

Prognostication of long-term outcomes for patients with ischemic heart disease

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Key words: ischemic heart disease; acute and chronic coronary syndromes; mortality; prognosis.

Summary. Cardiovascular disease, including coronary heart disease (CHD), is the leading cause of death among elderly adults across many European countries. In 2005, the Clinic of Cardiology, Hospital of Lithuanian University of Health Sciences (former Kaunas University of Medicine), started to gather the clinical data of patients with acute and chronic coronary syndromes according to the standards set by the Cardiology Audit and Registration Data Standards Project.

The aim of our study was to evaluate one-year mortality after inpatient treatment for acute and chronic coronary syndromes in different risk groups.

Material and methods. A total of 3268 patients who were treated for coronary heart disease – acute myocardial infarction, unstable angina, stable angina – at the Clinic of Cardiology, Hospital of Lithuanian University of Health Sciences (former Kaunas University of Medicine) in 2005 were randomly selected. Clinical data of the patients were collected by means of a standardized questionnaire. After one year, 1908 patients were reexamined, and predominant symptoms, treatment during one-year period, outcomes were evaluated.

Results. Multiple logistic regression analysis revealed that one-year mortality after acute coronary syndromes was most influenced by age of 70–80 years, history of stroke, Killip class III–IV, and reduced high-density lipoprotein cholesterol levels. For patients who were treated for chronic coronary syndromes, reduced EF (<40%) and increased heart rate (>70 beats per minute) were the strongest independent predictors of one-year mortality.

Conclusion. A scoring system for the assessment of mortality risk within one year for patients with acute and chronic coronary syndromes was constructed, which could be useful for cardiologists as well as family physicians for risk evaluation in inpatient and outpatient settings.

Introduction

Cardiovascular disease (CVD), including coronary heart disease (CHD), is the main cause of global mortality in most European countries that leads to about 17 million deaths annually (1). Although overall mortality from CHD in Western Europe has declined, the absolute number of people who died from CHD in these countries has not decreased and the incidence of CHD, with aging population, even has increased. Mortality from many chronic noninfectious diseases in Lithuania is higher than in other European countries. In 2008, age-standardized ischemic heart disease mortality rates in Lithuania were 3 times greater than on average across EU countries (449 per 100 000 population for men and 240 per 100 000 population for women) (2). Survival prolongation in patients with CHD depends on effective primary and secondary prevention, new medical treatments and interventional methods.

Epidemiological studies on CHD that include

CHD registry and health checkups in a random population have been carried out in Kaunas, Lithuania, since 1970 (3). In 2005, the Clinic of Cardiology, Hospital of Lithuanian University of Health Sciences (former Kaunas University of Medicine), started to gather the clinical data of patients with acute and chronic coronary syndromes according to the standards set by the Cardiology Audit and Registration Data Standards (CARDS) Project. This standardized system of clinical data collection has been launched with the aim to develop expert consensus on data standards (variables, definitions, and coding) that could allow comparing the prevalence of individual symptoms and disease expression of patients with acute and chronic coronary syndromes at hospital, and evaluation of patient survival during one year.

The aim of this study was to evaluate one-year patient mortality after inpatient treatment of acute and chronic coronary syndromes in different risk groups.

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Material and methods

A total of 3268 patients who were treated for coronary heart disease – acute myocardial infarction, unstable angina, stable angina – at the Clinic of Cardiology, Hospital of Lithuanian University of Health Sciences (former Kaunas University of Medicine) in 2005 were randomly selected. Their data were collected by a standardized questionnaire. Medical history data, comorbidities, status on admission, drug and interventional treatment, rehabilitation therapy, and recommended treatment after discharge were analyzed. A total of 1908 patients were re-examined after one year: predominant symptoms, applied treatment, and outcomes during one year were evaluated. Risk factors for CHD were evaluated during this study. Arterial hypertension was diagnosed with a history of BP \geq 140/90 mm Hg or if antihypertensive medications were prescribed for a patient. Dyslipidemia was diagnosed as an increase in low-density lipoprotein cholesterol (LDL-Ch) levels in blood serum (\geq 3 mmol/L) and total cholesterol (TCh) levels ($>$ 5.2 mmol/L), and a decrease in high-density lipoprotein cholesterol levels (HDL-Ch) ($<$ 1.2 mmol/L for women and $<$ 1.0 mmol/L for men). Hyperglycemia was defined as plasma glucose value exceeding \geq 5.6 mmol/L. Myocardial infarction was diagnosed according to the WHO guidelines: angina pain and equivalent, ischemic signs of ECG (Q wave, ST and T changes), and an increase in troponin I level ($>$ 0.05 μ g/L). The diagnosis of unstable angina was confirmed with the angina syndrome, ischemic changes on ECG without increased enzyme levels in blood, and angiography assessment of the coronary artery. Coronary artery angiography was performed by the Judkins technique. Severe stenosis of 1, 2, or 3 vessels was defined as a narrowing of the coronary artery (\geq 50%). Stable angina was determined according to the standard clinical picture and findings of ECG, exercise test, and angiography. The patients with acute myocardial infarction (MI) were ranked according to the Killip classification. Cardiovascular functional capacity was classified according to the recommendations of the New York Heart Association (NYHA FC I-IV).

Statistical analysis. The statistical analysis was performed using SPSS (Statistical Package for Social Science) version 13 and Microsoft Office Excel 2003 statistical programs. Descriptive statistics was used for the analysis of continuous data. Categorical data were summarized as frequencies and percentages, and for comparisons, the chi-square test was used. Univariate and multivariate logistic regression analysis was employed for the risk assessment. One-year mortality risk was evaluated by isolated and standardized odds ratios with 95% confidence intervals (CI). A risk factor was considered informative for one-year mortality if its standardized risk was

significant. Complex one-year mortality risk was evaluated by risk score, summing informative risk factors multiplied with the weighted scores proportional to standardized risk ratio.

Results

A total of 3268 randomly selected patients who were treated for acute and chronic coronary syndromes at the Clinic of Cardiology, Lithuanian University of Health Sciences (former Kaunas University of Medicine), were examined. After one year, 1908 patients (739 women and 1169 men) were reexamined. The majority of the participants were men (61.3%), mostly aged 51-80 years. More than one-third ($n=660$, 34.6%) of the participants were smokers, 12.8% (244 patients) had diabetes, and 78.3% (1494 patients) had a history of hypertension (Table 1).

Majority of the patients complained of chest pains. Angiotensin-converting enzyme (ACE) inhibitors, β -blockers, statins, and anticoagulants (aspirin) were prescribed for more than 80% of patients during the hospitalization and for 50% to 70% patients at home. Interventional therapy was more frequently applied for 40-70-year-old patients: 40-60-year olds underwent angioplasty more frequently and 50-70-year olds – surgical treatment. Interventional treatment was more often applied for men than women (by 11.5%) and for those with severe stenosis ($>$ 50%) of 1 to 3 coronary arteries.

During one year from hospitalization, death occurred in 185 (9.7%) patients; 142 (7.4%) patients died from cardiovascular causes: 90 (8.3%) patients with acute coronary syndrome and 52 (6.3%) patients with chronic coronary syndrome.

Previous heart failure, stroke, and chronic obstructive pulmonary disease, atrial fibrillation (AF) at admission, Killip class III or IV at admission, age of 70-80 years, ejection fraction (EF) of $<$ 40%, and dyslipidemia (HDL-Ch $<$ 1.0 mmol/L for males and $<$ 1.2 mmol/L for females) were among the factors found to be independent predictors of one-year mortality for the patients with acute coronary syndromes (Table 2). Interventional treatment (performed percutaneous transluminal coronary angioplasty and coronary artery bypass grafting) significantly reduced the risk of death within one-year period (Table 2).

Heart rate of \geq 70 beats per minute at admission, age of \geq 80 years, EF of $<$ 40%, dyslipidemia (HDL-Ch $<$ 1.0 mmol/L for males and $<$ 1.2 mmol/L for females), and chronic AF were among the factors found to be independent predictors of one-year mortality for the patients with chronic coronary syndromes (Table 3).

Selected informative signs for one-year mortality for the patients with acute and chronic coronary

Table 1. Patients' baseline characteristics, medical history, and presenting clinical features

Characteristic	Myocardial infarction	Unstable angina	Stable angina	Total
	n (%)	n (%)	n (%)	n (%)
Age groups				
20–40 years	14 (1.9)	8 (2.3)	8 (1.0)	30 (1.6)
41–50 years	64 (8.7)	33 (9.6)	51 (6.2)	148 (7.8)
51–60 years	146 (19.9)	71 (20.7)	188 (22.7)	405 (21.2)
61–70 years	231 (31.4)	116 (33.7)	286 (34.5)	633 (33.2)
71–80 years	227 (30.8)	98 (28.5)	260 (31.4)	585 (30.7)
>80 years	54 (7.4)	18 (5.2)	35 (4.2)	107 (5.6)
Gender				
Male	462 (62.8)	203 (59)	504 (60.9)	1169 (61.3)
Female	274 (37.2)	141 (41.0)	324 (39.1)	739 (38.7)
Medical history				
Myocardial infarction	225 (30.6)	123 (35.8)	343 (41.4)	691 (36.2)
Stable angina	497 (67.5)	307 (89.2)	690 (83.3)	1489 (78)
Heart failure	254 (34.5)	143 (41.6)	467 (56.4)	864 (45.3)
Stroke	41 (5.6)	14 (4.1)	45 (5.4)	100 (5.2)
Hypertension	522 (70.9)	292 (84.9)	680 (82.1)	1494 (78.3)
Renal insufficiency	22 (3.0)	11 (3.2)	32 (3.9)	65 (3.4)
Chronic obstructive pulmonary disease	51 (6.9)	23 (6.7)	54 (6.5)	128 (6.7)
PTCA	33 (4.5)	35 (10.2)	65 (7.9)	133 (7)
CABG	37 (5.0)	29 (8.4)	90 (10.9)	156 (8.2)
Diabetes	95 (12.9)	44 (12.8)	105 (12.7)	244 (12.8)
Smoking	290 (39.4)	90 (26.2)	280 (33.8)	660 (34.6)
Clinical data				
Troponin I >0.05 µg/L	368 (50)	40 (11.6)	–	408 (21.4)
Atrial fibrillation	75 (10.2)	20 (5.8)	135 (16.3)	230 (12.1)
LVBBB	32 (4.3)	19 (5.5)	49 (5.9)	100 (5.2)
ST↑ ECG at rest	331 (45)	30 (8.7)	45 (5.4)	406 (21.3)
ST↓ ECG at rest	88 (12)	96 (27.9)	61 (7.4)	245 (12.8)
T negative at rest	48 (6.5)	44 (12.8)	45 (5.4)	137 (7.2)
HR at arrival ≥70 bpm	416 (59.3)	194 (57.7)	395 (49.3)	1005 (52.7)
Ejection fraction <40%	439 (59.6)	240 (69.8)	535 (64.6)	12.4 (63.6)
Angiography 1 CA >50%	111 (15.1)	30 (8.7)	84 (10.1)	225 (11.8)
Angiography 2 CA >50%	114 (15.5)	26 (7.6)	85 (10.3)	225 (11.8)
Angiography 3 CA >50%	222 (30.2)	71 (20.6)	170 (20.5)	463 (24.3)
LDL-Ch >3 mmol/L	245 (33.3)	134 (39)	219 (26.4)	598 (31.3)
HDL-Ch <1.0 mmol/L (for males), <1.2 mmol/L (for females)	254 (34.5)	41 (11.9)	344 (41.5)	639 (33.5)
TCh >5.2 mmol/L	223 (30.3)	143 (41.6)	238 (28.7)	604 (31.7)
Interventional treatment				
At hospital	218 (29.6)	37 (10.8)	82 (9.9)	337 (17.7)
During 1 year	177 (24)	56 (16.3)	142 (17.1)	375 (19.7)

PTCA, percutaneous transluminal coronary angioplasty; CABG, coronary artery bypass grafting; LVBBB, left ventricular bundle-branch block; ECG, electrocardiography; HR, heart rate; CA, coronary artery; LDL-Ch, low-density lipoprotein cholesterol; HDL-Ch, high-density lipoprotein cholesterol; TCh, total cholesterol.

syndromes were evaluated by a scoring system, reflecting mortality risk (Tables 4 and 5).

According to the score, a patient can be attributed to the groups of low, moderate, and high risk of death within one-year period. Moderate- and high-risk patients with acute coronary syndromes were approximately 5 and 10 times, respectively, more likely to die within one year as compared to low-risk patients (Table 6). For high-risk patients with chronic coronary syndromes, the risk of death within one year was nearly 13 times greater than for low-risk patients (Table 7).

Less than one-third (n=299, 29.2%) of patients with acute coronary syndromes were at low risk, 37.2% (n=380) at moderate risk, and 33.6% (n=343) at high risk of death with one-year mortality rates of 1.3%, 6.3%, and 12.2%, respectively (Table 8).

Nearly one-third (n=250, 32.2%) of patients with chronic coronary syndromes were at low risk (one-year mortality rate was 2%), 51.7% (n=401) of patients were at moderate risk (one-year mortality rate was 4.5%), and 16.1% (n=125) of patients were at high risk of death (one-year mortality rate was 20.8%) (Table 9).

Discussion

Comparison of the prevalence of risk factors in our target population with the data of other studies revealed that our study population was older (50–70 years). The prevalence of the most common risk factors in our study population was similar to that in other European countries, except for much higher prevalence of hypertension (4).

The impact of different risk factors on mortality was compared across different clinical registries and

Table 2. Independent predictors of one-year mortality for patients with acute coronary syndromes

Risk factor	n (%)	OR (95% CI)	P value
History of myocardial infarction	348 (32.2)	1.158 (0.694–1.933)	0.574
History of heart failure	397 (36.8)	1.68 (1.032–2.734)	0.037
History of stroke	55 (5.1)	3.368 (1.562–7.260)	0.002
History of renal insufficiency	33 (3.1)	2.161 (0.732–6.375)	0.163
History of chronic obstructive pulmonary disease	74 (6.9)	2.62 (1.274–5.388)	0.009
History of angina	804 (74.4)	0.759 (0.446–1.293)	0.311
History of hypertension	814 (75.4)	0.721 (0.410–1.269)	0.257
HR at arrival \geq 70 bpm	610 (56.5)	1.656 (0.974–2.816)	0.062
Acute AF on ECG at arrival	95 (8.8)	2.183 (1.1–4.332)	0.026
LVBBB on ECG at arrival	51 (4.7)	1.589 (0.609–4.145)	0.344
Killip class III or IV at admission	49 (4.78)	2.87 (1.290–6.388)	0.01
History of PTCA	68 (6.3)	0.902 (0.318–2.559)	0.846
History of CABG	66 (6.1)	0.666 (0.204–2.181)	0.502
Age 70–80 years	325 (30.1)	2.348 (1.409–3.913)	0.001
Age \geq 80 years	72 (6.7)	2.099 (0.842–5.235)	0.112
Troponin I level at admission (>0.05 mg/L)	408 (37.8)	1.476 (0.750–2.902)	0.26
Smoking	380 (35.2)	1.397 (0.843–2.313)	0.194
Diabetes	139 (12.87)	0.631 (0.247–1.612)	0.336
Ejection fraction $<40\%$	679 (62.9)	1.974 (1.193–3.266)	0.008
LDL-Ch >3 mmol/L	379 (35.1)	0.874 (0.522–1.465)	0.61
HDL-Ch <1.0 mmol/L (for males), <1.2 mmol/L (for females)	295 (27.3)	2.304 (1.404–3.784)	0.001
TCh >5.2 mmol/L	349 (46.0)	1.818 (0.950–3.481)	0.071
Angiography 1–2 CA $>50\%$	120 (26.9)	1.301 (0.401–4.225)	0.662
Angiography 3 CA $>50\%$	218 (48.9)	1.663 (0.593–4.666)	0.334
Performed PTCA	295 (25.3)	0.415 (0.203–0.848)	0.016
Performed CABG	160 (15.6)	0.148 (0.036–0.610)	0.008
Chronic AF	16 (1.6)	0.906 (0.118–6.963)	0.925

PTCA, percutaneous transluminal coronary angioplasty; CABG, coronary artery bypass grafting; AF, atrial fibrillation; LVBBB, left ventricular bundle-branch block; ECG, electrocardiography; HR, heart rate; CA, coronary artery; LDL-Ch, low-density lipoprotein cholesterol; HDL-Ch, high-density lipoprotein cholesterol; TCh, total cholesterol.

Table 3. Independent predictors of one-year mortality for patients with chronic coronary syndromes

Risk factor	n (%)	OR (95% CI)	P value
History of MI	343 (41.4)	1.477 (0.880–2.479)	0.139
History of HF	467 (56.4)	1.462 (0.854–2.502)	0.166
History of stroke	45 (5.4)	1.432 (0.549–3.730)	0.463
History of renal insufficiency	32 (3.9)	2.064 (0.7–6.083)	0.189
History of chronic obstructive pulmonary disease	54 (6.5)	1.222 (0.472–3.167)	0.68
History of angina	690 (83.3)	0.853 (0.483–1.507)	0.584
History of hypertension	680 (82.1)	0.456 (0.260–0.8)	0.006
HR at arrival \geq 70 bpm	395 (49.3)	1.927 (1.112–3.341)	0.019
Acute AF on ECG at admission	135 (16.3)	1.445 (0.798–2.616)	0.224
LVBBB on ECG at admission	49 (5.9)	2.169 (0.938–5.017)	0.7
History of PTCA	65 (7.9)	1.366 (0.566–3.293)	0.488
History of CABG	90 (10.9)	0.756 (0.295–1.936)	0.56
Smoking	280 (33.8)	0.653 (0.356–1.197)	0.168
Diabetes	105 (12.7)	0.475 (0.145–1.554)	0.219
Age 70–80 years	260 (31.4)	1.064 (0.596–1.9)	0.833
Age \geq 80 years	35 (4.2)	3.159 (1.426–6.996)	0.005
Ejection fraction $<40\%$	535 (64.6)	3.393 (1.989–5.787)	<0.001
LDL-Ch >3 mmol/L	219 (26.4)	0.383 (0.172–0.854)	0.019
HDL-Ch <1.0 mmol/L (for males), <1.2 mmol/L (for females)	344 (41.5)	2.624 (1.505–4.577)	0.001
TCh >5.2 mmol/L	238 (28.7)	0.348 (0.156–0.775)	0.010
Angiography 1–2 CA $>50\%$	113 (24.7)	1.276 (0.396–4.119)	0.683
Angiography 3 CA $>50\%$	154 (33.6)	1.915 (0.712–5.151)	0.198
Performed PTCA	85 (10.6)	0.737 (0.259–2.10)	0.569
Performed CABG	118 (14.7)	0.113 (0.015–0.829)	0.032
Chronic AF	38 (4.7)	3.882 (1.615–9.332)	0.002

MI, myocardial infarction; HF, heart failure; PTCA, percutaneous transluminal coronary angioplasty; CABG, coronary artery bypass grafting; AF, atrial fibrillation; LVBBB, left ventricular bundle-branch block; ECG, electrocardiography; HR, heart rate; CA, coronary artery; LDL-Ch, low-density lipoprotein cholesterol; HDL-Ch, high-density lipoprotein cholesterol; TCh, total cholesterol.

Table 4. Integrated one-year death risk, expressed as a standardized risk ratio, for patients with acute coronary syndromes

Risk factor	OR (95% CI)	P value	Score
Performed PTCA	0.481 (0.232–0.995)	0.049	–2
Age 70–80 years	1.755 (1.061–2.903)	0.029	1
History of stroke	3.004 (1.409–6.406)	0.004	4
Ejection fraction <40%	1.696 (1.017–2.830)	0.043	1
Killip class III or IV	2.957 (1.451–6.028)	0.003	4
HDL-Ch <1.0 mmol/L (for males), <1.2 mmol/L (for females)	3.939 (2.235–6.943)	<0.001	6
History of chronic obstructive pulmonary disease	1.666 (0.805–3.446)	0.169	1

PTCA, percutaneous transluminal coronary angioplasty; HDL-Ch, high-density lipoprotein cholesterol.

Table 5. Integrated one-year death risk, expressed as a standardized risk ratio, for patients with chronic coronary syndromes

Risk factor	OR (95% CI)	P value	Score
History of CABG	0.482 (0.173–1.339)	0.161	–2
Heart rate \geq 70 bpm	1.943 (1.013–3.724)	0.045	2
Ejection fraction <40%	2.847 (1.470–5.513)	0.002	4
HDL-Ch <1.0 mmol/L (for males), <1.2 mmol/L (for females)	1.807 (0.903–3.617)	0.095	1

CABG, coronary artery bypass grafting; HDL-Ch, high-density lipoprotein cholesterol.

Table 6. One-year mortality risk groups for patients with acute ischemic syndromes

Risk	Score	OR (95% CI)	P value
Low	–2 to 0		
Moderate	1–4	4.972 (1.706–14.491)	0.003
High	\geq 4	10.291 (3.644–29.059)	<0.001

Table 7. One-year mortality risk groups for patients with chronic ischemic syndromes

Risk	Score	OR (95% CI)	P value
Low	\leq 2		
Moderate	3–5	2.303 (0.844–6.283)	0.103
High	\geq 6	12.869 (4.805–34.465)	<0.001

Table 8. One-year mortality rate for patients with acute coronary syndromes

Risk	Nonsurvivors	Survivors	Total
	n (%)	n (%)	n (%)
Low (score, –2 to 0)	4 (1.3)	295 (98.7)	299 (29.2)
Moderate (score, 1–4)	24 (6.3)	356 (93.7)	380 (37.2)
High (score, \geq 4)	42 (12.2)	301 (87.8)	343 (33.6)

Table 9. One-year mortality rate for patients with chronic coronary syndromes

Risk	Nonsurvivors	Survivors	Total
	n (%)	n (%)	n (%)
Low (score, \leq 2)	5 (2)	245 (98)	250 (32.2)
Moderate (score, 3–5)	18 (4.5)	383 (95.5)	401 (51.7)
High (score, \geq 6)	26 (20.8)	99 (79.2)	125 (16.1)

studies. Significant risk factors for one-year mortality in our study corresponded to risk factors most commonly reported in literature (3). Integrated one-year mortality analysis showed that age of 70–80 years, history of stroke, Killip class III or IV, and decreased HDL-Ch levels in blood had the greatest impact on mortality within one year in patients with acute coronary syndromes. For patients with chron-

ic coronary syndromes, one-year mortality was significantly associated with reduced EF (<40%) and heart rate (>70 bpm). Heart failure leads to a significant risk of death in patients with acute coronary syndromes as shown in the Candesartan in Heart failure–Assessment of Reduction in Mortality and Morbidity (CHARM), Euro Heart Survey II studies, and Studies of Left Ventricular Dysfunction (SOLVD). The results of these studies have shown that a history of heart failure (EF <40%) also contributes to a poor prognosis of patients with chronic coronary syndromes, because the most common cause of heart failure is myocardial infarction (5, 6). The GRACE registry suggests that acute heart failure 3 to 4 times increased risk of death after MI during 6-month period (7), and by data of other studies, the risk of death was even greater after MI and unstable angina, complicated with heart failure, during an 18-month period (8, 9). Our data show that Killip class III or IV is one of the major risk factor for one-year mortality. According to literature data, a history of stroke is an independent factor significantly increasing mortality from acute coronary syndromes (10), and some authors reported that after ischemic stroke, the 5-year risk of MI or cardiovascular death was increased to 17.4%, and coronary artery disease along with AF was associated with a 75% increase in the risk of MI or vascular death (11). AF is a significant risk factor contributing to mortality in patients with chronic ischemic syndromes and associated with the risk of heart failure and stroke (12). The BEAUTIFUL study showed the prognostic significance of heart rate for patients with chronic coronary syndromes (13). Higher risk of one-year mortality was found in patients with unstable angina as compared with patients with chronic coronary syndromes in the National Heart, Lung, and Blood Institute Dynamic Registry (4.4%

and 2.6%, respectively; $P < 0.01$). Dynamic Registry patients with unstable angina were older; they were more likely to smoke and have a history of diabetes and myocardial infarction (14). It is well known that troponin I has not only diagnostic, but also prognostic significance. A study by Collinson et al. showed that elevated troponin I level on admission predicted an increased risk of cardiovascular events during four-year period in patients with suspected non-ST-elevation myocardial infarction (15). However, in our study, this parameter insignificantly increased the risk of one-year mortality. Studies reported that adequate HDL-Ch levels protect against future cardiovascular events and affect atherosclerotic regression (16). Our data confirmed that a decrease in HDL-Ch levels in blood significantly increased the risk of death within one year both for patients with acute and chronic coronary syndromes.

Recently, many researchers are trying to develop models for risk stratification in patients with acute or chronic coronary syndromes (17–19). In the Euro Heart Survey, a simple scoring system was constructed that allowed discrimination between low- and high-risk groups of patients with chronic ischemic disease during a one-year period. This study showed that previous myocardial infarction (2.19; 95% CI, 1.08 to 4.42; $P = 0.03$), a history of diabetes (2.03; 95% CI, 1.25 to 3.31; $P = 0.004$), abnormal ventricular function (2.57; 95% CI, 1.62 to 4.08;

$P < 0.0001$), and ST or T wave changes on ECG at rest (1.63; 95% CI, 1.06–2.50; $P = 0.03$) were the factors increasing the risk of death (20). Long duration of chest pain (> 6 months) reduced the risk of death (0.48; 95% CI, 0.3–0.77; $P = 0.002$) (20). The Global Registry of Acute Coronary Events study reported that ACS patients who experienced any adverse cardiovascular event were more likely to have a history of hyperlipidemia, smoking, MI, stroke, Killip class II–IV heart failure, cardiac arrhythmias (AF, ventricular tachycardia, ventricular fibrillation), higher heart rate, angioplasty, and to be older (21). ACS, complicated with ventricular arrhythmias, significantly increased in-hospital mortality and mortality during 6 months after hospitalization (22, 23).

Our proposed risk scoring system makes it possible to identify and discriminate patients at high risk of death during one-year period according to medical history and clinical data, and can be easily used individualizing patient care and treatment by cardiologists and family physicians.

Conclusion

A scoring system for the assessment of mortality risk within one year for patients with acute and chronic coronary syndromes was constructed, which could be useful for cardiologists as well as family physicians for risk evaluation in inpatient and outpatient settings.

Sergančiųjų išemine širdies liga vėlyvųjų baigčių prognozavimas

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Raktažodžiai: išeminė širdies liga, ūminiai ir lėtiniai išeminiai sindromai, mirštamumas, prognozė.

Santrauka. Širdies ir kraujagyslių ligos, tarp jų ir išeminė širdies liga (IŠL) dažniausia vidutinio ir vyresnio amžiaus suaugusiųjų mirties priežastis daugelyje Europos šalių. 2005 m. Lietuvos sveikatos mokslų universiteto ligoninės Kauno klinikų (tuometinių Kauno medicinos universiteto klinikų) Kardiologijos klinikoje pradėta kaupti sergančiųjų ūminiais ir lėtiniais išeminiais sindromais klinikinius duomenis pagal tarptautinį CARDS (Cardiology Audit Registration Data Standarts for Coronary Care Unit (CCU)/Acute Coronary Syndrome (ACS) admissions) standartizuotą klausimyną.

Tyrimo tikslas. Įvertinti rizikos grupių pacientų vienerių metų išgyvenamumą ir mirštamumą po skirtingų rizikos grupių stacionarinio gydymo dėl ūminių ir lėtinių išeminių sindromų.

Tirtųjų kontingentas ir tyrimo metodai. Atsitiktinės atrankos būdu atrinkti 3268 pacientai, kurie gydyti dėl IŠL (ūminio miokardo infarkto), nestabiliosios krūtinės anginos, stabiliosios krūtinės anginos Kardiologijos klinikoje 2005 m. 1908 pacientai buvo pakartotinai apklausti po vienerių metų, įvertinti vyraujantys simptomai, metų laikotarpiu taikytas gydymas, baigtys.

Rezultatai. Kompleksinės mirties vienerių metų laikotarpiu rizikos analizė parodė, jog didžiausią įtaką mirštamumui, persirgus ūminiais išeminiais sindromais, turi amžius, t. y. 70–80 metų, insultas anamnezėje, sumažėjusi IF (< 40 proc.), III–IV Killip funkcinės klasės bei DTL-Ch koncentracijos sumažėjimas kraujyje, o pacientų, gydytų dėl lėtinių išeminių sindromų mirštamumui įtakos turėjo sumažėjusi IF (< 40 proc.) ir širdies susitraukimų dažnis (> 70 k/min).

Išvada. Sudaryta rizikos skaičiuoklė mirštamumui vienerių metų laikotarpiu įvertinti sergantiesiems ūminiais ir lėtiniais išeminiais sindromais, kuri gali būti naudinga kardiologams ir šeimos gydytojams vertinant paciento riziką stacionare bei ambulatorijoje.

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