

Conflict of interest / Конфлікт інтересів:

The Authors declare no conflict of interest. / Автори заявляють про відсутність конфлікту інтересів.

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A – Work concept and design, **B** – Data collection and analysis, **C** – Responsibility for statistical analysis, **D** – Writing the article, **E** – Critical review, **F** – Final approval of the article / **A** – концепція роботи та дизайн, **B** – збір та аналіз даних, **C** – відповідальність за статистичний аналіз, **D** – написання статті, **E** – критичний огляд, **F** – остаточне затвердження статті.

Received 01.02.2024 / Стаття надійшла 01.02.2024 року
Accepted 01.05.2024 / Стаття прийнята до друку 01.05.2024 року

DOI 10.29254/2077-4214-2024-2-173-230-235

UDC 616.12-005.4:616.12-009.72:616.36-003.826:577.112:577.17]-036

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CLINICAL CHARACTERISTICS OF THE COURSE OF CORONARY HEART DISEASE WITH STABLE TENSION STENOCARDIA IN COMORBIDITY WITH NON-ALCOHOLIC STEATOHEPATITIS

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The diseases of the hepatobiliary system significantly aggravate the course of coronary heart disease, in particular, this applies to non-alcoholic steatohepatitis. Therefore, an important problem of current medicine is the study of common pathogenetic mechanisms of the development of this combined pathology. The aim of the work was to determine the features of the clinical course of coronary heart disease with stable tension angina in combination with non-alcoholic steatohepatitis depending on metabolic factors. 145 patients with coronary heart disease in combination with non-alcoholic steatohepatitis and 100 patients with coronary heart disease without non-alcoholic steatohepatitis were examined. The clinical symptoms were characterized by the non-specificity of signs in relation to fatty liver damage. The clinical course of coronary heart disease in the presence of non-alcoholic steatohepatitis depends on the number of metabolic factors. In patients with coronary heart disease in combination with non-alcoholic steatohepatitis and metabolic risk factors, atrial fibrillation and the left or right branches of the bundle branch block are significantly more often registered than in patients with coronary heart disease without non-alcoholic steatohepatitis.

The patients with coronary heart disease in the presence of non-alcoholic steatohepatitis and metabolic risk factors require hospitalization with a greater number of bed-days than patients with coronary heart disease without metabolic factors.

Key words: CHD, NASH, clinical course, natriuretic peptide.

Connection of the publication with planned research works.

The scientific research was conducted according of the plan of the departmental topic of the Department of Therapy and Family Medicine of UzhNU “Innovative methods of the diagnostic and the treatment of pathology of internal organs in obese patients” state registration No. 0121U111773.

Introduction.

Nonalcoholic fatty liver disease (NAFLD) is an independent predictor of cardiovascular disease, which impacts in the development of coronary heart disease (CHD) [1]. As a results of numerous studies demonstrate that the number of cardiovascular complications in patients with NAFLD is growing.

The probability of cardiovascular risk in patients with NAFLD depends on the proatherogenic serum lipid profile, which is accompanied by low levels of high-density lipoprotein cholesterol (HDL-C), high levels of

triglycerides (TG), low-density lipoprotein (LDL), and apolipoprotein B100 [2, 3, 4]. Increased synthesis of TG in the liver and excessive production of very low-density lipoproteins (VLDL) further reduce the level of HDL-C and increase the concentration of LDL [5, 6]. The processes that are the causative factors of this type of dyslipidemia can be accompanied by a decrease in the activity of lipases.

The studies by some authors show that the accumulation of fat in the liver (fatty infiltration of the liver) can be an independent factor of dyslipidemia [7, 8, 9].

A relevant problem of modern medicine is the study of common pathogenetic mechanisms of formation of combined pathology for the goal of early diagnosis and development of differentiated approaches to the management of this category of patients. In particular, a close relationship between cardiovascular diseases and pathology of the hepatobiliary system has been

proven [10]. In particular, NAFLD in combination with CHD, pathogenetically determining the course and progression of each other, significantly increases the percentage of cardiovascular mortality among the population in the world and in Ukraine in particular [11, 12]. Currently there are no clear statistical data in Ukraine that reliably reflect the prevalence of NAFLD, primarily among people with cardiovascular pathology [13]. Therefore, it is important to study of the features of the course of stable CHD against the background of NAFLD in the process of long-term observation of this category of patients.

The aim of the study.

To determine the features of the clinical course of coronary heart disease with stable angina pectoris in combination with non-alcoholic steatohepatitis depending on metabolic factors.

Object and research methods.

The study involved 145 patients with coronary heart disease: stable angina pectoris, II functional class (FC) in combination with non-alcoholic steatohepatitis (NASH) and 100 patients with coronary heart disease: stable angina pectoris II FC without NASH, who were treated at the Communal Nonprofit Enterprise «Central City Clinical Hospital» of Uzhhorod City Council at the cardiology department with intensive care units (ICU). The average age of the examinees was 55.3 ± 6.3 , by gender 140 (57%) men predominated, 105 (43%) women. The control group included 30 clinically and anamnestically healthy individuals aged 56.2 ± 5.1 years, among whom there were 14 (46%) men and 16 (54%) women. The study was approved by the local ethics committee (protocol No. 2/5 dated February 28, 2024), and at the beginning, all patients signed an informed consent to participate in its conduct, in accordance with the requirements of the Helsinki Declaration of 1975.

Metabolic risk factors were evaluated during the first phase of the study, which are shown in table 1.

Table 1 – Metabolic risk factors according to anamnestic data

Indicator	CHD+NASH n=145 abs./%	CHD n=100 abs./%
Excessive body weight	63/43,5*	4/4
Obesity I-II st.	46/31,7*	15/15
Dyslipidemia	70/48,3*	6/6
Arterial hypertension I-II st.	81/55,9*	69/69

Note: * – reliability of the difference in indicators between groups of patients.

Depending on the presence of metabolic risk factors (MRF), patients with CAD in combination with NASH were divided into the following groups: group 1a (n=75) – patients had CAD+NASH+ MFR (arterial hypertension (AH), dyslipidemia, excessive body weight or obesity) and group 1b (n=70) – CHD + NASH + AH, as well as group 2 (n=100) – CHD without NASH.

The diagnosis of stable CHD was verified based on the results of electrocardiography (ECG), coronary angiography, history of MI and/or myocardial revascularization interventions in accordance with the unified clinical protocol «Stable coronary heart

disease» (Order of the Ministry of Health of Ukraine No. 152 of 03/02/2016). The diagnosis of NAFLD was made in accordance with the unified clinical protocol «Non-alcoholic steatohepatitis» (Order of the Ministry of Health of Ukraine No. 826 of 06.11.2014) [14], in accordance with the recommendations of the European Association for the Study of the Liver (EASL), the European Association for the Study of Diabetes (EASD), the European Association on the study of obesity (EASO) [15]. The study excluded patients with diabetes mellitus, positive markers of viral hepatitis in the blood (HBsAg, antiHCV, PCRHCV, PCRHBV, etc.), in which fatty liver dystrophy was caused by hepatotoxic drugs, patients with inflammatory bowel diseases, celiac disease, as well as those who drank alcohol excessively (≥ 30 g/day – men and ≥ 20 g/day – women).

Patients were subjected to anthropometric examinations (determination of body weight, height, waist circumference) and calculation of the body mass index (BMI), where a BMI of 18.5-24.9 kg/m² was considered a normal body weight (BMI), and a BMI value > 24.9 kg/m² was considered as increased body weight (BW). Patients were also given a general blood test, blood sugar and glycosylated hemoglobin, determination of indicators of lipid metabolism (HDL, LDL, atherogenicity index, triglycerides), biochemical tests and ultrasound of the abdomen. Brain natriuretic peptide (BNP) and N-terminal fragment of brain natriuretic propeptide (NT-proBNP) levels were determined by enzyme-linked immunosorbent assay in private laboratory. Cardiohemodynamic indicators were studied with the help of echocardiography in order to detect systolic and diastolic dysfunction of the left ventricle (LV). Echocardiography was performed according to the standard method using a microconvex multifrequency sensor (2.5/3.5/5.0 MHz). Linear dimensions were determined in the M – and B-modes: LV end-diastolic size (LVD), LV end-systolic size (LVS), interventricular septum thickness (IVS), LV posterior wall thickness (LVH), left atrial diameter (LA), diameter right ventricle (RV).

To determine the reference values of the studied indicators, the data of 30 practically healthy persons, who were comparable in age and gender, without diseases of the cardiovascular system and liver, were used as controls.

The analysis and processing of the results of the examination of patients was carried out using the computer program Jamovi 2.3.21 (Australia), Microsoft Office Excel for Windows 2016 (USA), Statistics for Windows v.7.0 (StatSoft Inc, USA) using non-parametric methods for evaluating the obtained results. The normality of the distribution of interval variables was assessed by the Shapiro-Wilk criterion. Mean values are shown as $M \pm SD$. Comparison of mean values was performed using the Mann-Whitney U-test and the Kruskal-Wallis criterion depending on the number of groups. Categorical data analysis was performed using Pearson's χ^2 test with Yates correction and Fisher's exact test. The relationship between interval data was analyzed using the Pearson correlation coefficient. The difference was considered statistically significant at $p < 0.05$.

Research results and their discussion.

During the analysis of cardiac complaints, it was found that the dominant symptom in the patients was pain in the area of the heart or behind the sternum, of

Table 2 – Clinical signs in patients with coronary artery disease in combination with NASH and without it

Clinical signs (abs/%)	Groups		
	1-a n=75	1-b n=70	2 n=100
Cardiological:			
Shortness of breath	55/73,3*	48/68,5	42/42
Pain in the area of the heart or behind the sternum	71/94,6*	60/85,7*	40/40
Interruptions in the work of the heart	38/50,6	29/41,4	22/22
Rapid heartbeat	49/65,3*	35/50*	24/24
Decreased tolerance to physical activity	57/76*	48/68,6*	27/27
Hepatobiliary:			
Heaviness in the right hypochondrium	60/80	58/82,9	-
Bitterness in the mouth	55/73,3**	46/65,7	-
Nausea	35/46,7	24/34,2	-
Diarrhea	28/37,3	14/20	-
Constipation	27/36	18/25,7	-
Flatulence	40/53,3**	32/45,7	-
Decreased appetite	27/36	22/31,4	-
Asthenic:			
General weakness, rapid fatigue	69/92*	57/81,4	55/55
A state of emotional lability	70/93,3*	60/85,7	43/43

Notes: * – reliability of the difference in indicators in comparison with group 2, ** – reliability of the difference in indicators in comparison with group 1-b (p<0.05).

a squeezing or aching nature, which arose after physical exertion or psycho-emotional stress, and lasted for about 10 minutes. and disappeared after taking 1-2 tablets of nitroglycerin. Pain attacks were more difficult to bear in the cold season. It was complained about by 71 (91.4%) patients in group 1-a and 60 (85.4%) in group 1-b, as well as 40 (40%) in group 2, respectively. Patients also noted complaints of shortness of breath, which occurred during moderate physical exertion and when climbing more than one floor: 55 (73.3) of group 1-a patients, 48 (68,68) of group 1-b patients 5%) and in group 2 – 42 (42%). Complaints about interruptions in the work of the heart were detected in 38 (50.6%) examinees of group 1-a, in 29 (41.4%) of group 1-b and in 22 (22%) in group 2, rapid heartbeat was noted by 49 (65.3%) patients of group 1-a, 35 (50%) – group 1-b and 24 (24%) in group 2. Decreased tolerance to physical exertion was observed in 57 (76%) patients of group 1-a, in 48 (68.6%) – group 1-b and 27 (27%) – group 2.

During the initial clinical examination of patients with coronary heart disease in combination with NASH, it was found that complaints from the hepatobiliary system had a periodic nature and were nonspecific. In particular, heaviness in the right hypochondrium bothered 60 (80%) patients of group 1-a and 58 (82.9%) – group 1-b. Patients also complained of bitterness in the mouth, nausea and discomfort in the abdominal cavity,

respectively: 55 (73.3%), 35 (46.7%), 63 (84%) in group 1-a and 46 (55.7%), 24 (34.2%), 50 (70.4 %) in group 1-b. Complaints of flatulence were observed in 40 (53.3%) in group 1-a and 32 (45.7%) in group 1-b patients. Diarrhea and constipation were complained of by 28 (37.3%) and 27 (36%) in group 1-a, and 14 (20%) and 18 (25.7%) in group 1-b, respectively. Problems with appetite in the form of a decrease occurred in 27 (36%) patients in group 1-a, as well as in 22 (31.4%) of group 1-b.

As for asthenic complaints in patients, the following distribution was observed: general weakness was complained of by 69 (92%) patients of group 1-a, 57 (81.4%) of group 1-b and 55 (55%) of group 2. The state of emotional lability was noted by 70 (93.3%) of group 1-a, 60 (85.7%) patients of group 1-b and 43 (43%) of group 2 (**table 2**), which indicates the aggravating course of comorbidity on the emotional state of patients.

Therefore, in patients with coronary heart disease in combination with NASH, clinical symptoms were characterized by non-specificity of signs in relation to fatty liver damage. So, the most frequent complaints were asthenic and complaints of emotional lability. The data we obtained coincide with the study conducted in 2021 by Kasper et al., where the characteristics of the clinical course of coronary artery disease were studied in the presence of comorbidity with NAFLD [16].

Analyzing the frequency of seeking medical help during the year and subsequent hospitalizations, the following data were obtained (**table 3**).

Therefore, group 1-a patients consulted a family doctor 3.5 times more often during the year due to angina without subsequent hospitalization, respectively, group 1-b patients – 2.5 times more often compared to group 2. Also, group 1 – patients and 4 times more during the year were referred to a cardiologist at the outpatient level, in group 1-b – 3 times more than in group 2. With regard to visits to the emergency department (ED), it was found that patients of group 1-a 3 times more often urgently sought medical help due to a feeling of tightness in the chest, burning pains and increased heartbeat, and groups 1-b – 2 times, compared to group 2 (p<0.05). Also, patients of group 1-a needed inpatient treatment in the cardiology department 6 times more often, in group 1-b – 3 times more often compared to group 2 (p<0.05). Evaluating the length of stay of patients in the hospital, it was found that in group 1-a there was a clinically significant increase in bed-days by 3±0.9 days, and in group 1-b – by 1±0.1 compared to group 2 (p> 0.05). The higher frequency of seeking medical help and hospitalization in group 1-a is probably due to the presence of more than 2 metabolic factors in patients, which complicate the course of the disease in the presence of comorbidity.

The most frequent ECG changes in patients of group 1a were: depression of the ST segment in 45 (60%), sinus

Table 3 – Frequency of requests for medical assistance

Indicator (amount per year)	Groups		
	1-a n=75	1-b n=70	2 n=100
Referral to a family doctor without consulting a cardiologist	7±2,1*	5±1,6*	2±1,1
Consultation of a cardiologist	4±1,5*	3±0,8	1±1,1
Application to the reception department of the EMD	6±1,2*	4±1,3	2±0,5
Hospitalization in the cardiology department	4±1,5*	2±1,3	1±1,5
Average length of hospital stay (days)	6±2,0*	4±1,2	3±1,1

Notes: ED – emergency department, * – reliability of the difference in indicators in comparison with group 2 (p<0.05).

tachycardia in 57 (76%), widening of the QRS complex in 48 (64%), inversion of the T wave in 22 (29%), conduction disturbances in the form of incomplete blockade of the left or right branches of the bundle branch block were detected in 45 (60%) and atrial fibrillation in 30 (40%). The following ECG changes were observed in patients of group 1b: depression of the ST segment in 35 (50%), sinus tachycardia in 38 (54.2%), widening of the QRS complex in 28 (40%), inversion of the T wave in 18 (25, 7%), conduction disturbances in the form of incomplete blockade of the left or right leg of the bundle of His were detected in 30 (42.9%) and atrial fibrillation in 22 (31.4%).

Therefore, the presence of a high frequency of atrial fibrillation and blockade of the left or right bundle of His in patients with coronary heart disease in combination with NASH can probably be associated with the presence of dyslipidemia, which, due to increased chronic inflammation, damages the tissues of the heart muscle, thereby reducing its electrophysiological properties, in the form of conduction disturbances and arrhythmias. Our study confirms the data obtained in 2024 by the team of authors Dimala, C. and others, where ECG changes were studied in the combined course of CAD with NASH [17].

At the next stage of the study, biomarkers reflecting the activity of the cardiovascular system, namely brain natriuretic peptide (BNP) and the N-terminal fragment of brain natriuretic propeptide (NT-proBNP), were measured and the following data were obtained (table 4).

Significantly higher levels of BNP were found in patients of group 1-a, by 3 times compared to group 2 and by 1.5 times compared to group 1-b at $p<0.05$. Significantly higher levels of NT-proBNP are also observed, as compared with group 2 by 3.4 times, and with group 1-b by 1.2 times at $p<0.05$.

Therefore, these changes are probably caused by low-intensity chronic inflammation associated with NASH, as well as the presence of excess body weight and obesity, dyslipidemia, hypertension increases the load on the heart, thereby stimulating the production of BNP by cardiomyocytes. An increase in BNP and NT-proBNP in the blood is a marker of adverse cardiovascular events in this category of patients. This is evidenced by the results obtained in 2020 by Qiao Z. et al., where the relationship between NASH and the level of BNP and NT-proBNP in the blood was shown [18].

Table 4 – Levels of biomarkers of the activity of the cardiovascular system

Indicators	Groups		
	1-a n=75	1-b n=70	2 n=100
BNP, pg/ml	65±13,1*..	45±12,5	25±10,2
NT-proBNP, pg/ml	434±67,2*..	376±46,3	128±29,2

Notes: * reliability of the difference in indicators in comparison with group 2 ($p<0.05$), ** – reliability of the difference in indicators in comparison with group 1-b.

Correlation analysis revealed a direct correlation between BNP levels and the frequency of hospitalizations ($r=0.761$, $p=0.0005$); and frequency of referral to ED ($r=0.516$, $p=0.0005$); and the length of stay in the hospital ($r=0.642$, $p=0.0005$), as well as the level of NT-proBNP and the frequency of hospitalizations ($r=0.684$, $p<0.05$),

and the frequency of referral to the ED ($r=0.647$, $p<0.05$), and length of stay in the hospital ($r=0.548$, $p<0.05$) in patients with coronary heart disease combined with NASH.

To assess the structural and functional state of the myocardium in patients, a study of cardio-hemodynamic parameters was performed, which were studied with the echocardiography, the average values are shown in (table 5).

Table 5 – Parameters of cardiohemodynamics of the heart

Parameters	Groups		
	1-a n=75	1-b n=70	2 n=100
EDS LV, mm (N-38-56)	53±0,4	50±0,3	47±0,2
ESS LV, mm (N-25-40)	38±0,2*..	35±0,2	31±0,1
EDV LV, ml (N-108-140)	132,1±24,1*..	116,2±16,1	109,0±5,1
ESV LV, ml (N-38-51)	62,2±11,2*..	59,1±11,1	42,2±8,2
SV, ml (N-60-100)	62,1±9,1*..	63,2±9,3	70,1±4,2
EF, % (N-55-75)	52,7±4,1*..	56,1±5,2	62,2±3,2
IVS, mm (N-6-11)	8,9±2,3*..	7,7±1,3	6,1±1,2
LVH, mm (N-6-11)	9,3±1,3*..	8,3±1,4	7,0±1,4
LA, mm (N-24-38)	32±6,1*..	27±3,4	25±2,8
RV, mm (N-0,95-30)	16,4±3,6*..	15,5±2,4	11,4±3,3

Notes: * – reliability of the difference in indicators between 1a and 1b groups of patients; .. – the reliability of the difference between indicators in comparison with group 2 ($p<0.05$)

During echocardiography, all patients (145 patients with coronary artery disease in combination with NASH and 100 patients with coronary artery disease) showed signs of atherosclerosis of the aorta as thickening and densification of the wall. LV diastolic dysfunction (DD) was detected in 56 (74.6%) in group 1-a, in 40 (57.1%) in group and in 20 (20%) in group 2. Among all patients with DD according to the type of myocardial relaxation in 89% and according to the type of pseudorelaxation in 11% LV ejection fraction in group 1-a – 35 (46.6%), in group 1-b – 25 (35.7%) and in group 2 – 25 (25%) patients had a moderate decrease in systolic function, the rest LV hypertrophy was diagnosed in 38 (50.6%) patients of group 1a, 30 (42.8%) patients of group 1b and 29 (29%) patients of group 2. The average value of the EDD, ESD, EDV and ESV of LV in groups 1-a and 1-b in combination with NAFLD were probably greater than in group 2 ($p<0.05$). Our data coincide with the results of the study by I. Vakalyuk in 2020. where characteristic echocardiographic changes of the heart were studied in the combined course of CHD with NASH [19].

Conclusions.

1. The clinical course of coronary heart disease in the presence of NASH depends on the number of metabolic factors and is characterized by a significantly higher frequency of angina attacks, cardio-hemodynamic disturbances, and increased levels of BNP and NT-proBNP with preserved LV ejection fraction, compared to patients with coronary heart disease without metabolic risk factors.

2. Atrial fibrillation and blockade of the left or right branches of the bundle branch are significantly more often registered in patients with coronary artery disease in combination with NASH than in patients with coronary artery disease without NASH.

3. According to the results of echocardiography, a significantly higher prevalence of diastolic dysfunction, with a predominance of the type of impaired myocardial relaxation, was found in patients with coronary artery disease in combination with NASH and metabolic risk factors, than in patients with coronary artery disease without metabolic factors.

4. Patients with coronary heart disease in the presence of NASH and metabolic risk factors significantly more often require hospitalization with a greater number of bed-days than patients with coronary heart disease without metabolic factors.

Prospects for further research.

Development of treatment regimens for patients with comorbid pathology and evaluation of its effectiveness.

References

1. Bentsa TM. Nealkoholna zhyrova khvoroba pechinky ta sertsevo-sudynni zakhvoriuvannia: osoblyvosti komorbidnoho perebihu. 2020;1(237):44-7. [in Ukrainian].
2. Qiao Y-N, Zou Y-L, Guo S-D. Low-density lipoprotein particles in atherosclerosis. Front Physiol. 2022;13:1-15.
3. Parham JS, Goldberg AC. Review of recent clinical trials and their impact on the treatment of hypercholesterolemia. Prog Cardiovasc Dis. 2022;75:90-6.
4. Kounatidis D, Vallianou NG, Poulaki A, Evangelopoulos A, Panagopoulos F, Stratigou T, et al. ApoB100 and Atherosclerosis: What's New in the 21st Century? Metabolites. 2024;14(2):123-7.
5. Scrucci M, Poti F, Rodriguez-Carrio J, Campo GM, Mandraffino G. Biglycan and atherosclerosis: lessons from high cardiovascular risk conditions. Biochim Biophys Acta (BBA)-Molecular Cell Biol Lipids. 2020;1865(2):145-8.
6. Gugliucci A. Triglyceride-rich lipoprotein metabolism: key regulators of their flux. J Clin Med. 2023;12(13):43-9.
7. Heeren J, Scheja L. Metabolic-associated fatty liver disease and lipoprotein metabolism. Mol Metab. 2021;50:10-12.
8. Deprince A, Haas JT, Staels B. Dysregulated lipid metabolism links NAFLD to cardiovascular disease. Mol Metab. 2020;42:10-22.
9. Martin A, Lang S, Goester T, Demir M, Steffen H-M, Kasper P. Management of dyslipidemia in patients with non-alcoholic fatty liver disease. Curr Atheroscler Rep. 2022;24(7):533-46.
10. Stepanov YuM, Filippova Olu. Evoliutsiia uiaulen pro nealkoholnu zhyrovu khvorobu pechinky: vid ryzyku do katastrofy. Zaporozhskiy medytsynskiy zhurnal. 2020;2:267-74. [in Ukrainian].
11. Vatsaba B, Virstyuk N. Changes of Cholecystokinin-pancreozymine in Patients with Chronic Acalculous Cholecystitis in Combination with Non-alcoholic Fatty Disease and Stable Ischemic Heart Disease. World Sci. 2021;5:55-67.
12. Vakaliuk II, Virstyuk NH. Rol biolohichnykh markeriv steatozu ta prozapalnoi lanky v prohresuvanni nealkoholnoi zhyrovoy khvoroby pechinky v patsiientiv zi stabilnoiu ishemichnoiu khvoroboiu sertsia. Terapevtyka. 2021;2(1):27-32. [in Ukrainian].
13. Boiuka OV, Matiukha LE, Protsiuk OV. Patsiienty vysokoho sertsevo-sudynnoho ryzyku u praktysli likaria pervynnoi lanky. Simeina Medytsyna Yevropeiskyi praktyky. 2022;3:56-62. [in Ukrainian].
14. Anokhina HA. Nealkoholna zhyrova khvoroba pechinky yak multisystemne metabolitne zakhvoriuvannia: osoblyvosti profilaktyky ta likuvannia. Praktykuiuchy likar. 2018;7(3):35-40. [in Ukrainian].
15. MOZ Ukrainy. Nakaz MOZ Ukrainy № 826 vid 06.11.2014 r. Pro zatverdzhennia unifikovanoho klinichnoho protokolu pervynnoi, vtorynnoi (spetsializovanoi) medychnoi dopomohy «Nealkoholnyi steatohepatyt». Kyiv: MOZ Ukrainy. 2014. 40 s. [in Ukrainian].
16. Kasper P, Martin A, Lang S, Kuetting F, Goester T, Demir M, Steffen HM. NAFLD and cardiovascular diseases: a clinical review. Clinical research in cardiology. 2021;110:921-937.
17. Dimala CA, Nso N, Wasserlauf J, Njei B. Electrocardiographic Abnormalities in Patients with Metabolic Dysfunction-Associated Steatotic Liver Disease: A Systematic Review and Meta-Analysis. Current Problems in Cardiology. 2024;49(7):1010-18.
18. Qiao ZP, Zheng KI, Zhu PW, Gao F, Ma HL, Li G, et al. Lower levels of plasma NT-proBNP are associated with higher prevalence of NASH in patients with biopsy-proven NAFLD. Nutrition, Metabolism and Cardiovascular Diseases. 2020;30(10):1820-1825.
19. Vakalyuk I, Virstyuk N, Vakaliuk I. Prognosis assessment of the combined course of stable coronary heart disease and non-alcoholic steatohepatitis in patients after revascularization interventions. Georgian Medical News. 2020;308:47-52.

КЛІНІЧНІ ОСОБЛИВОСТІ ПЕРЕБІГУ ІШЕМІЧНОЇ ХВОРОБИ СЕРЦЯ ЗІ СТАБІЛЬНОЮ СТЕНОКАРДІЄЮ НАПРУГИ ЗА УМОВИ КОМОРБІДНОСТІ ІЗ НЕАЛКОГОЛЬНИМ СТЕАТОГЕПАТИТОМ

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Резюме. Неалкогольний стеатогепатит впливає на перебіг ішемічної хвороби серця через спільні патогенетичних механізмів. З метою визначення особливостей клінічного перебігу ішемічної хвороби серця зі стабільною стенокардією напруги в поєднанні з неалкогольним стеатогепатитом в залежності від метаболічних факторів було обстежено 145 хворих на ІХС у поєднанні з НАСГ та 100 хворих на ІХС. За допомогою стандартних методик проводилося загальноклінічне обстеження, УЗД ОЧП, визначали рівні натрійуретичних пептидів, ЕКГ, ехокардіографічне обстеження. Встановлено, що у пацієнтів на ІХС у поєднанні з НАСГ клінічні симптоми характеризувалися неспецифічністю ознак, щодо жирового ураження печінки. Найчастішими скаргами були астеничні та скарги емоційну лабільність. Клінічний перебіг ІХС за наявності НАСГ залежить від кількості метаболічних факторів та характеризується достовірно більшою частотою нападів стенокардії, порушенням кардіо-гемодинаміки та підвищенням рівнів BNP та NT-proBNP при збереженій фракції викиду ЛШ, у порівнянні з хворими на ІХС без метаболічних факторів ризику. У хворих на ІХС у поєднанні з НАСГ та метаболічних факторів ризику достовірно частіше реєструється фібриляція передсердь та блокада лівої ніжки пучка Гіса, а ніж у хворих на ІХС без НАСГ. За результатами ЕхоКГ встановлено достовірно більшу поширеність діастолічної дисфункції, з переважанням типу порушення релаксації міокарда у пацієнтів на ІХС у поєднанні з НАСГ та метаболічними факторами ризику, а ніж у хворих на ІХС без метаболічних факторів. Хворі на ІХС за наявності НАСГ та метаболічних факторів ризику достовірно частіше потребують госпіталізації з більшою кількістю ліжко-днів, а ніж хворі на ІХС без метаболічних факторів.

Ключові слова: ІХС, НАСГ, клінічний перебіг, натрійуретичний пептид.

CLINICAL CHARACTERISTICS OF THE COURSE OF CORONARY HEART DISEASE WITH STABLE TENSION STENOCARDIA UNDER THE CONDITIONS OF COMORBIDITY WITH NON-ALCOHOLIC STEATOHEPATITIS

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Abstract. Nonalcoholic steatohepatitis affects the course of coronary heart disease through common pathogenetic mechanisms. In order to determine the characteristics of the clinical course of coronary heart disease

with stable angina pectoris in combination with nonalcoholic steatohepatitis, depending on metabolic factors, 145 patients with CHD combined with NASH and 100 patients with CHD were examined. With the standard methods, a general clinical examination was carried out, an ultrasound of the abdomen, the levels of natriuretic peptides, an ECG, and an echocardiographic examination were determined. It was established that in patients with coronary artery disease in combination with NASH, the clinical symptoms were characterized by the non-specificity of signs related to fatty liver damage. The most frequent complaints were asthenic and complaints of emotional lability. The clinical course of coronary heart disease in the presence of NASH depends on the number of metabolic factors and is characterized by a significantly higher frequency of angina attacks, cardio-hemodynamic disturbances, and increased levels of BNP and NT-proBNP with preserved LV ejection fraction, compared to patients with coronary heart disease without metabolic risk factors. Atrial fibrillation and left bundle branch block are significantly more often registered in patients with coronary heart disease in combination with NASH, than in patients with coronary heart disease without NASH. Echocardiography revealed a significantly higher prevalence of diastolic dysfunction, with a predominance of impaired myocardial relaxation in patients with coronary artery disease in combination with NASH and metabolic risk factors, and than in patients with CHD without metabolic factors. Patients with CHD in the presence of NASH and metabolic risk factors significantly more often require hospitalization with a greater number of bed days than patients with CHD without metabolic factors.

Key words: CHD, NASH, clinical course, comorbidity, natriuretic peptide.

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Conflict of interest:

The authors declare that there is no conflict of interest.

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Received 03.03.2024

Accepted 01.05.2024

DOI 10.29254/2077-4214-2024-2-173- 235-240

UDC 616.895.8-06-07

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CLINICAL, DYNAMIC AND PATHOPSYCHOLOGICAL FEATURES OF PFROPSCHIZOPHRENIA IN MODERN CONDITIONS

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Pfropfschizophrenia is a schizophrenic psychosis that occurs in a patient with mental retardation. The study aimed to investigate the clinical, dynamic and pathopsychological features of pfropfschizophrenia in modern conditions. A total of 39 patients were examined. To achieve this goal, the following methods were used: clinical and anamnestic, clinical and psychopathological, experimental psychological (questionnaire to determine the internal picture of the disease), psychometric (Wechsler test to determine the level of intellectual development) and statistical. The study revealed the following features of pfropfschizophrenia. The majority of patients do not have a history of neuropsychiatric diseases. The reason for the first hospitalisation in a psychiatric hospital was mainly intellectual deficit. 77% of patients were diagnosed with mild mental retardation (F70) during their first hospitalisation. Schizophrenic symptoms, which appeared on average after 8.7 years, debuted in 85% of patients with hallucinatory and delusional disorders. The diagnosis of Pfropfschizophrenia (F20.8) was also confirmed by an experimental psychological study, which revealed both organic and endogenous symptom complexes in patients. In all patients, the intellectual deficit corresponded to mild mental retardation, which was classified as undifferentiated. The average IQ, according to the Wechsler test, was 62.8 ± 5.3 . All patients were diagnosed with a paranoid form of pfropfschizophrenia. The leading psychotic syndrome was hallucinatory-paranoid. A personality defect was observed in 77% of cases, mainly of the apathetic-abulic type. Most patients had an anosognostic type of internal picture of the disease.