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FREQUENCY OF OCCURRENCE OF RISK FACTORS AND ADHERENCE TO DRUG THERAPY IN YAKUTS WHO UNDERWENT Q-POSITIVE MYOCARDIAL INFARCTION

Abstract

The **objective** of the article was to study the compliance to drug therapy and the incidence rate of cardiovascular risk factors in Yakutia patients after Q-wave myocardial infarction for 12 months. **Materials and methods.** The study included 113 patients from Yakutsk with acute Q-wave myocardial infarction, the mean age of patients was 59 years [51;64]. **Results.** The following conclusions are obtained: The majority of patients of Yakut nationality after Q-wave myocardial infarction have a high incidence rate of cardiovascular risk factors. Among the examined patients of this category after 6 months a low compliance to prescribed therapy [clopidogrel/ticagrelor (by 9.9%), ACE inhibitors / ARBs (by 18%), β-blockers (by 24.6%), statins (by 46.7%)] was received. By the 12th month there was an increased compliance to taking statins by 33.3% and beta-blockers by 17.8%. Hypertension is a well-controlled risk factor, in most patients there is an effective reduction in high blood pressure values from the first months. The mean values of total cholesterol, cholesterol — LDL and the frequency of hypercholesterinemia, hypercholesterinemia LDL for 12 months after a recent MI is decreased, but the target values were not achieved due to low compliance to taking statins. **Conclusion.** Due to the low compliance to drug therapy and the insufficient correction of risk factors for CVD development after MI there was noted repeated hospitalizations for reccurent ACS, decompensation of CHF, and fatal outcomes, regardless of ethnicity, which requires intensification of the measures for follow-up treatment at the out-patient level.

Key words: *secondary prevention, compliance, myocardial infarction*

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aPPT — activated partial thromboplastin time, ARB — angiotensin receptor blocker, HCL — hypercholesterolemia, ACE — angiotensin-converting enzyme inhibitors, CAD — coronary artery disease, MI — myocardial infarction, BMI — body mass index, GI — glucose intolerance, CED with ICG — Cardiology Emergency Department with Intensive Care Group, ACA — acute cerebrovascular accident, WC — waist circumference, RH No. 2 — ECC — Emergency Care Center of the Republican Hospital No. 2, RVC — Regional Vascular Center, DM — diabetes mellitus, CVDs — cardiovascular disorders, TT — thrombolytic therapy, PCI — percutaneous coronary intervention

Introduction

Despite significant progress in modern medicine, cardiovascular disorders (CVDs) still remain the most relevant sociomedical issue affecting all main medical demographical parameters (morbidity, mortality, disability, life expectancy in the population, etc.). Coronary artery disease (CAD) and its acute forms, including primarily myocardial infarction (MI), present the biggest threat

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to public health among CVDs. During the last 30 years, a stable decrease in CVD mortality has been observed in developed countries [6, 13]. In Russia, mortality rates, including CVD mortality, remain high since 2012, but there has been a downward trend. A 13.8% decrease in this parameter has been recorded in the Republic of Sakha (Yakutia) in recent years: from 443.1 to 367.5 cases per 100,000 people.

According to the National Population Census of 2010, the proportion of members of the indigenous population in the Republic of Sakha (Yakutia) was 53.9% (Yakuts, Evenki, Evens, etc.). Today, industrialization and urban development processes as well as changes in lifestyle and diet have led to failures of evolutionary mechanisms of adaptation to extreme environmental conditions and have resulted in the development of diseases among members of the indigenous population. This is evidenced by short life expectancy as well as high CVD morbidity and mortality in Northern regions [1, 5, 10]. One of the reasons for high CVD mortality rate may be insufficiency of preventive measures after repeated MI in our country. These measures are predominantly directed at preventing the development and progression of the disease and should be based on a scientific concept for the elimination and pharmaceutical treatment of risk factors [12]. Noncompliance with pharmaceutical therapy leads to a worsening of the disease and the development of complications [13]. No studies of compliance with pharmaceutical treatment in patients with cardiovascular disorders have been conducted among the indigenous population of Yakutia.

Therefore, the **objective** of our study was to evaluate 12-month compliance with pharmaceutical therapy and the incidence of CVD risk factors in patients of Yakut origin who have suffered a Q-wave MI.

Materials and Methods

Clinical data were collected in the Cardiology Emergency Department with Intensive Care Group (CED with ICG) of the Regional Vascular Center (RVC) of the Emergency Care Center of the Republican Hospital No. 2 (RH No. 2 — ECC). The total number of patients with Q-wave MI between the ages of 30 to 74 who were hospitalized at the Department during the period from January 2013 to July 2014 and met the inclusion and exclusion criteria for this study was 171, and 58 of them refused to participate in the study. Therefore, the analysis included 113 patients with acute Q-wave MI from Yakutsk. The mean age of the patients was 59 years [51 to 64]. All patients signed Informed Consent forms. The protocol was approved by the local Ethics Committee. Ninety-nine (87.6%) of 113 patients received percutaneous coronary intervention (PCI). Fourteen patients did not receive PCI due to the following reasons: absolute contraindications — 1 patient (iodine allergy), written refusal of PCI — 6 patients, technical issues with angiography system at the time of hospitalization — 7 patients. Prehospital thrombolytic therapy (TT) was performed for 15 patients (15.3%).

Inclusion criteria:

- Acute MI (2012) was diagnosed according to the ESC recommendations based on the following signs: significantly elevated levels of cardiac enzymes in the blood, clinical data, ECG findings, and Echo-signs of ventricular asynergy [9].
- Age range: from 30 to 74.
- Consent to participate in the study.

Exclusion criteria: acute cerebrovascular accident (ACA) within the last 12 months; coma; comorbidities (malignant metastatic neoplasm); residents of other cities; refusal to participate in the study.

Patients were divided into groups according to their ethnicity. Group 1 included indigenous subjects (Yakuts), including 47 patients with a mean age of 55.1 [48 to 62]. Group 2 (the comparison group) included 66 Caucasian subjects (predominantly Russians). The mean age of the patients was 59.2 years [53 to 65].

In the hospital, patients with acute MI received the following treatment in accordance with the standard of care for patients with acute coronary syndrome: nitrates, unfractionated and low molecular weight heparins (with monitoring of activated partial thromboplastin time (aPTT)), beta-blockers, disaggregants, angiotensin-converting enzyme (ACE) inhibitors, calcium antagonists, and statins. Percutaneous coronary intervention was performed immediately after diagnostic selective coronary arteriography.

The rate of lipid profile abnormalities was determined using recommendations of the Expert Committee of the Russian Society of Cardiology (RSC) 2012. Due to very high risk of cardiovascular complications in the examined patients, we classified the following values as dyslipidemia: total cholesterol ≥ 4.0 mmol/L, low density lipoproteins (LDL) cholesterol ≥ 1.8 mmol/L, high density lipoproteins (HDL) cholesterol ≤ 1.0 mmol/L in men and 1.2 mmol/L in women, triglycerides ≥ 1.7 mmol/L [3].

Based on recommendations of the Expert Committee of the Society of Cardiology of the Russian Federation (2011), we considered waist circumference (WC) of > 94 cm in men and > 80 cm in women as the main sign of central obesity (abdominal obesity) [2].

Body mass index (BMI) was evaluated based on the Quetelet index II using the following equation: weight (kg) / height (m^2). BMI of 18.5 to 24.9 kg/m^2 was considered to indicate normal body weight, BMI of 25 to 29.9 kg/m^2 was interpreted as being overweight (preobesity), and BMI of ≥ 30 kg/m^2 was interpreted as obesity [4].

Blood pressure of ≥ 140/90 mm Hg or the chronic administration of antihypertensive agents were classified as hypertension (Society of Cardiology of the Russian Federation, 2010).

Regular smokers were considered as those smoking at least one cigarette per day for the last 12 months. Plasma glucose levels of ≥ 7.8 mmol/L to ≤ 11.1 mmol/L two hours after glucose load were considered to be glucose intolerance (GI), diabetes mellitus (DM) was diagnosed at: plasma glucose level two hours after glucose load ≥ 11.1 mmol/L and fasting glucose level ≥ 7.0 mmol/L [8].

Upon discharge, all patients received detailed instructions on the necessity of preventive measures, adopting changes in lifestyle, and administration of all of the following recommended medicines: acetylsalicylic acid, clopidogrel/ticagrelor, statins, beta-blockers, RAAS inhibitors / ARBs, nitrates, and diuretics.

The effectiveness status and outcomes were assessed after 6 and 12 months. Repeated examination after discharge included the following: ECG, Echo, analysis of lipid profile, ALT, AST, creatine phosphokinase, blood glucose, serum urea, and creatinine.

Statistical Analysis

Statistical analysis was performed using IBM SPSS 19 software. Normality of distribution of quantitative parameters in the groups was assessed using the Kolmogorov-Smirnov test and the Shapiro-Wilk test. Since the distribution of quantitative parameters was non-normal, scatter values are presented as the median and interquartile ranges in Me format (Q25; Q75). The following non-parametric tests were used to evaluate the significance of differences between the groups: for two independent samples — Mann-Whitney test, contingency table, and Pearson's chi-squared test. The difference was considered significant at $p < 0.05$.

Results and Discussion

According to literature data, in the Russian Federation MI develops in 0.2–0.6% of men between the ages of 40 and 59 each year; in the elder group (60 to 64 years old) MI morbidity increases to 1.7% [6, 14]. Young and middle-aged women develop the disease 2.5–5 times less frequently than men due to later development of atherosclerosis. After menopause, this gender-related difference decreases significantly [9] due to the reduction of the estrogens defensive role in women [11, 12] (Table 1).

Males were predominantly represented in both ethnic groups in our study (68.1%). History of postinfarction cardiosclerosis was registered in 25.5% of patients after Q-wave MI in Group 1 and in 34.8% of patients in Group 2. Exertional angina was detected in every second patient in both groups prior to hospitalization: 53.2% in Group 1 and 53% in Group 2 (Table 1).

The importance of secondary prevention has been confirmed by multiple studies that have shown that therapeutic procedures after ACS save as many lives as treatment during the acute phase. Secondary preventive measures include both pharmaceutical and non-pharmaceutical therapy: changes in the lifestyle (quitting smoking and normalization of body weight, blood pressure, and lipid metabolism), control of risk factors, and pharmaceutical treatment: statins, antiaggregants, beta-blockers, ACE inhibitors or ARBs, mineralocorticoid receptor antagonists [6, 13].

The examined patients with Q-wave MI had high incidence of risk factors for cardiovascular disorders at the time of hospitalization irrespective of their ethnicity. Every third patient of Yakut origin had a family history of CAD (36.2%). More than half of the patients were smokers (57.4%).

According to a previous study of hypertension and obesity among members of the indigenous Yakutia population, 40% of rural population has hypertension and 52% have abdominal obesity. Blood pressure measurement showed positive correlation with the body mass index and waist circumference [10]. According to our study, 82.7% of Yakut patients had hypertension, 76.6% had abdominal obesity and BMI obesity, and every third patient from Group 1 had carbohydrate metabolism disorder [10].

Analysis of lipid metabolism disorders in Yakuts showed high dyslipidemia values; however, according to multiple studies of the indigenous population of northern regions, the lipid profile in general was considered favorable: high levels of HDL cholesterol and a low level of triglycerides and atherogenicity index were noted. High total cholesterol levels in Yakuts can be due to elevated blood HDL cholesterol [1, 4, 10]. Among patients with Q-wave MI hypercholesterolemia (HCH) is observed in 87.2% of cases, LDL HCH is observed in 93.6% of cases, and HDL hypocholesterolemia is recorded in almost every fourth patient (25.5%). Hypertriglyceridemia was observed in 29.8% of patients at the time of admission. The rate of dyslipidemia in the indigenous population was not different from that in Caucasians.

Therefore, the majority of patients after Q-wave MI need a combined treatment of 3 or more CAD risk factors.

Six months after discharge, at a check-up examination, the number of patients still taking prescribed medications was significantly lower. A less frequent administration frequency was more or less characteristic of all main drug classes (Table 2). Significantly lower frequency was observed for beta-blockers (by 25%), ACE inhibitors (by 25%), and clopidogrel/ticagrelor (by 19%). In Group 1 the biggest decrease in administration frequency was registered for statins — every second Yakut patient discontinued taking them. There were no differences in comparison with Group 2 (Table 2).

Table 1. *Clinical characteristics of patients with Q-wave myocardial infarction, on admission to the hospital*

Parameter	Group 1, n=47		Group 2, n=66		P
	N	%	N	%	
Men	32	68,1	45	68,2	NS
Postinfarction cardiosclerosis	12	25,5	23	34,8	NS
CAD (in past medical history)	25	53,2	35	53	NS
CAD in family history	17	36,2	26	39,4	NS
Essential hypertension	41	87,2	61	92,4	NS
Hypercholesterolemia	41	87,2	54	81,8	NS
Hypercholesterolemia LDL	44	93,6	61	92,4	NS
Hypocholesterolemia HDL	12	25,5	26	39,4	NS
Hypertriglyceridemia	14	29,8	29	43,9	NS
Smoking	27	57,4	44	66,7	NS
Diabetes mellitus or impaired glucose tolerance	17	36,2	20	30,3	NS
BMI ≥ 30 kg/m²	14	29,8	29	43,9	NS
Abdominal obesity	36	76,6	53	80,3	NS

Note: IHD — Ischemic heart disease, LDL — low density lipoproteins, HDL — high density lipoproteins, BMI — body mass index, n — total number of patients

Table 2. *The frequency of taking medicines at the time of discharge and for 6, 12 months after a Q-wave myocardial infarction*

Prescribed drugs	Data on admission to the hospital		P	Group data after 6 months		p	Group data after 12 months		P	P1-2		P1-3		P 2-3	
	I n=47 (%)	II n=66 (%)		I n=45 (%)	II n=64 (%)		I n=45 (%)	II n=64 (%)		I.	II	I	II	I	II
ASA	47 (100)	66 (100)	*	45 (100)	64 (100)	*	45 (100)	64 (100)	*	*	*	*	*	*	*
Clopidogrel/ ticagrelol	47 (100)	66 (100)	*	41 (91,1)	50 (80,6)	NS	40 (88,9)	50 (80,6)	NS	<0,05	<0,05	<0,05	<0,05	NS	NS
β-blockers	46 (97,9)	66 (100)	NS	33 (73,3)	47 (75,8)	NS	41 (91,1)	54 (87,1)	NS	<0,05	<0,05	<0,05	<0,05	<0,05	<0,05
ACE inhibitors/ ARBs	44 (93,6)	65 (98,5)	NS	34 (75,6)	41 (66,1)	NS	33 (73,3)	43 (69,4)	NS	<0,05	<0,05	<0,05	<0,05	NS	NS
Statins	47 (100)	66 (100)	*	24 (53,3)	28 (45,2)	NS	39 (86,7)	50 (80,6)	NS	<0,05	<0,05	<0,05	<0,05	<0,05	<0,05
Diuretics	12 (25,5)	21 (31,8)	NS	15 (33,3)	25 (40,3)	NS	22 (48,9)	29 (46,8)	NS	<0,05	<0,05	<0,05	<0,05	<0,05	NS
Nitrates	5 (10,6)	11 (16,7)	NS	5 (11,1)	16 (25,8)	NS	8 (17,8)	18 (29,0)	<0,05	<0,05	NS	NS	<0,05	NS	NS

Note: NS — no significant differences

Twelve months after, the number of patients still taking recommended medications increased slightly for clopidogrel/ticagrelor, beta-blockers, and statins. We consider this positive development in medications uptake to be possibly related to undergoing a second consultation, conversation, and repeated prescription at month 6. At the same time, low compliance was maintained in comparison with medications intake at the time of discharge from the hospital and in month 12. Lower intake was also characteristic for all main drug classes: clopidogrel/ticagrelor — by 11%, beta-blockers — by 7%, ACE inhibitors — by 27%, statins — by 14%, in Group 1 (Table 2).

According to literature data, progressive heart failure was observed within 6 months after Q-wave MI despite treatment.

In our study, analyzed patients showed progressive signs of heart failure after MI; therefore, diuretics were added at the outpatient treatment stage. Thus, diuretics intake in Group 1 increased to 48.9% within 12 months (Table 2). The intake of nitrates also increased due to CAD aggravation (increased functional class of exertional angina). Data obtained in Group 2 were similar.

The incidence of risk factors of cardiovascular diseases remained high 6 and 12 months after Q-wave MI, despite recommendations on the modification of risk factors (Table 3). Six months after discharge, the proportion of patients with obesity (BMI ≥ 30 kg/m²) remained high in both groups: 26.7% of Yakuts and slightly higher among Caucasians — 40.3%, with no significant differences. These values were maintained in both ethnic groups 12 months later. The incidence of abdominal obesity remained almost at the same level 6 and 12 months later. A total of 11% of Yakuts and 23% patients in Group 2 had stopped smoking (Table 3).

Dyslipoproteinemia remained high in the majority of patients, despite hypolipidemic therapy. Six months after discharge, HCH in Group 1 was 73%, LDL HCH was 80%, HDL hypocholesterolemia was 46.7%, and hypertriglyceridemia was 48.3%. Twelve months later, HCH was recorded in 62.2%, LDL HCH in 66.7%, HDL hypocholesterolemia

Table 3. *The incidence of modifiable cardiovascular risk factors at 6 and 12 months after a previous Q – wave myocardial infarction*

Index	Data on admission to hospital		P	Group data after 6 months		P	Group data after 12 months		P	P 1-2		P 1-3		P 2-3	
	I n=47, (%)	II N=66, (%)		I n=45 (%)	II N=64 (%)		I n=45 (%)	II n=64 (%)		I	II	I	II	I	II
Hypercholesterolemia	87,3	81,8	NS	73,3	82,3	NS	62,2	72,6	NS	<0,05	<0,05	<0,05	<0,05	<0,05	<0,05
Hypercholesterolemia LDL	93,6	92,4	NS	80	79,2	NS	66,7	67,7	NS	<0,05	<0,05	<0,05	<0,05	<0,05	<0,05
Hypocholesterolemia HDL	25,5	39,4	NS	46,7	41,9	NS	35,6	33,9	NS	<0,05	<0,05	<0,05	<0,05	NS	NS
Hypertriglyceridemia	29,8	43,9	NS	48,9	50	NS	15,6	33,9	<0,05	<0,05	NS	NS	NS	<0,05	<0,05
Smoking	57,4	66,7	NS	55,6	43,5	NS	46,7	43,5	NS	NS	<0,05	NS	<0,05	NS	NS
Diabetes mellitus or impaired glucose tolerance	36,2	30,3	NS	35,6	31,3	NS	35,6	31,3	NS	NS	NS	NS	NS	NS	NS
BMI ≥ 30 kg/m²	29,8	43,9	NS	26,7	40,3	NS	26,7	40,3	NS	NS	NS	NS	NS	NS	NS
Abdominal obesity	76,6	80,3	NS	77,8	85,5	NS	75,6	83,9	NS	NS	NS	NS	NS	NS	NS

Note: LDL — low density lipoproteins, HDL — high density lipoproteins, BMI — body mass index, n — total number of patients, NS — no significant differences

Table 4. *Lipid profile results at 6 and 12 months after a Q-wave myocardial infarction*

Index	Data on admission to hospital		P	After 6 months		ρ	After 6 months		P	P 1-2		P 1-3		P 2-3	
	I n=47	II n=66		I n=45	II n=64		I n=45	II n=64		I	II	I	II	I	II
TC	5,6 [4,39; 6,66]	5,31 [4,42; 6,18]	NS	4,99 [3,87; 6,35]	5,34 [4,1; 6,7]	NS	4,24 [3,66; 4,7]	4,46 [3,7; 4,94]	NS	NS	NS	<0,05	<0,05	<0,05	<0,05
LDL	3,6 [2,63; 4,47]	3,34 [2,5; 3,94]	NS	2,66 [1,8; 3,29]	3,02 [1,77; 3,9]	NS	2,23 [1,74; 2,7]	2,5 [1,7; 3,14]	NS	<0,05	NS	<0,05	<0,05	<0,05	<0,05
HDL	1,24 [1; 1,4]	1,18 [0,91; 1,32]	NS	1,19 [1; 1,38]	0,9 [1,2; 1,4]	NS	1,09 [1; 1,2]	1,1 [1; 1,2]	NS	NS	NS	<0,05	NS	NS	<0,05
TG	1,63 [1,09; 1,95]	1,71 [0,99; 2,12]	NS	1,78 [1,29; 2,7]	1,7 [1,08; 2,3]	NS	1,32 [0,95; 1,64]	1,53 [1; 1,73]	NS	NS	NS	<0,05	NS	<0,05	<0,05

Note: TC — total cholesterol, TG — triglyceride, LDL — low density lipoproteins, HDL — high density lipoproteins, n — total number of patients, NS — no significant differences.

in 35.6%, and hypertriglyceridemia in 15.6% of patients. There were no differences between ethnic groups in terms of dyslipidemia parameters [1, 4, 10]. Prospective impairment of carbohydrate metabolism after 6 and 12 months showed no changes.

In the meantime, we should say that there is a tendency towards a slight decrease in risk factors, such as quitting smoking as well as decreased HCH and LDL HCH in Yakuts.

A lipid profile analysis in patients 6 and 12 months after Q-wave MI is presented in Table 4. LDL cholesterol and TG were not reached six months after the achievement of Q-wave MI target levels of total cholesterol. This result can be explained by self-discontinuation of statins in the majority of patients from both ethnic groups.

Twelve months after repeated prescription of statins and dose adjustment, the target level of triglycerides was reached in both groups, and LDL cholesterol remained elevated. Target levels of total cholesterol and LDL cholesterol were not reached; however, there was a clear tendency towards a drop in these levels.

The majority of patients in both groups took atorvastatin and to a lesser extent rosuvastatin throughout the observation period. The mean calculated dose of atorvastatin at discharge was (22.13 ± 6.23) mg in Group 1 and (22.79 ± 5.49) mg in Group 2. Six months after discharge the dose remained virtually unchanged. Twelve months after, the mean dose of statins in Yakuts was (24 ± 6.22) mg, and in Caucasians it was (22.22 ± 8.66) mg. All patients who took rosuvastatin took a 10 mg dose.

The administration of statins not only resulted in lower levels of total cholesterol, LDL cholesterol, decreased cardiovascular morbidity and mortality, but also in regression of atherosclerosis plaques. According to the ASTEROID study, rosuvastatin at a dose of 40 mg per day for two years led not only to an LDL cholesterol decrease of 53.2% and an HDL cholesterol increase of 14.7%, but to a reduction of atherosclerosis plaques volume of 0.79% [7]. The possibility of atherosclerosis plaques regression in coronary arteries was also shown by intravascular ultrasound after 18 months of therapy with atorvastatin at a dose of 80 mg in the REVERSAL study. Available data suggest that treatment results are mostly independent of the type of statins, but depend on their ability to reduce LDL cholesterol and on the dose. This should be considered when choosing statin to achieve the target level of LDL cholesterol [7].

It should be noted that hypertension was the most controllable risk factor of CAD. Effective control was maintained throughout the observation period in the majority of patients. Thus, grade 1–3 hypertension was diagnosed at the time of admission of all patients from Group 1; this value decreased to 48.9% six months after and to 17% twelve months later. Similar values were obtained for members of Group 2. Therefore, most of the patients normalized their blood pressure with pharmaceutical therapy (Table 5) indicating good compliance with hypotensive treatment. It can be also related to the fact that this risk factor can be controlled by patients at home.

The discontinuation of pharmaceutical therapy after MI is associated with increased risk of death: the discontinuation of three medications (acetylsalicylic acid, beta-blockers, statins) is associated with a hazard ratio (HR) of 3.81,

Table 5. *Hypertension stages after 6 and 12 months after a Q-wave myocardial infarction*

	Data on admission to hospital		After 6 months		After 12 months	
	I n=47(%)	II n=66(%)	I n=45(%)	II n=64(%)	I n=45(%)	II n=64(%)
HS I	6 (12,8)	6 (9,1)	12 (25,5)	11 (16,7)	8 (17,0)	14 (21,2)
HS II	15 (31,9)	14 (21,2)	5 (10,6)	8 (12,1)	0	1 (1,5)
HS III	20 (42,6)	41 (62,1)	6 (12,8)	11 (16,7)	0	0
Total	47 (100)	66 (100)	23 (48,9)	29 (45,5)	8 (17,0)	15 (22,7)

Note: HS — hypertension stage

Table 6. *The level of SBP and DBP on admission and in dynamics after 6 and 12 months*

	Data on admission to hospital		P	After 6 months		ρ	After 12 months		P	ρ(1-2)		P(1-3)		P(2-3)	
	I	II		I	II		I	II		I	II	I	II	I	II
SBP	133 [110; 150]	156 [120; 162]	NS	123 [110; 135]	126 [110; 140]	NS	114 [110; 130]	118 [110; 136]	NS	<0,05	<0,05	<0,05	<0,05	<0,05	NS
DBP	77 [70; 90]	81 [70; 90]	NS	75 [70; 80]	75 [70; 80]	NS	72 [65; 80]	74 [70; 80]	NS	NS	<0,05	<0,05	<0,05	<0,05	NS

Note: SBP — systolic blood pressure, DBP — diastolic blood pressure, NS — no significant differences

Table 7. *Analysis of fatal outcomes and repeated hospitalizations in patients after Q-wave myocardial infarction within 12 months*

Data (n- 113)	I		II		P
	n	%	N	%	
Fatal outcome	2	4,3	4	6,1	NS
Repeated hospitalization with ACS after 6 months	4	8,5	7	10,6	NS
Repeated hospitalization with CHF after 6 months	3	6,4	6	9,1	NS
Repeated hospitalization with ACS after 12 months	1	2,1	1	1,5	NS
Repeated hospitalization with CHF after 12 months	2	4,3	4	6,1	NS

Note: ACS — acute coronary syndrome, CHF — chronic heart failure, NS — no significant differences

the discontinuation of acetylsalicylic acid results in HR of 1.82; and the discontinuation of beta-blockers and statins results in HR of 1.96 and HR of 2.86, respectively [15].

A total of 100% of patients from both groups were monitored on an outpatient basis after 6 months; at month 12 the proportion decreased to 50% in both groups. An analysis of repeated hospitalizations and mortality data for 12 months in patients after Q-wave MI did not show any statistically significant differences between ethnic groups. Ten patients from Group 1 (21.3%) were hospitalized with recurrence of ACA or decompensated CHF within 12 months. Two deaths (4.3%) were recorded during the observation period: one patient died at the hospital after reccurent myocardial infarction, and another patient died at home due to sudden cardiac death (Table 7).

Conclusions

1. The majority of Yakut patients after Q-wave MI have a high incidence of risk factors of cardiovascular diseases, such as dyslipoproteinemia, visceral obesity, BMI obesity, hypertension, and smoking.

2. A low rate of compliance with the prescribed course therapy was observed in this category of patients after 6 months: clopidogrel/ticagrelor (reduced by 9.9%), ACE inhibitors / ARBs (by 18%), beta-blockers (by 24.6%), and statins (by 46.7%). At month 12, after the second consultation, the rate of compliance with the statins therapy increased by 33.3%, and the rate of compliance with beta-blockers increased by 17.8%.

3. Hypertension is a well-controlled risk factor; an effective decrease in blood pressure was observed in the majority of patients already during the initial months.

4. The mean total cholesterol, LDL cholesterol, and the incidence of HCH, LDL HCH at month 12 after MI all dropped. However, target levels were not reached due to low compliance with statins therapy.

5. Due to low compliance with the course of pharmaceutical therapy and the insufficient correction of CVD risk factors after MI, repeated hospitalizations for recurrent ACS, decompensated CHF, and fatal outcomes were recorded regardless of ethnicity. This situation requires enhanced preventive measures at the primary level of healthcare system.

Conflict of interests

The authors declare no conflict of interests.

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