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ARTYKUŁ ORYGINALNY / *ORIGINAL ARTICLE*

Clinical and angiographic characteristics of coronary artery disease in young adults: a single centre study

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Abstract

Background: Coronary artery disease (CAD) in young adults under 40 years of age is a growing medical, social, psychological and economical problem, related to the prevalence of civilization-related diseases and unhealthy lifestyle. The problem of CAD in young people has not been characterised as well as in older individuals, as the available data mostly come from case reports and small series, often related to genetic aspects and familial occurrence of the disease.

Aim: To assess clinical and angiographic characteristics of young adults with CAD and to evaluate in-hospital and long-term mortality in this patient group. The study combined a retrospective and a prospective approach.

Methods: A total of 239 patients aged 40 years or younger who underwent coronary angiography (CAG) in the Swietokrzyskie Centre of Cardiology in Kielce in 2001–2008 were included in this study. Demographic characteristics, risk factor profile, laboratory test results, electrocardiographic and echocardiographic findings, CAG findings, and in-hospital mortality were assessed retrospectively in the selected groups. During the second stage of the study, clinical and mortality data were obtained prospectively in 130 patients (54.4% of the study group) during up to 5 years of follow-up.

Results: The mean patient age was 35.1 ± 4.4 years. Men made up 86.2% of the study sample, and the proportion of rural area residents was 54.8%. Among young patients with acute coronary syndromes (ACS), the most common presentation (52.8%) was ST segment elevation myocardial infarction (STEMI). Angiographically normal coronary arteries were found in 37.2% of CAD patients and in 16.9% of patients with the diagnosis of ACS. The mean degree of coronary artery lumen stenosis was 75.4% in the group with significant atherosclerotic coronary lesions (50–90%) and 95.9% in the group demonstrating a critical coronary obstruction (≥ 90%). Single-vessel disease was identified in 61.9% of patients with a positive result of CAG (stenosis > 50%, CORO(+) group). The most common location of significant atherosclerotic coronary lesions was the left anterior descending artery (61.6%) followed by the right coronary artery (27.4%). The most prevalent conventional cardiovascular risk factors were lipid abnormalities, cigarette smoking and an increased body mass index ≥ 25 kg/m^2, followed by a family history of CAD and hypertension. The proportion of patients with abnormal lipid profile, cigarette smoking and overweight or obesity was particularly high in the CORO(+) group (85.6%, 83.9%, and 64.4%, respectively). In-hospital mortality rate was low, at 0.7% among ACS patients. Long-term mortality during up to 5 years of follow-up was not so favourable, at 7.75% in ACS patients and 8.5% in the CORO(+) group.

Conclusions: The population of young patients with CAD is predominantly male, rural, and characterised by a low socioeconomic status. The aetiology of CAD in this patient group differs significantly from that in older patients and it is often associated with an unhealthy lifestyle related to rapid civilization changes. The rates of CAD risk factors in young adults are high and the most important risk factors are dyslipidaemia, smoking, and overweight/obesity. Single vessel disease and STEMI presentation were predominant in young patients. Short-term prognosis in young ACS patients is excellent, but long-term prognosis is significantly worse. Further studies on CAD in young adults are warranted, particularly in larger patient populations.

Key words: coronary artery disease, acute coronary syndrome, young age, coronary angiography, risk factors, mortality

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INTRODUCTION

Coronary artery disease (CAD) is relatively rare in subjects below 40 years of age, as it occurs in about 6–10% of them [1], but it has grave medical, social, psychological, and economic consequences in this age group. Sudden cardiac death, which is the most severe complication of CAD, occurs also in young subjects, and some authors believe it is one of the most common causes of mortality among young adults [2]. With rapid civilization changes and increasing prevalence of conventional risk factors for CAD, premature atherosclerosis is a growing problem, occurring in even younger age groups including those in the third and fourth decade of life.

The PL-ACS registry data indicate that acute coronary syndromes (ACS) occur most commonly in patients in the sixth and seventh decade of life, with 1% of cases occurring in subjects below 40 years of age and 8.03% occurring in the age range of 40–49 years [3].

Although the aetiology of CAD in young subjects is related to coronary atherosclerosis in 80% of cases, a number of differences regarding both the risk factor profile and clinical and angiographic characteristics exist in comparison to older patients [1, 4]. Literature data indicate that young patients with ACS are usually male smokers with abnormal lipid profile, concomitant overweight, and often positive family history for premature CAD. Coronary angiography (CAG) more often shows normal coronary arteries, prompting for a search for non-atherosclerotic aetiology such as coronary spasm, vasculitis, embolism, or hypercoagulability. In young and very young subjects, destructive lifestyle factors have also been highlighted, including exaggerated ambitions, competition, workaholism, poor diet, use of psychoactive substances including cocaine, marijuana, and anabolic steroids, and disregarding early disease symptoms [5–7].

In the recent years, we have been witnessing extremely rapid advances in modern invasive cardiology techniques, resulting in improved ACS treatment outcomes mostly in regard to in-hospital mortality. In contrast, views on long-term outcomes in this patient group vary. In general, few data on CAD in young adults are available in the literature, mostly from case reports and small series, often related to genetic aspects and familial occurrence of the disease.

The aim of this study was to evaluate clinical and angiographic characteristics of young adults with CAD. We also evaluated in-hospital and long-term mortality in this patient group. The study combined a retrospective and a prospective approach.

METHODS

We studied consecutive patients below 40 years of age who underwent CAG in the Swietokrzyskie Centre of Cardiology in Kielce, Poland, in 2001–2008. During this period, 242 such patients were identified, or 1.35% of all patients undergoing CAG. Ultimately, the study group included 239 patients for whom complete medical records were available, including 206 (86.2%) men and 33 (13.8%) women. We evaluated the characteristics of this population in the following subgroups: those with the diagnosis of CAD, with ACS, and with obstructive CAD defined as significant coronary stenoses (> 50% of the vessel lumen) found in CAG, denoted further as the CORO(+) group. We retrospectively evaluated demographic characteristics, conventional risk factors for CAD, selected laboratory test results, electrocardiographic and echocardiographic parameters, and CAG findings. We evaluated in-hospital mortality in the study population. As a second step, we obtained data from long-term follow-up of 130 patients (54.4% of the study population) who presented for a follow-up examination and were subjected to a comprehensive clinical evaluation as per the study protocol. The mean duration of long-term follow-up was 4.9 ± 2.2 years. We also evaluated long-term mortality during this period.

Statistical analysis

Descriptive statistics included the mean values ± standard deviation for continous variables with normal distribution, and medians and interquartile ranges [Me (p25–p75)] in case of essential abberations of data distribution. Categorial variables were expressed as a number and percentage. The Student *t* test was used to compare the mean values of normally distributed quantitative variables between two groups, and analysis of variance was used for a larger number of groups. Qualitative variables were compared between groups using the χ^2 test. For all tests, $p < 0.05$ was considered statistically significant.

Statistical analyses were performed using licenced copies of the SAS 9.3 and Excel software.

RESULTS

Baseline characteristics of the study group

Among 239 patients who underwent CAG, most were men (86.2%), and the mean age was 35.1 ± 4.4 years. Indications for CAG included a suspicion of ACS (67.4%), suspected CAD (24.7%), investigation for the cause of heart failure (5.8%), and evaluation of coronary arteries before cardiac surgery (2.1%). CAD was the final diagnosis at discharge in 188 (78.7%) patients, including ACS in 142 (59.4%) patients. A primary coronary aetiology was excluded in 21.3% of patients. Of note, myocarditis was diagnosed in as many as 11% of all patients. Clinical data and risk factors for CAD in the overall study group are shown in Table 1.

Among ACS patients, the most common presentation was ST segment elevation myocardial infarction (STEMI) (52.8%) (Fig. 1).

Coronary angiography findings

Obstructive CAD (vessel lumen stenosis > 50%) was found in 118 (49.4%) patients, including 13.4% of patients with

Table 1. Baseline characteristics of the study group

Parameter	Number of patients (n = 239)
Age [years]	35.1 ± 4.5
Gender — men	206 (86.2%)
Area of residence:	
Urban	108 (45.2%)
Rural	131 (54.8%)
Professional status:	
Working or studying	171 (71.5%)
Unemployed or receiving social security benefits	68 (28.5%)
Current or previous smoking	171 (71.5%)
Number of cigarettes smoked per day	21.2 ± 9.6
Hypertension	118 (49.4%)
Hyperlipidaemia	174 (72.8%)
Diabetes	15 (6.3%)
Overweight/obesity	85 (35.6%)/38 (15.9%)
Angina	160 (66.9%)
Elevated troponin level on admission	117 (48.9%)
Cardiac arrest before admission	6 (2.5%)
Febrile infection before admission (within 1 month)	32 (13.4%)

Table 2. Coronary angiographic findings

Coronary angiography	Number of patients (%) (n = 239)	Stenosis degree (mean ± SD)
No significant lesions*	121 (50.6%)	–
Lesions > 50%	118 (49.4%)	90.2 ± 11.1
Significant lesions 50–90%	32 (13.4%)	74.8 ± 8.5
Critical lesions ≥ 90%	86 (36%)	95.9 ± 4.7

*Stenosis 40% in 1 patient, no lesions (stenosis 0%) in the remaining patients; SD — standard deviation

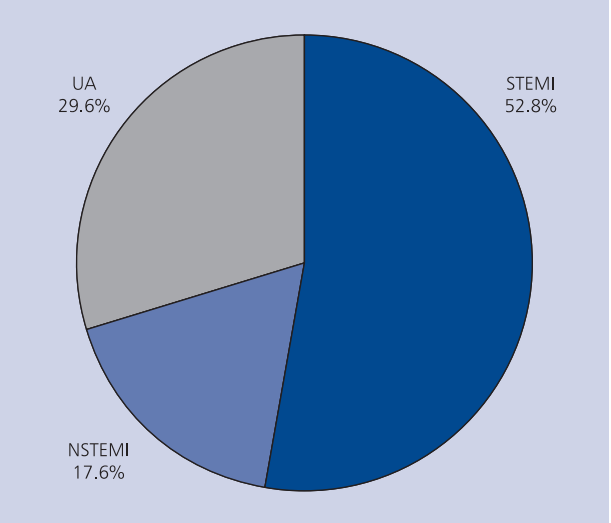

Figure 1. Acute coronary syndrome presentation in the study group (n = 142); NSTEMI — non-ST segment elevation myocardial infarction; STEMI — ST segment elevation myocardial infarction; UA — nstable angina

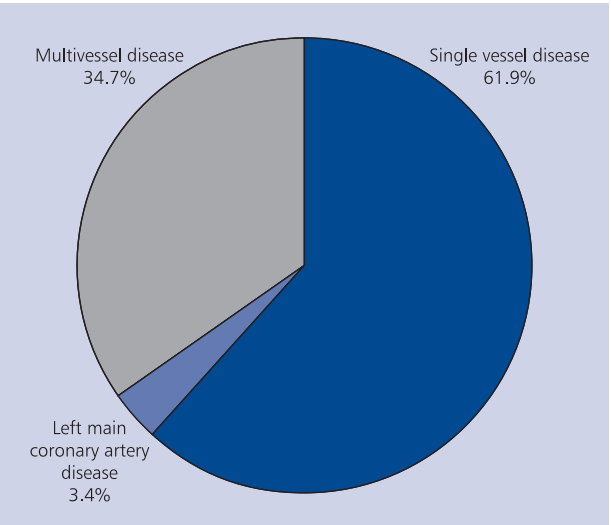

Figure 2. Coronary angiographic findings

a 50–90% stenosis, and 36% of patients with a ≥ 90% stenosis (Table 2). The mean lumen stenosis among those with obstructive CAD was 75.4%, and 95.9% among those with a ≥ 90% stenosis. No coronary artery stenoses (zero-vessel disease) was found in more than 50% of the study population. A normal coronary angiogram was found in 37.2% (70/188) of patients with the diagnosis of CAD and in 16.9% (24/142) of patients with a clinical diagnosis of ACS (Table 2).

Single vessel disease was most common (61.9%) (Fig. 2). The most common lesion location was the left anterior descending (LAD) artery (61.6%) followed by the right coronary artery (RCA) (27.4%) (Fig. 3).

The characteristics of the CORO(+) group are shown in Table 3.

Risk factors

Clinical risk factors were evaluated in all subgroups including the CORO(+) group. Patients in the latter group had 3 or more risk factors, most commonly dyslipidaemia, smoking, and body mass index (BMI) ≥ 25 kg/m^2 (Table 4). The order or prevalence of conventional risk factors was the same in all subgroups evaluated, including CAD, ACS and CORO(+) groups. During long-term follow-up, we also evaluated additional potential laboratory risk factors and CAD markers

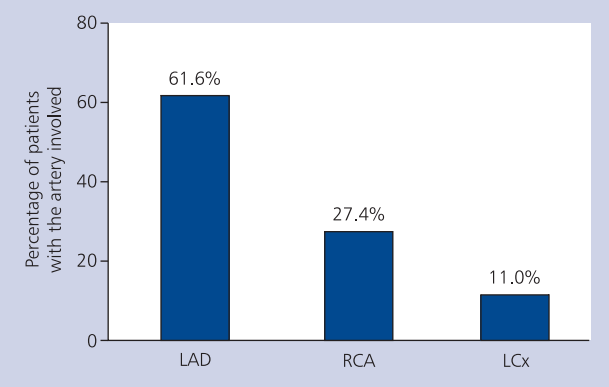

Figure 3. Location of coronary lesions in patients with single vessel disease; LAD — left anterior descending artery; RCA — right coronary artery; LCx — left circumflex artery

Table 3. Characteristics of the CORO(+) group

Variable	Number of patients (%)
Male gender	108/118 (91.5%)
ST segment elevation myocardial infarction	68/118 (57.6%)
Non-ST segment elevation myocardial infarction	19/118 (16.1%)
Unstable angina	31/118 (26.3%)
50–90% stenosis	32/118 (27.1%)
≥ 90% stenosis	86/118 (72.9%)
Single vessel disease	73/118 (61.9%)
Multivessel disease	41/118 (34.7%)
Left main coronary artery	4/118 (3.4%)

Table 4. Prevalence of risk factors in patients with various severity of coronary lesions by coronary angiography (CAG)

CAG findings	Hypertension	Smoking	Hyper-lipidaemia	Diabetes	Overweight/obesity (BMI ≥ 25)	Positive family history
CORO(+) (n = 118)	63/118 (53.4%)	99/118 (83.9%)	101/118 (85.6%)	7/118 (5.9%)	76/118 (64.4%)	64/118 (54.2%)
Single vessel disease (n = 73)	38/73 (52.1%)	63/73 (86.3%)	58/73 (79.5%)	3/73 (4.1%)	43/73 (58.9%)	36/73 (49.3%)
Multivessel disease (n = 45)*	25/45 (55.6%)	36/45 (80%)	43/45 (95.6%)	4/45 (8.9%)	33/45 (73.3%)	28/45 (62.2%)

*Including left main coronary artery disease

including C-reactive protein, fibrinogen, uric, acid, B-type natriuretic peptide, and glomerular filtration rate. We did not find positive correlations between these risk factors and coronary angiographic evidence of CAD in the study group (Table 4).

Mortality

In hospital-mortality in the study group was 1.25% (3 deaths). Among patients with the final diagnosis of ACS, one death was noted in a female patient with cardiogenic shock.

During long-term follow-up (mean duration 4.9 years), mortality was 7.75% among patients and 8.5% in the CORO(+) group. Available information indicated that nearly all deaths after hospital discharge were sudden cardiac deaths. The mean time from hospitalisation to death was 3.55 years.

DISCUSSION

Although the incidence of CAD and acute myocardial infarction (AMI) among subjects below 40 years of age is much lower compared to older subjects, young patients require special attention, and developing an approach to the early diagnosis and identification of high-risk patients is a challenge for modern cardiology. Unfortunately, few data are available on the course of CAD, its risk factors, optimal treatment approach, and outcomes in this young population, which affects our ability to diagnose, treat, and prevent disease recurrences.

Our study was a single centre one but included one of the largest patient populations reported in the literature. In our study group of 239 young patients (mean age 35 ± 4.4 years) referred for CAG, 86.2% were men, which is a proportion similar to previous literature data. They mostly inhabited rural areas, with as many as 28.5% unemployed or living on social security benefits. Most recent data by the Polish National Institute of Public Health-National Institute of Hygiene (2012) indicate that premature mortality due to CAD is higher in rural compared to urban areas. Of note, our study findings indicate that one in ten patients below 40 years of age referred to a coronary catheterisation laboratory may show evidence of myocarditis. Differentiating between myocarditis and ACS is an important issue and a major challenge in cardiology, mostly in young subjects, as often discussed in the current literature [8, 9].

Coronary angiographic findings in our study group showed normal coronary arteries in a significant proportion of patients, including 32.7% of patients with CAD and 16.9% of patients with ACS, proportionally more frequently in women. Similar results were reported by Zimmerman et al. [10] and Sozzi et al. [11], attributing that to the young patient age. However, CAG showed normal coronary arteries in only 1.8%

of young subjects in the Swiss AMIS Plus study that included 195 patients below 35 years of age [12].

The pathomechanism of myocardial infarction (MI) in subjects with normal coronary arteries by CAG in our study group was mostly associated with unprovoked coronary artery spasm. Vasospasm identified during CAG occurred in some cases after illicit drug use (cocaine, amphetamine) or in relation to alcohol abuse. Other causes of MI with normal coronary arteries by CAG were also noted, including hypercoagulability states associated with pregnancy and the postpartum period, cardiac involvement in sarcoidosis, and non-ST segment elevation MI (NSTEMI) associated with the presence of myocardial bridge.

In patients with obstructive CAD, defined as a > 50% stenosis of a major coronary artery, the mean vessel lumen stenosis degree was more than 90%. Thus, young patients with CAD most commonly present with either normal coronary arteries by CAG or advanced, nearly critical atherosclerotic lesions. This may indicate somewhat different pathomechanism of the atherosclerotic process in young subjects, or different plaque morphology at young age. This might have also translated to the observed distribution of ACS types in the study group: the most common type was STEMI, followed by unstable angina and least commonly NSTEMI. The concept of vulnerable plaque established in the general population clearly requires verification in regard to young and very young patients. In the 1988 study by Wolfe and Vacek [13], comparing angiographic characteristics of the coronary arteries in patients with MI aged ≤ 35 years vs. ≥ 55 years, a nearly complete coronary occlusion was found in all young patients with an abnormal coronary angiogram. Although that study included only 35 patients ≤ 35 years, this finding was highlighted by the authors and is consistent with our study findings.

Among patients with an abnormal coronary angiogram in our study population, single vessel disease was most prevalent (61.9%), with the lesion most commonly located in the LAD, which is also consistent with most previously published studies. In a large analysis by Cole et al. [14], single vessel disease was identified in 58% of CAD patients below 40 years of age. Similar observations of predominantly single vessel disease in young adults compared to more common 2- or 3-vessel disease in older populations were made in multiple studies in Europe, United States and also Asia [15]. In most previous clinical trials, the distribution of coronary atherosclerotic lesions was similar and not related to the age group, with proximal LAD most frequently involved, followed by the RCA and the left circumflex artery.

Literature data clearly associate conventional risk factors for atherosclerosis with the development of CAD and its complications in young subjects but at the same indicate different rates and relative importance of specific risk factors compared to older patients. It was shown in the PDAY study [16] and the Bogalusa Heart Study [17] that atherogenesis begins already in childhood, and the extent of lipid-rich plaques depends on such factors as age, non-high density lipoprotein cholesterol (HDL-C) level, hypertension, hyperglycaemia, obesity, and tobacco smoking. Prospective cohort studies including the Muscatine Study [18] and the Cardiovascular Risk in Young Finns Study [19] showed relations between coronary risk factors evaluated in childhood or early adulthood and the coronary calcium score or the carotid artery intima–media thickness, both surrogate markers of atherosclerosis during later life.

Our study showed that young patients with CAD had multiple cardiovascular disease risk factors, with 3 or more risk factors present in the CORO(+) group. In all subgroups evaluated, the most common risk factors included hyperlipidaemia, smoking, and BMI ≥ 25 kg/m^2. The proportion of subjects with an abnormal lipid profile, smokers, and those with BMI ≥ 25 kg/m^2 was particularly high in the CORO(+) group, at 85.6%, 83.9%, and 64.4%, respectively. Even higher rates were observed in patients with multivessel disease. Further risk factors included a positive family history of CAD and hypertension. These observations are in concordance with the available Polish and international literature data. The NATPOL-Plus study [20] showed that the most prevalent risk factors in younger age group were smoking and hypercholesterolaemia, while the number of patients with hypertension is highest in the older population. Mukherjee et al. [21] showed that in patients undergoing percutaneous coronary intervention (PCI), smoking was much more common in those below 40 years of age compared to patients above 60 years of age (58.7% vs. 43%). In most studies, smoking was considered the major risk factor for CAD in young men and women [1, 10, 12]. In the study by Cole et al. [14], smoking was one of the strongest predictors of long-term mortality in patients below 40 years of age.

The prevalence of dyslipidaemia in young adults with CAD has been estimated by most authors at about 40–50% [12, 15]. In a cross-sectional American study by Khawaja et al. [22], a strong increasing trend for the prevalence of hyperlipidaemia, from 39% in 1980–1989 to 73% in 2000–2007, was found among patients below 50 years of age with CAD undergoing PCI. Greek authors suggested that low non-HDL-C level was the strongest risk factors in patients below 36 years of age, and smoking was the strongest non-lipid risk factor [23]. It has also been reported that the basic dyslipidaemia pattern in young patients includes a high triglyceride level and a low HDL-C level [24]. Obesity rates among MI patients below 45 years of age have been estimated at 30–58% [12]. The Coronary Artery Risk Development in Young Adults (CARDIA) study [25] highlighted the problem of obesity among young Americans, and adverse trends regarding overweight and obesity were also noted among young Poles. Among CAD risk factors taken into account in the present study, BMI ≥ 25 kg/m^2 has been considered one of the most important in addition to tobacco smoking and hyperlipidaemia,

which supports the notion that we are witnessing a global obesity epidemic in the 21st century. A review of clinical studies indicated that a contribution of genetic factors to the pathogenesis of premature CAD has been documented and estimated at 40–58% [10, 12]. In our study, a positive family history was one of the most common cardiovascular risk factors, present in 51.6% of patients with the diagnosis of CAD (188 patients) and in 54.2% of patients in the CORO(+) group. Significant progress in genetic studies that has been observed in the recent years may be soon expected to provide an answer to the question to what extent the family history and patient's genome determine individual cardiovascular risk. Hypertension, considered the most important cardiovascular risk factor in the general population, is increasingly identified in the developmental age population. In our study, it was not the predominant risk factor but was present in a large proportion of the study population (49.4% in the overall study population and 53.4% in the CORO(+) group).

Of note, diabetes type 1 or 2 was present in only 6.1% of our patients and was significantly associated with multivessel disease (8.9% vs. 4.1%). A similar proportion (6.3%) was noted by Schoenenberger et al. [12] in the Swiss AMIS Plus study, while a much higher proportion (> 50%) was reported by Xie et al. [15] in a population of young Asian women with MI. Zimmerman et al. [10] noted diabetes in only 3% of men with an AMI aged ≤ 35 years (n = 294) but in 9% of women with AMI aged ≤ 45 years (n = 210). A similar difference in the diabetes rate between men and women with CAD confirmed by CAG (26.4% vs. 8%) was reported by Cole et al. [14]. It may be thus suggested that diabetes is a more important risk factor for MI and mortality in young women than in young men.

Prognosis in young patients who are active members of their professions, societies, and families is an issue of major importance. A number of previous studies that evaluated treatment outcomes in this group showed low in-hospital mortality of 1.0–3.0%, with a preponderance of deaths among female patients [12, 14]. In our study, in-hospital mortality rates were also low at 0.7% in the ACS population and 1% in the AMI population. However, our findings regarding long-term mortality in the study population are less optimistic. Long-term mortality (evaluated at about 5 years) was 7.75% in ACS patients and 8.5% in the CORO(+) group. In the above cited study by Cole at al. [14] (15-year follow-up of 843 patients < 40 years with angiographically documented CAD), the most unexpected finding was a high mortality of 30% in the overall study population and as much as 45% among patients after AMI. Similar observations were made by few other authors. This issue requires further studies in larger patient groups.

CONCLUSIONS

1. The population of young adults with CAD is predominantly male, rural, and characterised by a low socioeconomic status.
2. The overall profile of risk factors important for the aetiology of CAD in young subjects is similar to that in older patients but the severity of specific risk factors and their individual contribution to the development of CAD in patients below 40 years of age is different. The most important risk factors for CAD in young adults are hyperlipidaemia, smoking, and obesity, followed by positive family history and hypertension.
3. Coronary angiographic findings and outcomes are also different compared to older patients. Single vessel disease and STEMI presentation were predominant in young patients. In this population, CAG mostly reveals either normal coronary arteries or a critically severe (mean 90%) stenosis. Short-term prognosis in young patients with ACS is excellent but it becomes significantly worse during long-term follow-up.

Conflict of interest: *none declared*

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Charakterystyka kliniczna i angiograficzna choroby wieńcowej u młodych dorosłych: badanie jednoośrodkowe

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Streszczenie

Wstęp: Choroba wieńcowa (CAD) u osób młodych poniżej 40. rż. stanowi narastający problem nie tylko medyczny, ale także społeczny, psychologiczny i ekonomiczny, co wiąże się z rozpowszechnieniem chorób cywilizacyjnych i destrukcyjnym dla zdrowia stylem życia. Problematyka CAD u młodych dorosłych jest nielicznie reprezentowana w piśmiennictwie, publikacje dotyczą często pojedynczych przypadków albo niewielkich grup chorych i niejednokrotnie odnoszą się do aspektu genetycznego i rodzinnego występowania choroby.

Cel: Celem niniejszej pracy było przedstawienie charakterystyki klinicznej i angiograficznej grupy młodych dorosłych z CAD. Oceniono także śmiertelność wewnątrzszpitalną i odległą w badanej grupie. Założenie to realizowano w systemie retrospektywnym i prospektywnym.

Metody: Retrospektywnej analizie poddano 239 pacjentów do 40. rż., u których wykonano angiografię tętnic wieńcowych w Świętokrzyskim Centrum Kardiologii w Kielcach w latach 2001–2008. Oceniono: cechy demograficzne, czynniki ryzyka CAD, wyniki badań laboratoryjnych, elektrokardiograficznych, echokardiograficznych, angiografię tętnic wieńcowych oraz śmiertelność w okresie wewnątrzszpitalnym w wyodrębnionych podgrupach chorych. W drugim etapie badania obserwacji odległej (4,9 ± 2,2 roku) poddano 130 (54,4%) pacjentów, którzy zgłosili się na badania kontrolne i zostali poddani kompleksowej ocenie klinicznej z analizą śmiertelności długoterminowej.

Wyniki: Średnia wieku w badanej grupie wynosiła 35,1 ± 4,4 roku. Mężczyźni stanowili 86,2%, a mieszkańcy wsi 54,8% ogółu badanych. W grupie chorych z ostrym zespołem wieńcowym (ACS) częstość występowania zawału serca z uniesieniem odcinka ST (STEMI) wynosiła 52,8%. Prawidłowy obraz koronarograficzny stwierdzono u 37,2% osób w grupie z CAD oraz u 16,9% pacjentów w grupie z ACS. Średni stopień zwężenia tętnic wieńcowych w grupie ze zmianami istotnymi (50–90%) wynosił 75,4%, a w grupie ze zwężeniami krytycznymi (≥ 90%) — 95,9%. U 61,9% pacjentów z dodatnim wynikiem koronarografii stwierdzono jednonaczyniową chorobę wieńcową. Zmiany miażdżycowe lokalizowały się najczęściej w tętnicy przedniej zstępującej (61,6%), a w dalszej kolejności w prawej tętnicy wieńcowej (27,4%). Do najczęstszych czynników ryzyka należały: hiperlipidemia, palenie tytoniu oraz nadwaga/otyłość, a następnie dodatni wywiad rodzinny w kierunku CAD i nadciśnienie tętnicze. Odsetek osób z nieprawidłowym profilem lipidowym, palących tytoń oraz ze wskaźnikiem masy ciała ≥ 25 kg/m^2 był szczególnie wysoki w grupie z dodatnim wynikiem koronarografii — wynosił odpowiednio 85,6%, 83,9% i 64,4%. Śmiertelność wewnątrzszpitalna była niska — u chorych z ACS była równa 0,7%. Śmiertelność długoterminowa w perspektywie 4–5-letniej była znacznie wyższa: u chorych z ACS sięgnęła 7,75%, a w grupie z dodatnim wynikiem koronarografii — 8,5%.

Wnioski: Młodzi pacjenci z CAD to przeważnie mężczyźni, mieszkańcy wsi i osoby o niskim statusie socjoekonomicznym. Etiologia CAD w tej grupie chorych jest bardziej zróżnicowana w porównaniu z osobami w starszym wieku i wiąże się często z niezdrowym stylem życia w warunkach szybko rozwijającej się współczesnej cywilizacji. Rozpowszechnienie klasycznych czynników ryzyka w tej populacji chorych jest duże, a największe znaczenie mają: hiperlipidemia, palenie tytoniu oraz nadwaga/otyłość. Najczęściej rozpoznawano STEMI oraz jednonaczyniową CAD w badaniu koronarograficznym. Rokowanie krótkoterminowe jest bardzo dobre, a długoterminowe niepewne. Zagadnienie CAD u młodych dorosłych wymaga przeprowadzenia dalszych badań.

Słowa kluczowe: choroba wieńcowa, ostry zespół wieńcowy, młody wiek, koronarografia, czynniki ryzyka, śmiertelność

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