Gender differences and in-hospital mortality in patients undergoing percutaneous coronary interventions

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Abstract

Background: Many observational and randomised studies have suggested that women are referred for invasive diagnostics and treatment of coronary artery disease (CAD) less frequently than men, and the effects of percutaneous coronary intervention (PCI) among women are worse than in men.

Aim: To compare direct results of PCI in men and women.

Methods: The study was a retrospective assessment of case records of one thousand consecutive patients treated with PCI because of acute myocardial infarction (AMI) (344 patients), unstable angina (UA) (164 patients) and stable angina (SA) (492 patients). We examined the effects of demographic, angiographic and clinical variables on the duration of hospitalisation and in-hospital mortality separately in men and in women.

Results: Women constituted 30.7% of patients treated with PCI because of AMI, 39.6% of those with UA and just 25.8% of those with SA. Women were significantly older than men, had a higher BMI, and more often suffered from hypertension and diabetes. The duration of hospitalisation was the same in men and women if the reason for PCI was SA or UA, however, in case of AMI women were hospitalised significantly longer than men. In the univariate analysis gender had no influence on in-hospital mortality regardless of the reason for PCI treatment. Among the variables subjected to multivariate analysis female gender, age, BMI, diabetes, hypercholesterolaemia, indication for PCI, final TIMI flow in the target vessel and cardiogenic shock as a complication of AMI were shown to affect mortality. Significant effects on in-hospital mortality for women were exhibited only by cardiogenic shock. Among men, indication for PCI, age, diabetes and final TIMI flow in the target vessel also had a significant influence on in-hospital mortality.

Conclusions: Stable angina is a reason for performing PCI more rarely in women than in men. Women with CAD are older than men and have more risk factors. The in-hospital mortality among patients treated with PCI because of SA is independent of gender. Cardiogenic shock appeared to be the only factor that influences in-hospital mortality in women. In the case of men such an influence is also observed for indication for PCI (AMI, UA or SA), diabetes and final TIMI flow in the target vessel.

Key words: percutaneous coronary interventions, gender, predictors of in-hospital mortality

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Introduction

Ischaemic heart disease (IHD), previously regarded a middle-aged men's disorder, is the major cause of mortality in women [1]. Females become symptomatic at an older age than males, however the symptoms are atypical (different than in men), the diagnosis is more difficult and the prognosis is less favourable [2, 3]. Several reports have revealed that invasive diagnostic procedures and invasive treatment are less frequently used in women with IHD than in men [4, 5]. Percutaneous interventions in females are usually more complicated due to gender-related small size of coronary arteries. Thus, female gender contributes to substantially worse early and late outcomes and increased mortality [4-9].

The aim of the study was to compare acute results of percutaneous coronary interventions (PCI) in women and men admitted to our department. The risk of death and the length of hospital stay were evaluated according to PCI indications. Selected angiographic parameters such as X-ray exposure time and the quantity of administered contrast agents were also evaluated as indirect indicators of technical difficulty of procedures.

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Methods

Study group

A total of 1000 consecutive patients (701 men and 299 women) with myocardial infarction (MI) or stable (SA) and unstable angina (UA) underwent PCI between June 2002 and April 2003.

Analysed variables

The medical records of all patients were reviewed, including demographics (age and gender), presence of IHD risk factors, comorbidities (congestive heart failure, renal failure, history of stroke, peripheral arterial disease), duration of hospitalisation, in-hospital mortality and angiographic parameters (the number of narrowed coronary arteries, localisation of the dominant lesion, TIMI flow grade before and after PCI, sizes of balloons and stents used during the procedures). X-ray exposure time and the quantity of administered contrast agents were analysed as well.

Definitions

The term MI is used for both ST elevation MI (STEMI) treated with primary PCI and non-ST elevation MI (NSTEMI). Unstable angina was diagnosed when typical anginal symptoms of class III or IV (CCS) were not accompanied by positive myocardial necrosis biomarkers. In such cases the recurrence of chest pain and haemodynamic instability or ECG changes were the indications for coronary angiography. The diagnosis of MI and UA was based on 2000 guidelines as the study group was composed of the individuals treated in 2002 and 2003 [10]. Patients with SA were recruited from individuals referred for elective invasive diagnostics of coronary artery disease.

The term dominant lesion refers to the artery responsible for the acute coronary syndrome (ACS) or the most stenotic lesion that was treated in patients with SA.

Statistical analysis

Numerical variables are presented as the arithmetic mean and standard deviation, whereas percentages depict all categorical parameters. Arithmetic means and percentages were rounded to one decimal point, the values of relative risk to two decimal points. Shapiro-Wilk test was applied to verify the distribution normality of quantitative variables. Continuous variables following a normal distribution were compared using the t-test for independent variables; otherwise Mann-Whitney test was applied. Categorical variables were analysed using the χ^2 test with Yates' correction or Fisher's exact test. Multivariate logistic regression was used to assess the influence of independent parameters on the dependent binary variable. The results are presented as odds ratios with 95% confidence intervals. The impact of quantitative and categorical variables on the dependent numerical variables was evaluated using a multiple regression model. A p value less than 0.05 was considered significant in all tests, whereas a trend towards statistical significance was recognised when a p value was less than 0.1. Insignificant p values were depicted as NS. The symbol NA was used for analyses not done due to failure to fulfil criteria needed for the given test. A Polish version of Statistica 7.1 software (Statsoft, Tulsa, USA) was used.

Results

Demographic and clinical data are presented in Table I. Females constituted 29.9% of the group. They were significantly older than men and more frequently had diabetes, hypertension, higher BMI and positive family history of heart disease. Tobacco use was less common than in men. In women ACS was more frequently an indication for PCI, whereas an elective PCI was performed rarely in case of SA. Peripheral arterial disease and previous MI were more frequent in men than in women. There were no significant

Table I. Demographic and clinical characteristics of study patients

Variable	Females (n=299)	Males (n=701)	p
Age [years]	63.7±11.2	58.5±10.4	<0.000001
Body mass index [kg/m^2]	27.9±4.4	27.1±3.5	<0.02
Hypertension	210 (70.2%)	396 (56.5%)	<0.0001
Tobacco use • smokers • non-smokers	 126 (42.1%) 173 (57.9%)	 505 (72.0%) 196 (28.0%)	 <0.0001
Increased cholesterol level	243 (81.3%)	565 (80.6%)	NS
On lipid-lowering medications	210 (70.2%)	494 (70.5%)	NS
Diabetes	87 (29.1%)	105 (15.0%)	<0.0001
Diabetes treated prior to admission • diet or diet and oral medications • insulin	 64 (73.6%) 23 (26.4%)	 81 (77.1%) 24 (22.9%)	 NS
Cardiogenic shock	16 (5.3%)	25 (3.6%)	NS
Congestive heart failure	45 (15.0%)	100 (14.3%)	NS
Renal failure	3 (1.0%)	20 (2.8%)	NS
Previous stroke	18 (6.0%)	37 (5.3%)	NS
Peripheral arterial disease	12 (4.0%)	54 (7.7%)	<0.04
Chronic obstructive pulmonary disease	8 (2.7%)	24 (3.4%)	NS
Positive family history of heart disease	96 (32.1%)	182 (26.0%)	<0.05
Previous myocardial infarction	122 (40.8%)	332 (47.4%)	0.0541
Baseline condition • stable angina • unstable angina • acute myocardial infarction	 127 (42.5%) 65 (21.7%) 107 (35.8%)	 365 (52.1%) 99 (14.1%) 237 (33.8%)	 <0.004

Table II. Angiographic characteristics of the cohort

Parameter	Females (n=299)	Males (n=701)	p
Coronary artery disease			
• single vessel	95 (31.8%)	227 (32.4%)	NS
• multiple vessel	204 (68.2%)	474 (67.6%)	
Dominant lesion			
• right coronary artery	112 (37.5%)	259 (36.9%)	NS
• left coronary artery	184 (61.5%)	436 (62.2%)	
Venous (*) and arterial (#) grafts	3 – 3* + 0# (1.0%)	6 – 5* + 1# (0.9%)	
Baseline TIMI flow in the vessel with dominant lesion			
• 0/1	107 (35.8%)	253 (36.1%)	NS
• 2/3	192 (64.2%)	448 (63.9%)	
Post PCI TIMI flow in the vessel with dominant lesion			
• 0/1	14 (4.7%)	49 (7.0%)	NS
• 2/3	285 (95.3%)	652 (93.0%)	
Number of dilated vessels			
• 1	289 (96.7%)	682 (97.3%)	NS
• 2/3	10 (3.3%)	19 (2.7%)	
Reopened occlusions	36 (12.0%)	72 (10.3%)	NS
Type of procedure			
• PTCA	59 (19.7%)	119 (17.0%)	NS
• PTCA + stent	240 (80.3%)	582 (83.0%)	
Direct stenting	68 (22.7%)	203 (29.0%)	0.05
Length of balloon or stent [mm]	17.5±5.7	17.4±5.5	NS
Maximum diameter of the balloon or balloon with stent [mm]	2.9±0.5	3.1±0.5	0.0002
Maximum inflation pressure of the balloon or balloon with stent [atm]	13.0±3.5	13.7±3.3	0.04
Number of balloons used			
• 0	65 (21.7%)	181 (25.8%)	NS
• 1	149 (49.8%)	350 (49.9%)	
• 2	72 (24.1%)	144 (20.6%)	
• ≥3	13 (4.4%)	26 (3.7%)	
Number of stents used			
• 1	198 (66.2%)	494 (70.5%)	NS
• 2	34 (11.4%)	75 (10.7%)	
• ≥3	8 (2.7%)	13 (1.8%)	
Use of GP IIb/IIIa inhibitor	52 (17.4%)	134 (19.1%)	NS
Angiographic result of the procedure			
• successful	278 (93.0%)	653 (93.2%)	NS
• unsuccessful	21 (7.0%)	48 (6.8%)	
Revascularisation			
• total	82 (27.4%)	189 (27.0%)	NS
• partial	217 (72.6%)	512 (73.0%)	
Subsequent treatment			
• conservative	242 (80.9%)	581 (82.9%)	NS
• PCI	50 (16.7%)	105 (15.0%)	
• CABG	7 (2.4%)	15 (2.1%)	

Abbreviations: PTCA – percutaneous transluminal coronary angioplasty, PCI – percutaneous coronary intervention

Table III. Comparison of x-ray exposure time, procedure time and the quantity of administered contrast agent

Parameter	Females (n=299)	Males (n=701)	p
X-ray exposure time [min]	10.2±6.8	9.7±6.3	NS
Procedure time [min]	40.3±22.8	38.4±19.5	NS
Quantity of administered contrast agent [ml]	150.4±78.6	152.3±78.1	NS

Table IV. Duration of hospitalisation

Parameter	Females (n=299)	Males (n=701)	p
Hospitalisation [days]	5.9±6.5	5.0±5.1	<0.03
Duration of hospitalisation with respect to indications for PCI [days]			
• stable angina	3.1±5.8	2.8±3.3	NS
• unstable angina	6.4±6.6	7.6±8.6	NS
• myocardial infarction	8.8±5.8	7.3±3.9	<0.02

differences between females and males with respect to the prevalence of hyperlipidaemia, renal failure, congestive heart failure, previous stroke and cardiogenic shock complicating MI, requiring hospitalisation and PCI.

The analysis of PCI-related variables revealed significant differences in the frequency of direct stenting (more common in men), maximum balloon and stent diameter and maximum balloon inflation pressure (higher in males). The remaining angiographic parameters were not different in the compared groups (Table II). The PCI procedure time, x-ray exposure time and the amount of administered contrast agents were also similar (Table III).

The hospital stay was significantly longer in females. However, after adjusting for PCI indications the difference between the groups was sustained only for patients with MI (Table IV).

Univariate analysis showed that in-hospital mortality was similar in females and males. Cardiogenic shock complicating MI was a similarly frequent cause of death in men and women (Table V).

Multivariate analysis showed a significant impact of the following parameters on in-hospital mortality: female gender, age, BMI, diabetes, statin use, type of PCI indications, cardiogenic shock complicating MI and postangioplasty TIMI flow grade (Table VI). Patients receiving statins before index ACS had a lower risk of in-hospital death than those not taking these medications. In the whole cohort of patients the risk of death was 7-fold higher in patients with MI than in subjects with SA. The risk was almost 4 times higher in men than in women and 5 times higher in patients with diabetes than in non-diabetic ones. Cardiogenic shock was associated with 37-fold increase of the risk of death. The low

Table V. In-hospital mortality

Parameter	Females (n=299)	Males (n=701)	p
Total in-hospital mortality	10 (3.3%)	22 (3.1%)	NS
In-hospital mortality with respect to PCI indication			
• stable angina	0 (0%)	0 (0%)	NS
• unstable angina	2 (3.1%)	2 (2.0%)	NS
• myocardial infarction	8 (7.5%)	20 (8.4%)	NS
In-hospital mortality with respect to PCI indications – individuals with cardiogenic shock excluded			
• stable angina	0 (0%)	0 (0%)	NS
• unstable angina	2 (3.1%)	2 (2.0%)	NS
• myocardial infarction	3 (3.3%)	6 (2.8%)	NS
In-hospital mortality in patients with cardiogenic shock complicating myocardial infarction	5 (33.3%)	14 (56.0%)	NS
In-hospital deaths			
• in cath-lab	2 (31.2%)	6 (18.7%)	NS
• outside cath-lab	8 (68.6%)	16 (81.3%)	

Table VI. Demographic, clinical and angiographic variables (selected from Tables I and II) found to have a significant impact on in-hospital mortality in the multivariate logistic regression model for the entire group

Parameter	Categories	OR	95% CI	p <
Age [years]	OR for an increase of one year	1.06	1.01-1.10	0.02
Gender	men vs. women	3.80	1.16-12.45	0.03
BMI [kg/m^2]	OR for an increase of one unit	1.13	1.01-1.27	0.04
Diabetes	patients with diabetes vs. patients without	4.71	1.65-13.39	0.004
Statin medication	medicated vs. non-medicated	0.24	0.08-0.70	0.01
PCI indication	STEMI vs. SA	7.17	1.22-41.98	0.03
	STEMI vs. UA/NSTEMI vs. SA	2.68	1.11-6.48	
Post PCI TIMI flow grade in vessel with the dominant lesion	TIMI 0 or 1 vs. TIMI 2 or 3	7.38	2.16-25.17	0.002
Cardiogenic shock	present vs. absent	37.66	12.17-116.53	0.0001

Abbreviations: STEMI – ST elevation myocardial infarction, NSTEMI – non-ST elevation myocardial infarction, UA – unstable angina, SA – stable angina, BMI – body mass index

Table VII. Demographic, clinical and angiographic variables (selected from Tables I and II) found to have a significant impact on the in-hospital mortality in the multivariate logistic regression model for the female group

Variable	Categories	OR	95% CI	p
Cardiogenic shock	present vs. absent	12.01	2.76-52.29	<0.001
PCI indication *	STEMI vs. SA	9.72	0.76-124.11	0.079
	STEMI vs. UA/NSTEMI vs. SA	3.12	0.87-11.14	

** trend towards statistical significance*

post-procedure TIMI flow grade (0/1) through the vessel with the dominant lesion was associated with a 7-fold increase in mortality compared to TIMI 2/3 flow.

Cardiogenic shock was the only factor having a significant impact on the in-hospital mortality in women (Table VII). In men the risk of death was significantly influenced by cardiogenic shock, PCI indications, age, diabetes and TIMI flow grade post PCI (Table VIII).

Discussion

The differences in the epidemiology and the course of IHD between women and men have inspired numerous attempts to elucidate this phenomenon. The protective role of oestrogens seems to explain the delayed onset of IHD in females (on average by 10 years) [11]. In our cohort of patients females were generally older than males, however the mean difference was 4.2 years. Acute MI is

Table VIII. Demographic, clinical and angiographic variables (selected from Tables I and II%) found to have a significant impact on the in-hospital mortality in the multivariate logistic regression model for the male group

Variable	Categories	OR	95% CI	p <
Cardiogenic shock	present vs. absent	74.00	16.40-333.83	0.0001
PCI indication	STEMI vs. SA	24.54	2.14- 280.74	0.02
	STEMI vs. UA/NSTEMI vs. SA	4.95	1.46-16.75	
Diabetes	patients with diabetes vs. patients without diabetes	9.35	2.14-40.86	0.004
Post PCI TIMI flow grade in vessel with the dominating lesion	TIMI 0 or 1 vs. TIMI 2 or 3	8.49	1.90-37.93	0.006
Age	OR for an increase of one year	1.08	1.02-1.14	0.01

Abbreviations: see Table VI

known to be the predominant first presentation of IHD in men, whereas in women it is usually preceded by atypical anginal symptoms [12, 13]. This difference is attributed to psychological diversity and more emotional expression of symptoms in women. Moreover, the impact of classical risk factors on IHD is different in females and males (more pronounced impact of diabetes, tobacco use, low HDL levels and increased triglyceride concentrations in women) [3, 14-16]. Females, constituting 30% of our cohort, more often had diabetes, hypertension, increased BMI and positive family history of heart disease than men. Demographic characteristics of women in our cohort were similar to those from other reports [3-5, 14]. Similarly, females used tobacco less frequently both at the time of hospital admission and in the past.

The results of previous reports on differences between women and men with respect to morbidity and mortality in the course of IHD are not consistent [3, 7, 8, 17-20]. The majority of studies documented higher mortality among younger women than in men at the same age. However, in 65-year old patients no gender difference in mortality was observed [3, 21, 22].

Epidemiological studies have shown that cardiovascular disease is responsible for 55% of deaths in women and 43% in men [23] in Poland. The reports on results of MI treatment from the fibrinolysis era reveal substantially higher in-hospital mortality in females than in males [7, 24]. Current studies on primary PCI yield different results: the mortality associated with acute MI treated with PCI is similar in patients of both genders [23].

Outcomes of invasive treatment and mortality in the course of UA and NSTEMI in males and females reported by investigators are not consistent. The FRISC II study did not show any benefits of invasive treatment in females with UA, whereas PCI was beneficial in males [25]. TACTICS TIMI 18 revealed positive effects of PCI with broader use of stents and GP IIb/IIIa inhibitors in women. The RITA 3 study however, comparing the effects of invasive and conservative strategies in individuals with NSTEMI and UA, demonstrated benefits of PCI in men only [26]. Similarly, among individuals with SA, PCI procedures are performed with different frequency and their outcomes are not the same in both gender groups [27].

A retrospective analysis of medical records of our 1000 consecutive patients treated with PCI revealed that ACS (MI and UA) was among females a significantly more frequent indication for the procedure than elective PCI in SA. Similar are data from various reports showing decreased referral of women for invasive diagnostic examinations and treatment [5].

A discrepancy between the severity of anginal symptoms and angiographic findings (insignificant lesions or normal coronary arteries) is frequently observed in women. It may explain the lower rates of invasive treatment after diagnostic angiography in women. Of note, some authors suggest that intervention within insignificantly stenotic lesions of the coronary artery (40%) can be advantageous [13].

Analysis of angiographic parameters (location of the lesion, the number of vessels with significant stenosis >50%, TIMI flow grade in the vessel with the dominant lesion) did not show any significant differences between men and women except for significantly smaller balloon and/or stent diameters, smaller maximum balloon inflation pressures and smaller frequency of direct stenting in women. Similar results have been shown by others [4, 7]. Unfavourable anatomy of coronary arteries and disseminated atherosclerotic lesions are possible explanations of the substantially worse PCI outcomes in women [4]. Our findings confirm smaller size of coronary arteries in females. However, it was associated neither with longer procedure times nor worse blood flow through the vessel after PCI. Factors reflecting the technical difficulties during PCI, such as procedure time, the amount of administered contrast agent and X-ray exposure time, were evaluated as well. Assuming similar experience of interventional teams, no differences were found between men and women regarding these parameters.

No fatal complications of PCI occurred. Moreover, no differences of duration of hospitalisation or in-hospital mortality including periprocedural mortality were found between females and males.

All-cause in-hospital mortality was 3.3% in women and 3.1% in men. No individual with SA undergoing PCI died. Mortality in patients with UA was 3.1% in women and 2.0% in men. Mortality in individuals with MI (including the cases with cardiogenic shock was 7.5% and 8.4% in females and in males respectively. In cases of uncomplicated MI, mortality was 3.3% and 2.8% respectively. When shock-related deaths were analysed separately, mortality was found to be higher in men (56 vs. 33%), but this difference was not statistically significant. The majority of studies point at female gender as an independent risk factor of cardiogenic shock. Some reports show higher shock-related mortality in men [3, 9, 28].

Our study revealed that in-hospital mortality in women was influenced only by the presence of cardiogenic shock. Of note, the impact of indication for PCI on mortality reached only borderline significance (p=0.079). At the same time in males mortality was affected by several factors: PCI indication, age, diabetes, cardiogenic shock and TIMI flow grade in the vessel with the dominant lesion post PCI. The risk of death in men was increased 74-fold in the presence of cardiogenic shock, and only 12-fold in women. Why was cardiogenic shock complicating MI a less frequent cause of death in females? A possible explanation is that MI usually is not the first symptom of IHD in women. The preceding period of SA reflects slowly progressing coronary artery stenosis in some patients. It allows development of collateral circulation and preconditioning of the myocardium. In such conditions even the occlusion of a major artery may not lead to extensive myocardial necrosis. Thus, TIMI flow grade after PCI may not have a significant impact on the early outcome in women, as we have observed in our study. Diabetes had a major impact on mortality only in men, although its incidence was higher in females. Published data on IHD show that diabetes increases this risk more strongly in females than males. In a meta-analysis of 37 studies including 450 000 patients with IHD, significantly higher mortality in subjects with type 2 diabetes (5.4% in patients with DM vs. 1.6% without) was found. Additionally, women with diabetes had a substantially higher risk of death [29]. The discrepancy between the results of our study and other reports may be explained by a higher mean age of women in our study (63.7 years). It is also known that diabetes is the strongest risk factor in younger females.

Limitations

Our study is certainly biased by various factors including its retrospective design, presence of individuals with different PCI indications and the relatively small number of females (30%). A balanced proportion of men and women in the study cohort might have changed the results. Moreover, the time between the onset of symptoms and PCI was not taken into account. Pre- and in-hospital delay is well known to impact the results of PCI and the prognosis [30]. Delayed hospitalisation for MI is more common in women and individuals over 70 years of age [30]. Adjusting for that might have also changed the results. Our study did not involve an analysis of coronary atherosclerotic burden and severity. Identification of the culprit lesion responsible for a given coronary event can sometimes be difficult in patients with UA, NSTEMI and multi-vessel coronary artery disease. This can influence the prognosis (dilation of narrow stenosis while omitting non-occlusive, but vulnerable plaque).

Conclusions

1. Among patients undergoing PCI for SA the percentage of women is substantially lower than men, while no such difference is observed for ACS.
2. There is no difference in in-hospital mortality between women and men treated with PCI due to both SA and ACS despite the accumulation of risk factors and advanced age in female patients.
3. Cardiogenic shock has been found to be the only significant negative predictor of mortality in females. In men mortality is associated with several factors (age, diabetes, PCI indication, postangioplasty TIMI flow grade and cardiogenic shock).
4. Increase of the risk of death associated with cardiogenic shock is much more pronounced in men than in women.

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Wpływ płci na śmiertelność wewnątrzszpitalną osób poddanych przezskórnej angioplastyce wieńcowej

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Streszczenie

Wstęp: Wiele obserwacji i wyników badań wskazuje, że kobiety z chorobą niedokrwienną serca (IHD) rzadziej od mężczyzn są diagnozowane i leczone inwazyjnie, a wyniki przezskórnych interwencji wieńcowych (PCI) u kobiet są gorsze niż u mężczyzn.

Cel: Porównanie wyników bezpośrednich PCI wykonywanych u kobiet i mężczyzn z różnych wskazań.

Metodyka: Badanie było retrospektywną oceną historii chorób kolejnych 1000 pacjentów (299 kobiet i 701 mężczyzn) poddawanych PCI z powodu zawału serca (MI) (342 chorych – 30,7% kobiety, 69,3% mężczyźni), z powodu niestabilnej dusznicy bolesnej (UA) (164 chorych – 39,6% kobiety, 60,4% mężczyźni) oraz z powodu stabilnej dusznicy bolesnej (SA) (492 chorych – 25,8% kobiety, 74,2% mężczyźni). Porównywano zmienne demograficzne, zmienne angiograficzne (lokalizacja i rozległość zmian miażdżycowych, przepływ TIMI w naczyniu docelowym przed i po zabiegu, średnica balonu/stentu, maksymalne ciśnienie inflacji balonu, częstość stentowania bezpośredniego, czas trwania zabiegu, ilość zużytego środka cieniującego) oraz zmienne kliniczne (czas trwania hospitalizacji, śmiertelność wewnątrzszpitalna).

Wyniki: Stabilna dusznica bolesna była powodem wykonywania PCI znamiennie rzadziej u kobiet (42,5%) niż u mężczyzn (52,1%). Kobiety były znamiennie starsze od mężczyzn (63,7±11,2 *vs* 58,5±10,4 roku, p <0,000001), miały wyższy wskaźnik masy ciała (BMI) (27,9±4,4 *vs* 27,1±3,5, p <0,02), częściej chorowały na nadciśnienie tętnicze i cukrzycę (p <0,0001). Kobiety rzadziej niż mężczyźni były palaczkami tytoniu (p <0,0001), rzadziej w przeszłości przebyły MI (p <0,05) oraz rzadziej miały chorobę naczyń obwodowych (p <0,04). Nie było różnic między kobietami a mężczyznami pod względem rozległości i lokalizacji zmian zwężających w tętnicach wieńcowych. U mężczyzn istotnie częściej wykonywano stentowanie bezpośrednie oraz stosowano balony i stenty o większej średnicy i używano większych maksymalnych ciśnień inflacji balonu i rozprężania stentu. Czas trwania hospitalizacji kobiet i mężczyzn był taki sam, gdy powodem wykonywania PCI była SA bądź UA. W wypadku MI kobiety były hospitalizowane znamiennie dłużej niż mężczyźni (8,8±5,8 *vs* 7,3±3,9 doby, p <0,02). W analizie jednoczynnikowej płeć nie miała wpływu na śmiertelność wewnątrzszpitalną niezależnie od powodu wykonania zabiegu PCI (kobiety – 3,3%, mężczyźni – 3,1%). W analizie wieloczynnikowej wpływ na śmiertelność wewnątrzszpitalną wykazano dla płci, wieku, BMI, cukrzycy, hipercholesterolemii w wywiadzie, dla wskazania do PCI, końcowego przepływu TIMI w naczyniu docelowym oraz dla wstrząsu wikłającego MI. W grupie kobiet znamienny statystycznie wpływ na śmiertelność wewnątrzszpitalną utrzymywał się tylko dla wstrząsu kardiogennego (p <0,001). W grupie mężczyzn istotny wpływ na śmiertelność wewnątrzszpitalną oprócz wstrząsu wykazywały wskazanie do PCI, wiek, cukrzyca, przepływ TIMI w naczyniu docelowym.

Wnioski: 1. Kobiety z IHD leczone inwazyjnie są starsze od mężczyzn i bardziej obciążone czynnikami ryzyka. 2. Śmiertelność wewnątrzszpitalna chorych poddawanych PCI z powodu SA i z powodu ostrego zespołu wieńcowego jest taka sama u obu płci. 3. Wstrząs kardiogenny jest jedynym czynnikiem wpływającym na śmiertelność wewnątrzszpitalną kobiet, natomiast u mężczyzn wpływ taki, oprócz wstrząsu, wykazują również wskazanie do PCI, obciążenie cukrzycą oraz końcowy przepływu TIMI w naczyniu poddawanym PCI.

Słowa kluczowe: przezskórne interwencje wieńcowe, płeć, czynniki ryzyka zgonu

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