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ONCOLOGY DISEASE IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION WITH NONOBSTRUCTIVE CORONARY ATHEROSCLEROSIS

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The aim of this study was to evaluate the cancer incidence among patients with myocardial infarction with nonobstructive coronary atherosclerosis (MINOCA). **Material and Methods.** The non-randomized controlled study included patients with acute coronary syndrome (ACS) treated between 2010 and 2015. Inclusion criteria comprised NOCA (normal coronary arteries / plaques <50%) confirmed by invasive coronary angiography (CAG) and age over 18 years at the time of randomization. The exclusion criterion was revascularization of the coronary arteries. We compared the study population with patients from POLINCOR study (NCT03122340), which included patients with ACS with obstructive CAD confirmed by invasive CAG, who were admitted to the department of emergency cardiology in 2015-2016 [5]. **Results.** Among 5794 patients, who were hospitalized with ACS to the Department of Emergency Cardiology in 2010-2016, 2.8% (161) patients demonstrated nonobstructive coronary atherosclerosis confirmed with CAG. One (0.6%) patient died. There were 94 (58%) cases with acute myocardial infarction, 27 (17%) with unstable angina, 15(9%) with pseudo-coronary scenario of myocarditis, 7 (4%) with cardiomyopathy, and 16 (10%) with arrhythmias, congenital heart defects, aortic dissection. Among the patients with MINOCA, there were 30 (19%) patients with malignant and non-malignant tumors with cancer, including 7 (23%) patients with cancer of kidneys, sigmoid colon and cervix. Bladder cancer was diagnosed in 1 (0.6%) case before admission to the hospital, and lung cancer was identified in 1 (0.6%) case at autopsy. The cancer incidence rate in patients with MINOCA was higher than in patients with obstructive CAD. **Conclusion.** The proportion of patients with MINOCA among patients with ACS in 2015-2016 was 2.8 % (161). MINOCA encompasses a heterogeneous group of diseases, including AMI, unstable angina, myocarditis, cardiomyopathy, arrhythmia, aortic dissection and others. Hospital mortality was 0.6%. The cancer incidence in patients with MINOCA was higher than in patients with obstructive CAD.

Keywords: myocardial infarction, nonobstructive coronary artery, MINOCA, oncology disease, cancer.

Introduction

Myocardial infarction with myocardial infarction with nonobstructive coronary atherosclerosis (MINOCA) represents a heterogeneous group of diseases. According to previous studies, the incidence of MINOCA is 1-14% [1]. One of the causes of MINOCA is coagulation disorders associated with tumor [1] and endothelial dysfunction after chemo- and radiotherapy which can lead to coronary vasospasm and thrombosis [2]. It is known [3] that the risk of cancer is 46% higher in patients with MI than in patients without MI within 6 months after MI diagnosis. Most studies were focused on the risk of cancer in patients with obstructive coronary artery disease (CAD). Little data is available on increased risk of cancer in patients with MINOCA. According to the SWEDHEART registry [4], cancer is an independent predictor of mortality in MINOCA. Further research is important to understand underlying mechanisms of MINOCA.

The aim of the study was to evaluate the cancer incidence among patients with MINOCA.

Material and Methods

Non-randomized open controlled study included patients, who were admitted to the department of emergency cardiology due to acute coronary syndrome (ACS) in 2016 and analyzed medical histories of ACS patients treated between 2010 and 2015. Inclusion criteria comprised NOCA (normal coronary arteries / plaques <50%) confirmed by invasive coronary angiography (CAG), patients' age over 18 years at the time of randomization. The exclusion criterion was revascularization of the coronary arteries.

We compared the study population with patients from POLINCOR study (NCT03122340) which included patients with ACS with obstructive CAD, confirmed by invasive CAG [5].

Results

Among 5794 people who were hospitalized with acute coronary syndrome to the Department of Emergency Cardiology in 2010-2016, 2.8% (161) patients demonstrated nonobstructive coronary atherosclerosis confirmed by CAG. One (0.6%) patient died. There were 94 (58%) cases with acute myocardial infarction, 27 (17%) with unstable angina, 15(9%) with pseudo-coronary scenario of myocarditis, 7 (4%) with cardiomyopathy, and 16 (10%) with arrhythmias, congenital heart defects, aortic dissection. The average age of the patients was 57 years, the proportion of men was 66%. The prevalence of dyslipidemia, peripheral atherosclerosis and family history are more common in patients with MINOCA than in patients with obstructive CAD (Table 1).

Among the patients with MINOCA, there were 30 (19%) patients with malignant and non-malignant tumors, including 7 (23%) patients with cancer of kidneys, sigmoid colon and cervix. Bladder cancer was confirmed in 1 (0.6%) case before admission to the hospital, and lung cancer was identified in 1 (0.6%) case at autopsy. The incidence of oncology diseases in patients with MINOCA was higher than in patients with obstructive CAD (Table 1).

Table 1

Clinical and anamnestic characteristics of the patients

	MINOCA	**MI CAD
N	161	57
Man, n (%)	107(66%)	42(74%)
Average age, Me (Q1;Q3)	57(50;61)	58(51;64)
Arterial hypertension, n (%)	122(76%)	45(79%)
Dyslipidemia, n (%)	128(80%)*	36(63%)*
Body mass index, Me(Q1;Q3), (kg/m ²)	28(24;32)	27(24;29)
Family history, n (%)	59(37%)*	13(23%)*
Smoking, n (%)	95(59%)	34(60%)
Diabetes mellitus	24(15%)	9(16%)
Chronic Kidney Disease, n (%)	4(2,5%)	2(4%)
Glomerular filtrate rate, Me(Q1;Q3), (ml/min/1,73 m ²)	73(60;82)	72(60;86)
Peripheral atherosclerosis, n (%)	108(67%)*	30(53%)*
Stroke, n (%)	12(7%)	3(5%)
Previous myocardial infarction, n (%)	9(6%)	4(7%)
Heart Valve Diseases, n (%)	3(2%)	0
Nonmalignant/malignant tumors, n (%)	30 (19%)*	0*

*p<0,05 ** - data from NCT03122340

Conclusion

The proportion of patients with MINOCA among the patients with ACS in 2015-2016 was 2.8 % (161). These results were consistent with other recent studies INOCA presents heterogeneous group of diseases, such as AMI, unstable angina, myocarditis, cardiomyopathies, arrhythmias, aortic dissection and other noncardiac diseases. Hospital mortality was 0,6 %. Incidence of oncology diseases in the patients with MINOCA was higher than in the patients with obstructive CAD.

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