MI), especially its form, such as ST-segment elevation myocardial infarction, which remains one of the leading causes in the structure of general and cardiovascular morbidity and mortality worldwide [1]. Despite significant progress in the treatment of acute myocardial infarction in most developed countries, much remains unclear about the occurrence and prevention of early and late complications [2]. The long-term prognosis of this category of patients remains disappointing, primarily

due to the development of myocardial dysfunction due to postinfarction remodeling and the development of prognostically unfavorable arrhythmias on the background of electrically unstable myocardium [3]. Search for opportunities to predict the development of complications, study of remodeling processes and their impact on the development of electrical instability of the myocardium, which is currently considered a promising area of non-invasive diagnosis of myocardial infarction [4].

The aim of the study was to analyze gender and age features and possibilities of predicting the quality

of life in patients to assess the quality of life with myocardial infarction without ST segment elevation.

MATERIALS AND METHODS

We examined 200 patients with acute myocardial infarction without ST-segment elevation (NSTEMI) aged 38 to 80 (mean 62.0 ± 0.71 , median – 62 and interquartile range – 55 and 70) years, who were hospitalized in the Municipal Non-Profit Enterprise "Vinnytsia Regional Clinical Medical and Diagnostic Center for Cardiovascular Pathology" with urgent indications.

The criteria for including patients in the study were:

1. Verified NSTEMI, first diagnosed;
2. Age up to 80 years;
3. The absence of contraindications to percutaneous coronary interventions and the use of the main groups of pharmacological agents included in the basic therapy of NSTEMI;

4. Informed consent of the patient to participate in the study.

The criteria for exclusion from the study were:

1. STEMI, transferred in the past and recurrent acute myocardial infarction;
2. Age of patients 80 years and older;
3. The presence of sinoatrial or atrioventricular block II-III degree, implanted or the need for implantation of an artificial pacemaker;
4. Chronic heart failure NYHA-III, IV before the incident of acute myocardial infarction;
5. Diseases of the respiratory system, kidneys and liver, which were accompanied by signs of pulmonary, renal and hepatic failure; anemic conditions with a hemoglobin level below 110 g / L;
6. The presence of rheumatic and congenital heart defects, idiopathic and inflammatory myocardial lesions;
7. Malignancies, severe neuropsychiatric disorders, alcohol abuse;
8. The presence of contraindications to percutaneous coronary interventions and the use of the main groups of pharmacological agents included in the basic therapy NSTEMI;
9. Reluctance and refusal of the patient to participate in the study.

All patients were examined according to the NSTEMI protocol [5].

Overall Quality of Life Assessment (QL) was performed according to the valid MIDAS-35 score © Oxford University Innovation Limited, 2002. All rights reserved [6], which was conducted on day 5-7 MI, in the general group of NSTEMI patients examined, ranged from 13.2 to 74.4 and averaged 38.6 (mathematical error of the average – 1.12), median – 37.9 and interquartile variation – 24.4 and 48.6, respectively.

All of the research corresponds to the principles of the Declaration of Helsinki of the World Medical Association.

RESULTS AND DISCUSSION

The overall quality of life (QL) score on the valid MIDAS-35 scale, which was performed on day 5–7 MI, in the general group of NSTEMI patients examined showed that the total QL score ranged from 13.2 to 74.4 and averaged 38.6 (mathematical mean error – 1.12), median – 37.9 and interquartile variation – 24.4 and 48.6, respectively. The assessment was performed on the following indicators – Physical activity, Insecurity, Emotional reaction, Dependency, Diet, Concerns over medication, Side effects.

Analysis of the QL level on the MIDAS-35 scale depending on gender (Fig. 1) did not reveal statistically significant differences in the total score (38.6 and 36.7 points, $p=0.30$ according to the Mann – Whitney U test). The situation was similar when comparing the value of points for different components (subscales) of the MIDAS-35 scale (Table 1). There was only a slight tendency to increase the score for nutritional status (33.3 vs. 25.0 points, $p=0.13$) and the feeling of dependence on outside help (33.3 vs. 25.0 points, $p=0.21$) in men compared to women.

In turn, the analysis of the level of QL in NSTEMI patients depending on age (Fig. 2) showed no significant difference in the overall score on the MIDAS-35 scale in different age groups. Instead, there was only a certain tendency to increase it in the age category of 60–74 years compared to both the category up to 60 and 75 years and older (40.9 against 36.7 and 35.7 points, respectively, $p=0.27$ for Kruskal-Wallis ANOVA test).

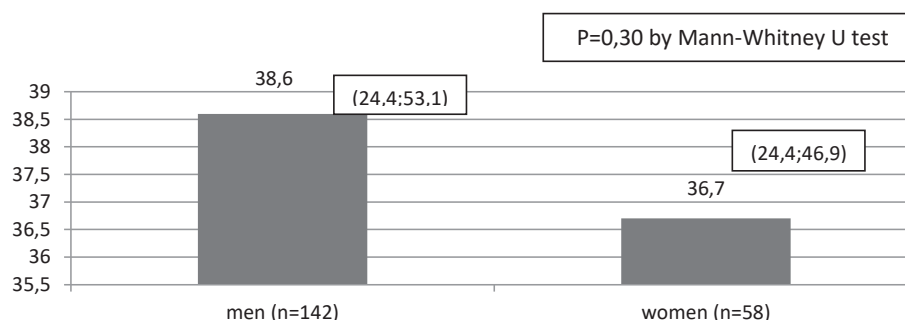


Fig. 1. Overall sex quality score on the MIDAS-35 scale in NSTEMI patients by sex.

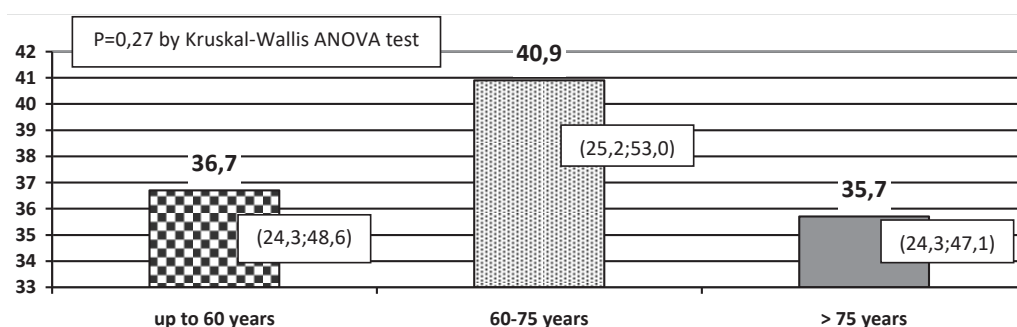
Table.1. The nature of changes in the components of the quality of life of the MIDAS-35 scale in NSTEMI patients depending on gender

Subscales (components) MIDAS-35	Men (n=142)	Woman (n=58)	P
Physical activity	45.8 (27.0; 66.6)	45.8 (27.0; 62.5)	0.42
Insecurity	38.3 (13.8; 50.0)	27.7 (13.8; 47.2)	0.46
Emotional reaction	37.5 (18.7; 50.0)	37.5 (18.8; 43.7)	0.97
Dependency	33.3 (16.6; 50.0)	25.0 (8.3; 41.6)	0.21
Diet	33.3 (16.6; 50.0)	25.0 (8.3; 41.6)	0.13
Concerns over medication	37.5 (25.0; 62.5)	37.5 (25.0; 62.5)	0.81
Side effects	50.0 (37.5; 62.5)	50.0 (25.0; 75.0)	0.87

The results of the analysis of scores for different components of the MIDAS-35 scale (Table 2) showed that NSTEMI patients aged 75 years and older had a significantly higher score of danger and anxiety compared to the group of patients < 60 years (41,6 vs. 27,7 points, $p = 0,04$ according to Kruskal-Wallis ANOVA test). In addition, patients aged 60-74 years had a significantly higher score of drug concern compared to other age groups of patients (50,0 vs. 37,5 points, $p = 0,05$ for the group under 60 years and 50,0 vs. 25,0 points, $p =$

0,03 for the group of 75 years and older, respectively).

Using non-parametric methods of statistical data processing, such as Mann-Whitney U test and Kruskal-Wallis ANOVA test, we found no statistically significant gender differences in the overall quality of life score on the MIDAS-35 scale. A number of studies have also studied the quality of life in myocardial infarction, as well as the evaluation of treatment regimens for heart attacks [7, 8]. However, the gender and age characteristics of the examined category of patients were not taken into

**Fig. 2.** Overall quality of life score on the MIDAS-35 scale in NSTEMI patients depending on age

Note. The results are presented as median and interquartile range.

Table 2. The nature of changes in the components of the quality of life of the MIDAS-35 scale in patients with NSTEMI depending on age

Subscales (components) MIDAS-35	1. Up to 65 years (n=85)	2. 60–74 years (n=83)	3.>75 years (n=32)	p		
				1–2	1–3	2–3
Physical activity	39.6 (27.0; 66.6)	41.9 (27.0; 68.7)	47.9 (27.0; 52.5)	Un	Un	Un
Insecurity	27.7 (11.1; 47.2)	40.0 (22.2; 50.0)	41.6 (14.1; 54.0)	Un	Un	0,04
Emotional reaction	31.2 (18.7; 43.7)	37.5 (18.7; 50.0)	34.3 (18.7; 50.0)	Un	Un	Un
Dependency	25.0 (16.6; 41.6)	33.3 (16.6; 58.3)	25.0 (16.6; 41.6)	Un	Un	Un
Diet	33.3 (8.3; 50.0)	33.3 (8.3; 50.0)	25.0 (16.6; 41.6)	Un	Un	Un
Concerns over medication	37.5 (12.5; 62.5)	50.0 (25.0; 75.0)	25.0 (0; 62.5)	0,05	0,03	Un
Side effects	50.0 (37.5; 75.0)	50.0 (25.0; 62.5)	43.7 (25.0; 62.5)	Un	Un	Un

Notes: 1) The reliability of the percentage difference between different age groups is calculated by Kruskal-Wallis ANOVA test;
2) Un – unreliable ($p > 0.05$).

account during these studies. In addition, there are no data on the treatment protocol for patients with NSTEMI, while the patients in our study received treatment according to the general guidelines of this population. Undoubtedly, this was also reflected in the total quality of life score determined by the MIDAS-35 scale.

CONCLUSIONS

1. There are no statistically significant gender differences in the overall quality of life score on the MIDAS-35 scale in NSTEMI patients.

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Conflicts of Interest. Authors declare no conflict of interest.

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