

Clinical Characteristics of Acute Coronary Syndrome in Young Patients

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Annotation: Cardiovascular disease (CVD) is the leading cause of morbidity and mortality worldwide [6]. They account for 31.5 percent of all deaths on the planet and 45 percent of deaths from non-communicable diseases, which is twice the death rate from cancer [7]. OCD is one of the most dangerous variants of IBD because it is the main nosological unit that causes death and disability among all cardiovascular diseases. Despite the positive changes achieved in recent years, the mortality rate from diseases of the circulatory system in our country and around the world remains high [12]. With the aging of the population, OCD becomes an increasingly common phenomenon [15, 8]

Keywords: arterial hypertension, brachiocephalic artery, left ventricular hypertrophy, ischemic heart disease, myocardial infarction, urolithiasis, recurve artery, cardiac ejection fraction.

Introduction

The study was conducted openly, under observation, and did not involve any interventions in treatment or patient management. This study was performed according to clinical standards.

Patients with pathologically significant pathologies: non-coronary heart disease, concomitant chronic diseases in the period of seizures or incomplete remission, systemic diseases, acute inflammatory processes, or malignant tumors were not included in the study.

The WHO Age Classification (2017) was used to group patients:

- 25-44 - young;
- 45-59 - average age;
- 60-74 years - old age;
- 75-89 years - old age;
- Over 90 years old - long-lived.

The treatment strategy was implemented in accordance with international guidelines for the management of patients with OCD [2]. Accordingly, patients received anticoagulants, dual antiplatelet agents (aspirin + clopidogrel), beta-blockers, angiotensin-converting enzyme inhibitors, or angiotensin II receptor antagonists, and streptokinase was used as a thrombolytic drug as directed.

Based on the third universal definition of myocardial infarction, myocardial infarction was diagnosed [2].

Diagnosis and treatment of acute and chronic heart failure (ARF and STDs) were performed in accordance with ESC 2016 recommendations [8].

Diagnosis and treatment of hypertension were also performed according to clinical guidelines [9].

Body mass index was used for the diagnosis of overweight and obesity.

$TMI = \text{weight (kg)} / \text{height (m)}^2$

According to TMI, overweight is 25.0-29.9 kg / m². There are 3 levels of obesity according to TMI:

I degree -30.0-34.9 kg / m²,

II degree -35.0-39.9 kg / m²,

Level III -40 kg / m² more

Diagnostic criteria for diabetes and other glycemic conditions have been used to diagnose diabetes mellitus [3, 7].

Family history of early STIs was assessed by the presence of early STDs in first-degree blood relatives (men under 55 years of age, women under 65 years of age) [2].

Smokers were considered to be at least one smoker per day and those who started smoking at least 12 months before the study.

The study included 124 OCD patients aged 25 to 74 years. Patients were divided into 2 groups according to age. The main group: 60 young patients (51 (84.4%) men and 9 (15.6%) women), the average age of the examined patients (40.3 ± 0.2). Comparison group: 64 patients aged 45 to 74 years (36 (57.8%) men and 28 (42.2%) women), mean age (61.12 ± 0.64).

The study groups were compared on the number of patients with myocardial infarction and unstable angina. Myocardial infarction was detected in 32 (51.6%) of young patients and in 38 (61.7%) p = 0.277 elderly patients. Unstable angina was detected in 28 (48.4%) patients in the main group and in 26 (38.3%) patients in the comparison group (p = 0.277).

Patient group	Number of patients	Age		
			Male	Woman
Main group	60	25-44 ($40,3 \pm 0,2$)	51	9
Comparison group	64	45-74($61,12 \pm 0,64$)	36	28

Table 1. Characteristics of the main and comparison group patients

Clinical manifestations of angina in elderly patients are often observed before the present OCD, and in the younger group of patients this phenomenon is often observed for the first time. Post-infarction atherosclerosis (ICKS) was more common in elderly patients than in younger patients (p <0.001). In 4% of young patients included in our study, and in 19.4% of elderly patients, p <0.001 was found to have been previously diagnosed with SYY.

To date, patients with OCD have received the following outpatient medications: aspirin - 7 (11%) younger patients and 91 (71%), older patients with p <0.001, and statins - 4 (6.25%) and 30 (respectively). 23.4%, p <0.001; angiotensin converting enzyme inhibitors - 6 (9.4%) and 67 (52.3%), p <0.001; beta-blockers - 5 (7.8%) and 53 (41.4%), p <0.001.

The “atypical” clinical presentation of OCD was observed in 8.4% of young patients and in 5.7%, p = 0.613, in the comparison group.

There was no significant difference in familial susceptibility to early STDs in young and elderly patients with OCD (p = 0.332). Prior to joining the study, 74.5% of young patients and 51.4% of elderly patients were smokers. (p <0.001).

The mean TMI was kg / m² in young patients (28.0 ± 0.52) and kg / m² (p = 0.218) in the older patient group (28.91 ± 0.37). formed. The overweight patients were grouped according to the number of patients (p = 0.701). Patients with grade I obesity were more common in the older group of patients than in younger patients (33.1%, 23.1%, p = 0.023, respectively). Grade II obesity was detected in 14 patients in the main group and 11 patients in the comparison group (p = 0.589). Grade III obesity was lower in both groups, with 2.6% of young patients and 2.9% of older patients at p = 0.861.

Arterial hypertension was detected in 51.8% of young patients, which is statistically significantly lower than in the group of older patients observed in 78.3% p <0.001. Primary AG in 29% of patients in the main group and 48% in the comparison group, p <0.001, secondary AG in 16% of young patients and 20.6% of older patients, p = 0.263, and tertiary AG in 6.8% of patients under 45 years of age. and 9.7 percent, p = 0.314 were diagnosed in patients older than 45 years.

When analyzing carbohydrate metabolism, it was found that type 2 diabetes was almost 3 times more common in the adult patient group than in the younger group (28.6% and 9.3%, p <0.001). Impairment of carbohydrate tolerance was more common in the comparison group than in the main group. The mean glucose level in young people was (5.58 ± 0.08) mmol / L, and in elderly patients (6.06 ± 0.13) mmol / l, p = 0.008.

The clinical and anamnestic characteristics of the examined patients are presented in Table 2.

Indicator name	Main group (n = 60)	Comparison group (n = 64)	P

Stable tension stenocardia II-III FC, n (%)	17 (28,3)	41 (64)	< 0.001
IKKS, n (%)	4 (6,7)	9 (14)	< 0.001
Stenting, n (%)	5 (8,3)	5 (7,8)	< 0.001
ACB, n (%)	0	3 (4,7)	< 0.001
CHHF II-III FC, n (%)	26 (43,3)	46(72)	< 0.001
AH 1-darajasi, n (%)	17 (28,2)	30 (46,9)	< 0.001
AH 2-darajasi, n (%)	9 (15,6)	16 (25)	0.263
AH 3-darajasi, n (%)	4 (6,2)	7 (11)	0.314
Smoking, n (%)	40 (67,2)	33 (51.6)	< 0.001
Excess body weight, n (%)	23 (38,3)	23 (35,9)	0.701
Obesity, n (%)	18 (30)	28 (43,7)	0,05
1-degree of obesity, n (%)	13 (21,9)	21(32,8)	0,023
2-degree of obesity, n (%)	3 (4,7)	4 (6,25)	0.589
3-degree of obesity, n (%)	2 (3,1)	3 (4,7)	0.861
Diabetes 2 type, n (%)	5 (8,3)	18 (28,1)	< 0.001
Family anamnesis to early CKD, n (%)	20 (33,3)	22 (34,4)	0.332
Stress	25(41,6)	18(28,1)	<0.001

Table 2. Clinical and anamnestic features of patients with OCD

Concomitant diseases are more common in older patients. 1 (1.5%) young and 12 (9.4%), $p < 0.001$ older patients had a history of peptic ulcer disease, 1 patient in the main group (1.5%) and 11 in the comparison group (8, 6%), $p = 0.103$ patients underwent acute cerebrovascular accident (ICD). Chronic obstructive

pulmonary disease (COPD) was more common in the older patient group than in the younger patient group (3 (4.7%) and 9 (7%) $p = 0.014$). There were no significant differences in the incidence of bronchial asthma between the groups - 2 (3.1%) in younger patients and 4 (3%), $p = 0.190$ in older patients.

Indicator name	Main group (n = 60)	Comparison group (n = 64)	P
Stomach and duodenal ulcer disease, n (%)	2(3,3)	6(9,4)	< 0.001
stroke, n (%)	1(1,6)	5(7,8)	< 0.001
Chronic obstructive pulmonary disease, n (%)	1(1,6)	3(4,7)	< 0.001
Bronchial asthma, n (%)	2(3,3)	3(4,7)	< 0.001
Chronic kidney disease (glomerular filtration rate less than 60ml/min/1.73m ²), n (%)	0(0)	14(21,8)	< 0.001
Urinary stone disease, n (%)	1(1,6)	4(6,2)	< 0.001
Atherosclerotic stenosis of brachiocephalic arteries, n (%)	2(3,3)	10(15,6)	< 0.001

In addition to determining the complaints, objective condition, anamnesis, hemodynamic parameters (heart rate and blood pressure) of all patients admitted to the study, the patients underwent general clinical examinations, as well as instrumental and laboratory examinations.

General clinical, biochemical analyzes, and instrumental examinations were performed at the TTA Multidisciplinary Clinic.

Indicator name	Reference value
Troponin I, ng/ml	0,02
MB KFK, E/l	25
Edible sugar, mmol/l	6,4 less than
XS, mmol/l	3.3-5.2
PZLP, mmol/l	0,0-3,0
YZLP, mmol/l	0.9-1.45
TG, mmol/l	0.4-1.7

Table 4. Normal biochemical parameters

In the younger patient group, cholesterol (XS), triglycerides (TG), and low-density lipoprotein (PZLP) were above normal and were statistically significantly higher than in the elderly. No statistically significant differences were found between groups in terms of high-density lipoprotein (YZLP) levels ($p = 0.390$), but this figure was reversed below the norm in the youth group. The results of lipid metabolism are presented in Table 2.

Indicator name	Main group (n = 64)	Comparison group (n = 128)	P
Total cholesterol, mmol/l	6,29 ± 0,19	4.66 ± 0.09	< 0.001
Triglycerides, mmol/l	2.35 ± 0.10	1,97 ± 0,07	0.008
PZLP, mmol/l	3.14 ± 0.07	2.68 ± 0.08	< 0.001
YZLP, mmol/l	0,97 ± 0,02	1.00 ± 0.03	0.390

Table 5. The main indicators of lipid metabolism in the examined patients

Hypercholesterolemia was more common in the younger group of patients than in the elderly group. (40% vs. 31.4%, p = 0.084). Hypertriglyceridemia recurred in 58% of young patients and 56% of older patients in the group p = 0.711. Elevated levels of PZLP were more common in the first group of patients than in the comparison group (43.7% and 33.6%, p = 0.008, respectively). It was found that there were no significant differences between the groups in terms of the low level of YZLP

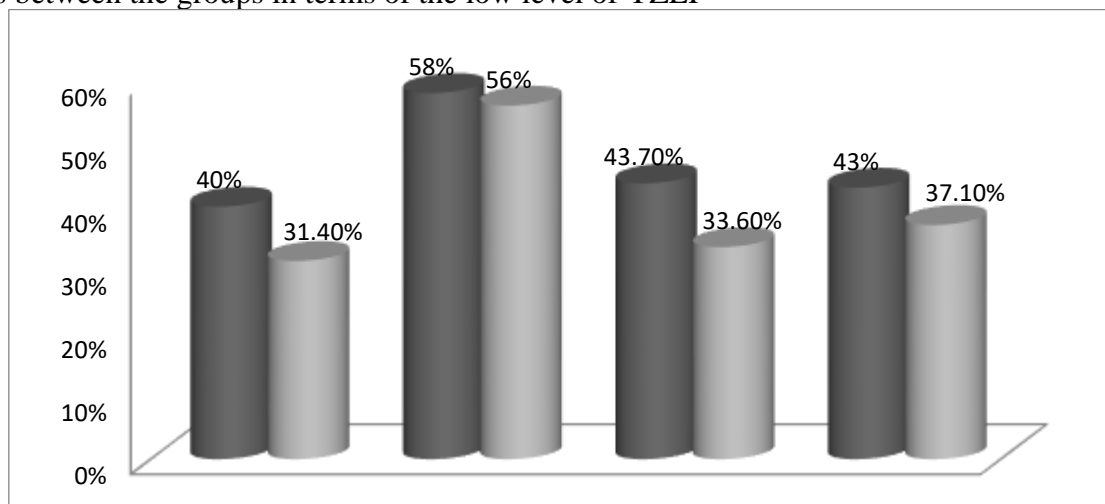


Diagram 1. The main indicators of lipid metabolism in the examined patients are presented in the form of diagrams

All patients examined were first examined by a 12-band electrocardiogram (ECG). Through this examination, patients were divided into patients with ST elevation and those without ST elevation, and they were treated accordingly. In addition, all patients examined underwent daily ECG monitoring (Holter). We used echocardiography to determine the ability of the heart to contract myocardium, the thickness of its walls, the presence of foci of hypokinesia and akinesia, the condition of the valve apparatus, and the heart rate and heart rate.

It has also been used to diagnose complications of OCD, particularly MI, using laboratory and instrumental tests.

T. Killip's classification of the severity of acute left ventricular failure:

Stage I: No signs of heart failure.

Stage II: mild heart failure: shortness of breath, auscultation, accent III tone at the level of the pulmonary artery, wet wheezing in the lower part of the lungs.

Stage III: severe heart failure: shortness of breath, wet wheezing on almost all surfaces of the lungs.

Stage IV: a sharp drop in blood pressure, peripheral vasoconstriction, impaired microcirculation, pronounced cyanosis, cold skin, sticky sweat, oliguria and occasional disturbances of consciousness.

Diagnostic criteria for lung cancer:

- Presence of acute acrocyanosis and peripheral tumors.
- cold and bruised limbs
- forced orthopnoea

-inspirator-type shortness of breath
-auscultation of the lungs, first with small bubbles and wet wheezing, then with large bubbles dry and wet wheezing

-heart sounds are muffled and sometimes arrhythmic

-complete sputum with a bright red cube

Diagnostic criteria for cardiogenic shock:

1. Symptomatic complex of peripheral circulatory failure:

- Moist and gray cyanotic, marble color of the skin

-acrocyanosis of the veins

-Hold cold hands and feet

-Low body temperature

2. Disorders of consciousness (numbness, soporosis, complete loss of consciousness)

3. Oliguria (decrease in diuresis from 20ml / s)

4. Systolic arterial blood pressure 90 mm. sim. ust. decrease from

5. Decrease pulse pressure to 20 mm wire top

6. Diastolic blood pressure 60 mm. sim. ust. decrease from

7. Arterial hypotension lasting more than 30 minutes

8. Hemodynamic parameters:

-pressure in the pulmonary artery 15 mm. sim.ust. higher than

-reduction of heart index from 1.8 l \ min * m²

-increased total peripheral vascular resistance

-increased end-diastolic pressure in the left ventricle

-decreased heart rate and minute volume

The majority of the young patients examined were 54 men (84.4%), who were statistically much higher than 74 people (57.8%) in the comparison group, $p < 0.001$. There were relatively fewer women in the main group than in the comparison group (54 (42.2%) and 10 (15.6%), respectively).

Clinical and anamnestic features of patients

There was almost no difference in the distribution of OCS variants between the groups. MI was frequently diagnosed regardless of the age of the patients: MI was observed in 45 (70.3%) young patients and in 88 (68.7%), $p = 0.277$ elderly patients. NS developed in 19 (29.7%) patients in the main group and in 40 (31.3%) patients in the comparison group ($p = 0.277$). The diagnosis of OCD ST segment elevation was made in 61% of the young patients group and 58.6% of the patients in the comparison group, $p = 0.945$. The diagnosis of STI without segment elevation was in 25 (39%) patients in the main group and in 53 (41.4%) patients in the comparison group, $p = 0.945$. Q-wave MI developed in 45.3% of young patients and 36.7% of older patients. Q toothless MI was reversible in 25% of patients in the main group and in 32% of patients in the comparison group.

In the younger patient group, anterior MI (59.5% and 36.5%, $p < 0.001$) and lower localized MI (20% and 11.1%, respectively), were more common than in the middle- and elderly-age group. $p = 0.046$ was returned. Posterior MI was statistically significantly lower in the younger patient group than in the adult patient group (9.1% and 43.7%), $p < 0.001$. Indefinite location

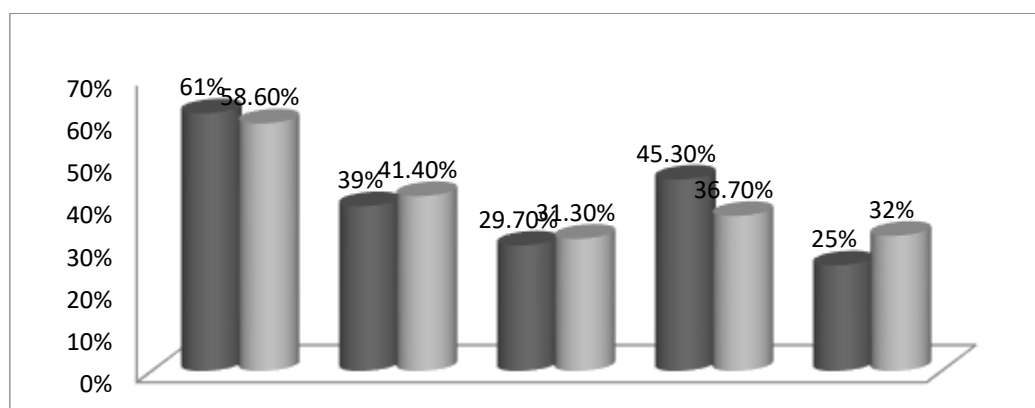


Diagram 2. Diagnosis and outcome at the time of admission to the examined patients it was found that there were no differences between the groups on ZI MI (7.3% of patients aged 25 to 44 years and 8.7% of patients aged 45 to 74 years, $p = 0.808$). Upper lateral MI was found to be less common (3.9%) in younger patients; this localization was not observed in the comparison group, $p = 0.058$.

The name of the drug	Main group (n = 60)	Comparison group (n = 64)	P
Acetyl salicylic acid (aspirin), n (%)	6(10)	44(68,7)	< 0.001
Statins, n (%)	4(6,7)	15(23,4)	< 0.001
Angiotensin converting enzyme inhibitors or angiotensin receptor blockers, n (%)	5(8,3)	30(49,7)	< 0.001
Beta blockers, n (%)	4(6,7)	27(42,2)	< 0.001

Table 6. Outpatients' medications before the development of OCD

Thus, OCD is more common in men during adolescence, and as people get older, women are more likely to develop OCD, and in this respect they are closer to men. This once again confirms that men are at higher risk of developing YIC.

Indicator name	Main group (n = 60)	Comparison group (n = 64)	P
Total cholesterol, mmol/l	4.66 ± 0.09	6,29 ± 0,19	< 0.001
Triglycerides, mmol/l	1,97 ± 0,07	2.35 ± 0.10	0.008
PZLP, mmol/l	2.68 ± 0.08	3.14 ± 0.07	< 0.001
YZLP, mmol/l	1.00 ± 0.03	0,97 ± 0,02	0.390

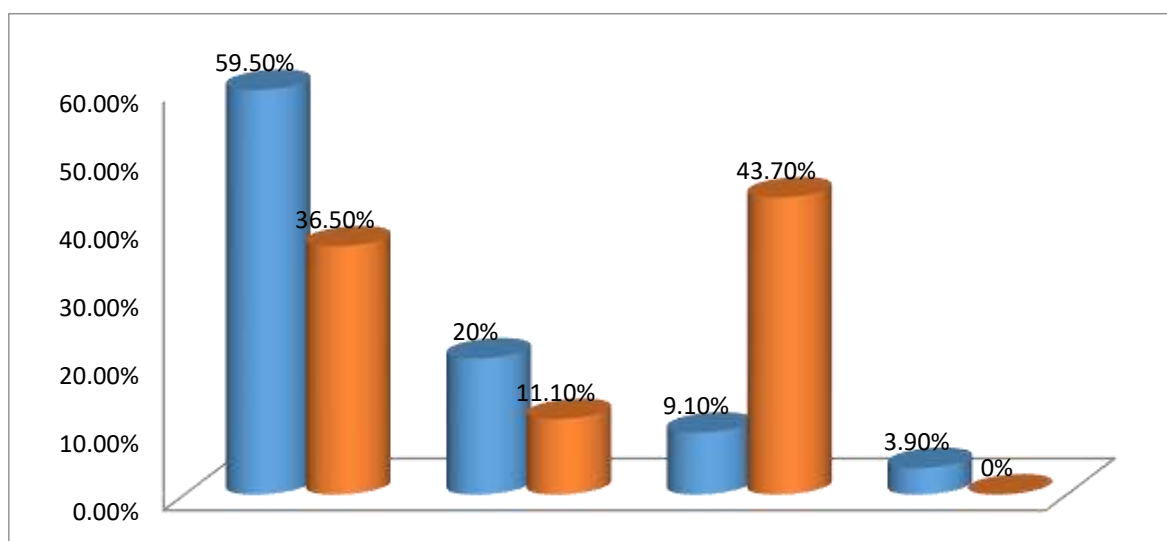
Table 7. Indicators of lipid metabolism in patients

Indicator name	Main group (n = 60)	Comparison group (n = 64)	P
Prothrombin time	11,7 ± 0.09	10,2 ± 0,19	< 0.001
Partially activated thromboplastin time (AChTV)	29 ± 0,07	26 ± 0.10	0.008
Thrombin time	16 ± 0.08	14 ± 0.07	< 0.001
Fibrinogen	378,24 ± 3,2	427,35 ± 2,1	< 0.001
MNO	1,1	0,9	0.390

Hematocrit	55± 2,2	52± 1,6	< 0.001
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Table 8. Coagulogram indicators in patients

Indicator name	Main group (n = 60)	Comparison group (n = 64)	P
ALT (mkmol/l)	0,48± 0.09	0,52 ± 0,08	< 0.001
ACT (mkmol/l)	0,34± 0,07	0,39 ± 0.01	< 0.001



Both groups of patients developed Q-toothed MI at a value close to each other. Anterior and inferior localization of myocardial infarction were most common in young patients, and posterior localization was more common in middle-aged and elderly patients. Myocardial infarction was associated with complications in 40.8% of young patients, the most common complications were: CHQ aneurysm - 12.1%, post-infarction angina - 9.1%, Killip II - 7.3%, ventricular fibrillation - 3, 9%, Killip III - 3.3%.

Indicator name	Main group (n = 49)	Comparison group (n = 57)	P
YQOBF,%	60,2 ± 0,5	56,74 ± 0,62	< 0.001
Patients with ChQ systolic dysfunction (YQOBF< 45%), n (%)	4(8.2)	6 (6.9)	0.9
Patients with LV diastolic dysfunction (YQOBF< 45%), n (%)	8 (16.3)	38 (43,7)	< 0.001
ChQG, n (%)	11 (22.4)	50 (57.4)	< 0.001
ChB, mm	45,0 ± 0,5	47,1 ± 0,7	0,05
OSO', mm	37,0 ± 0,4	39,9 ± 0,3	0.001

ODO', mm	45,7 ± 0,3	54,3 ± 0,2	< 0.001
QAT, mm	9.46 ± 0.11	10.76 ± 0.12	< 0.001
ChQOD, mm	10,38 ± 0,09	10.98 ± 0.18	0.001
1 segmental hypokinesia, n (%)	25(51)	22 (25.4)	< 0.001
2 or more segments are hypokinetic, n (%)	6(12,2)	35 (40,2)	< 0.001

Table 11. Morphofunctional parameters of the heart in patients undergoing myocardial infarction
 Comparing the morphological and functional parameters of the heart, it was found that YQOBF was higher in young patients than in older patients, but even in the first group, patients with YQOBF were less than 45%. In the main group of patients, the indicators of CB, ODO, OSO, QAT, CHOD were significantly lower than in the comparison group. ChQG was recurrent in 22.4% of young patients and in 57.4% of patients in the comparison group, $p < 0.001$. Hypokinesia was detected in one segment of the myocardium in 51% of young patients, while hypokinesia of two or more segments was observed in patients in the comparison group.

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