INTRODUCTION

Both diabetes mellitus (DM) and coronary artery disease (CAD) are associated with an increased risk of cardiovascular complications, including myocardial infarction (MI) and death. Therapy with angiotensin-converting enzyme inhibitors (ACEIs), statins, and acetylsalicylic acid (ASA) has been shown to reduce the risk of cardiovascular events in various clinical settings. Thus, these drugs should be used both in high-risk patients with DM and in patients with CAD. However, some studies indicate that cardiovascular drugs are underused in patients with DM despite their proven efficacy.

DM and CAD often coexist, leading to further elevation of cardiovascular risk. Consequently, regular screening is recommended to detect
coronary disease in patients with DM, as well as screening for glucose metabolism abnormalities in patients with CAD.\(^6\)

Mortality from cardiovascular diseases in Poland is higher than in Western Europe,\(^6\) and both CAD and DM are frequent in patients examined by primary care physicians in Poland.\(^7\) Therefore, therapeutic habits of primary care physicians should have a substantial impact on the prognosis of patients with CAD and DM in Poland.

For these reasons, it is interesting to measure the adherence level of primary care physicians to the current guidelines in terms of the management of high-risk patients with DM and patients with CAD. The aims of the study were to compare the use of statins, ACEIs, and ASA as well as to compare the performance of relevant screening procedures in patients with DM and no CAD and patients with CAD and no DM. An additional aim was to assess and compare the control of modifiable risk factors in the studied groups and to compare patients’ demographics.

**Patients and Methods**

The Kardia-Pol registry was an observational survey conducted in 20 centers in Poland. The study centers were primary care offices randomly selected from a list of all primary care offices in Poland (available at http://www.rejestrozoz.gov.pl/R2OZ/; access date, November 9, 2009). In the process of random selection, in order to preserve the proportions of primary care offices in Poland (based on their ownership status: public vs. nonpublic, and based on their location: cities vs. other locations), the primary care offices in Poland were divided into the above 4 categories and then listed in a random order. Next, a proportionate number of offices listed first in each category was invited to participate in the study.

The study protocol was approved by the Ethics Committee at the Medical Academy in Warsaw. All study participants were informed about the aims and methods of the study. Written informed consent was obtained from each patient.

Patients eligible for the study were men and women aged 55 or older, with either DM without known CAD or with CAD without known DM. Patients were considered as having DM if the diagnosis was made based on standard criteria: 1) casual plasma glucose ≥200 mg/dl, 2) fasting plasma glucose ≥126 mg/dl, 3) abnormal result of the oral glucose tolerance test, or 4) current therapy with insulin, oral glucose-lowering agents, or both. Patients were considered as having CAD if they had typical symptoms and one of the following: 1) ≥50% stenosis in epicardial coronary artery in coronary angiography, 2) electrocardiographic signs of previous MI, or 3) segmental contractility defects in echocardiography, signs of ischemia on scintigraphy, or presence of postinfarction scar in nuclear magnetic resonance imaging. Patients with coexisting CAD and DM as well as type 1 diabetics were excluded. The study also excluded patients who had participated in a clinical trial in the field of DM or CAD in the previous 3 months, as well as patients unable to understand or sign written informed consent.

Each participating center was asked to recruit at least 10 consecutive patients presenting with DM and at least 10 consecutive patients presenting with CAD regardless of the purpose of the visit to minimize patient selection bias. The maximal total number of patients enrolled by a single study center was 30.

The study had 2 primary outcome measurements: 1) usage of 3 drug classes (statins, ACEIs, and ASA) in both studied groups, and 2) performance of recommended diagnostic tests to detect CAD in patients with DM or to detect abnormalities in glucose metabolism in patients with CAD. The secondary outcome measurements were the level of control of modifiable cardiovascular risk factors and demographic characteristics of the studied populations.

**Sample size calculation and statistical analysis**

Sample size was planned based on the assumption that frequency of recommended diagnostic procedures in one study group is 85%. Sample size necessary to obtain 5% precision of estimates and to show significant 10% difference between the groups was found to be 200 in each arm of the study (400 overall).

Comparison between patients with DM and patients with CAD was made using the χ² test (or the exact Fisher’s test when comparing low-frequency variables) for categorical variables, and t test or Mann-Whitney U test (for non-normal data). Normality of the data was checked using the Shapiro-Wilk test. The analysis was done using R 2.13 program (R Development Core Team [2011]. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3–900 051-07-0, http://www.R-project.org).

**Results**

Between January and June 2010, 396 patients were enrolled in the study in 20 study centers: 210 patients with DM and 186 patients with CAD. Demographic parameters are shown in Table 1. As compared with patients with CAD, patients with DM had higher mean body mass, body mass index, and waist circumference; they also had higher systolic blood pressure and heart rate (P < 0.05 for all respective comparisons between the groups).

Table 2 presents details of concomitant diseases and risk factors. Because patients with both concomitant DM and CAD were not included in the study, there were no patients with a history of MI in the DM group. Fewer patients with DM had concomitant heart failure or atrial fibrillation, while slightly more (though not statistically significant) had concomitant hypertension as compared with patients with CAD (85% vs. 77%, P = 0.061). There were no differences in the incidence of other cardiovascular diseases or...
had a blood fasting glucose test and 18 (13%) had an oral glucose tolerance test performed within 15 months prior to the study visit (Table 3).

Patients with DM were less likely to receive statins and ASA than patients with CAD. In line with the guidelines, the use of statins and ASA in diabetic patients should be considered in those who have either concomitant cardiovascular disease, hypertension, or cardiovascular risk factors (cigarette smoking, blood pressure >140/90 mmHg, total cholesterol >135 mg/dl, low-density lipoprotein (LDL) cholesterol >100 mg/dl, high-density lipoprotein (HDL) cholesterol <39 mg/dl in men and <46 mg/dl in women). At least one of the above criteria was met in 376 of 386 patients (97.4%) available for evaluation with DM.

Data are presented as mean ± SD or numbers (%).

Abbreviations: CAD – coronary artery disease, DM – diabetes mellitus, SD – standard deviation

Table 1: Demographic characteristics and results of physical examination

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Patients with DM</th>
<th>Patients with CAD</th>
<th>P for comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>women, n (%)</td>
<td>126 (60)</td>
<td>59 (32)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>age, y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>women</td>
<td>65.7 ± 7.6</td>
<td>68.7 ± 7.4</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>men</td>
<td>69.9 ± 7.6</td>
<td>71.3 ± 13.6</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>body mass, kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>women</td>
<td>79.2 ± 12.8</td>
<td>71.3 ± 13.6</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>men</td>
<td>89.9 ± 13.1</td>
<td>82.1 ± 13.3</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>body mass index, kg/m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>women</td>
<td>30.9 ± 4.7</td>
<td>27.9 ± 4.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>men</td>
<td>30.9 ± 4.7</td>
<td>27.9 ± 4.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>waist circumference, cm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>women</td>
<td>100.9 ± 12.8</td>
<td>92.9 ± 13.2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>men</td>
<td>105.2 ± 11.2</td>
<td>99.1 ± 11.1</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>systolic blood pressure, mmHg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>women</td>
<td>136.8 ± 13.6</td>
<td>131.7 ± 15.8</td>
<td>0.001</td>
</tr>
<tr>
<td>men</td>
<td>136.8 ± 13.6</td>
<td>131.7 ± 15.8</td>
<td>0.001</td>
</tr>
<tr>
<td>diastolic blood pressure, mmHg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>women</td>
<td>80.4 ± 7.4</td>
<td>79.4 ± 11.6</td>
<td>0.316</td>
</tr>
<tr>
<td>men</td>
<td>80.4 ± 7.4</td>
<td>79.4 ± 11.6</td>
<td>0.316</td>
</tr>
<tr>
<td>heart rate, beats/min</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>women</td>
<td>73.6 ± 7.7</td>
<td>71.3 ± 9.9</td>
<td>0.012</td>
</tr>
<tr>
<td>men</td>
<td>73.6 ± 7.7</td>
<td>71.3 ± 9.9</td>
<td>0.012</td>
</tr>
</tbody>
</table>

Data are presented as mean ± SD or numbers (%).

Abbreviations: MI – myocardial infarction, others – see Table 1

Table 2: Concomitant diseases and risk factors

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Patients with DM</th>
<th>Patients with CAD</th>
<th>P for comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>history of MI</td>
<td>0 (0)</td>
<td>119 (64)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>history of stroke</td>
<td>9 (4)</td>
<td>14 (8)</td>
<td>0.246</td>
</tr>
<tr>
<td>diagnosed peripheral artery disease</td>
<td>14 (7)</td>
<td>23 (12)</td>
<td>0.076</td>
</tr>
<tr>
<td>hypertension</td>
<td>179 (85)</td>
<td>144 (77)</td>
<td>0.061</td>
</tr>
<tr>
<td>dyslipidemia</td>
<td>154 (73)</td>
<td>131 (70)</td>
<td>0.596</td>
</tr>
<tr>
<td>heart failure</td>
<td>13 (6)</td>
<td>60 (32)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>atrial fibrillation</td>
<td>8 (4)</td>
<td>19 (10)</td>
<td>0.02</td>
</tr>
<tr>
<td>everyday physical activity as declared by the patient</td>
<td>147 (70)</td>
<td>129 (69)</td>
<td>0.976</td>
</tr>
<tr>
<td>everyday consumption of fruits and vegetables as declared by the patient</td>
<td>168 (80)</td>
<td>142 (76)</td>
<td>0.448</td>
</tr>
<tr>
<td>smoking status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>current smokers</td>
<td>14 (7)</td>
<td>19 (10)</td>
<td>0.274</td>
</tr>
<tr>
<td>smoking cessation within the last 15 months</td>
<td>13 (7)</td>
<td>15 (9)</td>
<td></td>
</tr>
<tr>
<td>smoking cessation earlier than within the last 15 months</td>
<td>60 (31)</td>
<td>76 (46)</td>
<td>0.004</td>
</tr>
<tr>
<td>never smoked</td>
<td>123 (63)</td>
<td>76 (46)</td>
<td></td>
</tr>
</tbody>
</table>

Data are presented as numbers (%).

Abbreviations: MI – myocardial infarction, others – see Table 1

risk factors between the studied groups. However, despite the fact that the percentage of current smokers was relatively low and similar in both groups, more diabetic patients declared that they had never smoked, while patients with CAD were more likely to have stopped smoking prior to inclusion.

Relevant diagnostic tests to screen CAD in patients with DM or glucose metabolism abnormalities in patients with CAD were performed in approximately three-quarters of the studied patients without any significant difference between the groups. In patients with DM, the most common diagnostic test was resting electrocardiogram (ECG; 99%), followed by echocardiography (14%) and exercise ECG (5%). Of 142 patients with CAD who underwent a screening test, 141 (99%) had a blood fasting glucose test and 18 (13%) had an oral glucose tolerance test performed within 15 months prior to the study visit (Table 3).

Patients with DM were less likely to receive statins and ASA than patients with CAD. In line with the guidelines, the use of statins and ASA in diabetic patients should be considered in those who have either concomitant cardiovascular disease, hypertension, or cardiovascular risk factors (cigarette smoking, blood pressure >140/90 mmHg, total cholesterol >135 mg/dl, low-density lipoprotein (LDL) cholesterol >100 mg/dl, high-density lipoprotein (HDL) cholesterol <39 mg/dl in men and <46 mg/dl in women). At least one of the above criteria was met in 376 of 386 patients (97.4%) available for evaluation with DM.
cholesterol concentrations between the studied groups except for higher mean LDL concentration in diabetic men compared with those with CAD. Data on concentration of glycated hemoglobin (HbA1c) was available for 93 diabetic patients (44%); mean HbA1c concentration was 7.6% ±1.8% (Table 4).

We also assessed the level of control of blood pressure and plasma lipids in the studied cohort. Patients with DM less often reached target blood pressure and total cholesterol concentration than patients with CAD, while the difference in target LDL cholesterol was not significant (Table 5). The percentage of patients who reached target values of modifiable risk factors was 15% in patients with DM vs. 25% in patients with CAD (P = 0.055) for the less strict criteria (blood pressure <140/90 mmHg, LDL cholesterol <100 mg/dl) and 1% in patients with DM vs. 3% in those with CAD (P = 0.016) for the more strict criteria.

ACEIs were used with similar frequency in both groups. Mean daily dose of ramipril and enalapril was significantly higher in patients with DM compared with patients with CAD, and the difference in the daily dose of another commonly prescribed ACEI, perindopril, did not reach statistical significance. Conversely, mean daily dose of the 2 most commonly prescribed statins (simvastatin and atorvastatin) was lower in patients with DM compared with patients with CAD (Table 3).

Data on total cholesterol concentration was available for 198 patients (94%) with DM and 178 patients (96%) with CAD. Patients with DM had higher mean total cholesterol concentration than patients with CAD. Data on LDL cholesterol concentration was available for 151 patients (72%) with DM and 146 patients (78%) with CAD, and data on HDL cholesterol was available for 163 (78%) and 152 (82%) patients, respectively. There were no differences in mean LDL and HDL cholesterol concentrations between the studied groups except for higher mean LDL concentration in diabetic men compared with those with CAD. Data on concentration of glycated hemoglobin (HbA1c) was available for 93 diabetic patients (44%); mean HbA1c concentration was 7.6% ±1.8% (Table 4).

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to detect abnormalities in glucose metabolism (which should be performed every 12 months in patients with CAD) were not performed in almost 25% of the patients. The level of control of modifiable risk factors (blood pressure and plasma lipids) in the studied patients was not satisfactory. Although the prevalence of dyslipidemia was similar in both groups, patients with CAD received statins more frequently and in higher doses than patients with DM. The difference in mean statin doses between patients with CAD and patients with DM was also observed in a recent German 2L registry conducted on patients with CAD and patients with a CAD-equivalent (90% of patients with “CAD-equivalent” had DM).

In our registry, the target total cholesterol concentration (<175 mg/dl) was reached less often in patients with DM than in those with CAD. For LDL concentration, there were no differences between the groups in the percentage of patients who reached the target level (<100 mg/dl). When

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**TABLE 4** Laboratory test results

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Patients with DM</th>
<th>Patients with CAD</th>
<th>P for comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>total cholesterol, mg/dl</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>all patients</td>
<td>196 ± 42</td>
<td>183 ± 42</td>
<td>0.003</td>
</tr>
<tr>
<td>women</td>
<td>196 ± 46</td>
<td>187 ± 43</td>
<td>0.194</td>
</tr>
<tr>
<td>men</td>
<td>196 ± 37</td>
<td>181 ± 41</td>
<td>0.009</td>
</tr>
<tr>
<td>LDL cholesterol, mg/dl</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>all patients</td>
<td>112 ± 40</td>
<td>106 ± 37</td>
<td>0.209</td>
</tr>
<tr>
<td>women</td>
<td>107 ± 42</td>
<td>111 ± 45</td>
<td>0.618</td>
</tr>
<tr>
<td>men</td>
<td>119 ± 36</td>
<td>104 ± 34</td>
<td>0.009</td>
</tr>
<tr>
<td>HDL cholesterol, mg/dl</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>all patients</td>
<td>52 ± 17</td>
<td>50 ± 14</td>
<td>0.119</td>
</tr>
<tr>
<td>women</td>
<td>55 ± 18</td>
<td>53 ± 15</td>
<td>0.526</td>
</tr>
<tr>
<td>men</td>
<td>49 ± 15</td>
<td>48 ± 13</td>
<td>0.832</td>
</tr>
<tr>
<td>HbA1c, %</td>
<td>7.6 ± 1.8</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Data are presented as mean ± SD; for conversion of total, LDL, and HDL cholesterol concentrations to mmol/l, multiply by 0.0259.

**TABLE 5** Number of patients reaching therapeutic targets goals

<table>
<thead>
<tr>
<th>Therapeutic target goals</th>
<th>Patients with DM</th>
<th>Patients with CAD</th>
<th>All patients</th>
<th>P for comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>blood pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>systolic blood pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤130 mmHg</td>
<td>90 (43)</td>
<td>111 (60)</td>
<td>201 (51)</td>
<td>0.001</td>
</tr>
<tr>
<td>diastolic blood pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤80 mmHg</td>
<td>145 (69)</td>
<td>140 (75)</td>
<td>285 (72)</td>
<td>0.206</td>
</tr>
<tr>
<td>blood pressure ≤130/80 mmHg (achieved both values)</td>
<td>79 (38)</td>
<td>99 (53)</td>
<td>178 (45)</td>
<td>0.003</td>
</tr>
<tr>
<td>systolic blood pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤140 mmHg</td>
<td>155 (83)</td>
<td>154 (73)</td>
<td>309 (78)</td>
<td>0.023</td>
</tr>
<tr>
<td>diastolic blood pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤90 mmHg</td>
<td>206 (98)</td>
<td>176 (95)</td>
<td>382 (97)</td>
<td>0.111</td>
</tr>
<tr>
<td>blood pressure ≤140/90 mmHg (achieved both values)</td>
<td>151 (81)</td>
<td>154 (73)</td>
<td>305 (77)</td>
<td>0.083</td>
</tr>
<tr>
<td>lipids</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>total cholesterol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;175 mg/dl</td>
<td>71 (36)</td>
<td>85 (48)</td>
<td>156 (42)</td>
<td>0.026</td>
</tr>
<tr>
<td>LDL cholesterol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;100 mg/dl</td>
<td>62 (41)</td>
<td>72 (49)</td>
<td>134 (45)</td>
<td>0.189</td>
</tr>
<tr>
<td>LDL cholesterol &lt;70 mg/dl</td>
<td>22 (15)</td>
<td>25 (17)</td>
<td>47 (16)</td>
<td>0.657</td>
</tr>
</tbody>
</table>

Data are presented as numbers (%); for conversion of total, LDL, and HDL cholesterol concentrations to mmol/l, multiply by 0.0259.

Abbreviations: see TABLES 1 and 4
we applied the more strict criteria of lipid control recommended by the recent European guidelines on the treatment of dyslipidemia (i.e., LDL <70 mg/dl for both patients with DM and patients with CAD),\textsuperscript{10} we found that these values were achieved in 16% of all patients. These data indicate improved control of plasma lipids in Poland compared with previous registries.

Patients with DM treated by non-diabetologists in Poland were reported to have mean LDL cholesterol concentration of 131 mg/dl,\textsuperscript{11} and patients with CAD had mean LDL concentration of 125 mg/dl.\textsuperscript{12} In ambulatory high-risk patients seen by primary care physicians in Poland (of whom 50% had CAD and 30% had DM), only 15.6% of patients had LDL below 100 mg/dl.\textsuperscript{13} Michalak et al.\textsuperscript{14} reported that only 10% of the patients with DM and CAD had their LDL below 100 mg/dl. The difference observed between the Kardia-Pol and earlier registries might reflect a true improvement in patient management. However, it is also possible that it reflects some methodological differences between the Kardia-Pol and the earlier studies, the most important difference being that in the earlier studies patients were enrolled if their visit to a physician was associated with a modification of the lipid-lowering therapy. This may have led to underestimation of the true therapeutic success in the treatment of dyslipidemia in these studies.\textsuperscript{13,14} The percentage of diabetic patients taking statins in the Kardia-Pol registry was similar to the percentage reported in a recent large retrospective study in Americans with DM (63%).\textsuperscript{14}

We found a trend towards greater prevalence of hypertension in patients with DM compared with patients with CAD, but the use of ACEIs did not differ between the studied groups. However, in patients with DM, the daily doses of ACEIs most often used in the studied patients were higher than the daily doses used in patients with CAD. Patients with DM received ASA significantly less often than patients with CAD. ASA failed to decrease the risk of cardiovascular events in patients without established cardiovascular disease\textsuperscript{15} and did not mitigate the risk of cardiovascular events or death in patients with DM and asymptomatic peripheral artery atherosclerosis.\textsuperscript{16} Despite this, the guidelines of the Polish Diabetes Association which were applicable in 2009, i.e., at the time when the Kardia-Pol registry was conducted,\textsuperscript{1} recommended ASA in all patients with DM older than 40 years at increased risk of cardiovascular events. This recommendation was sustained in the guidelines update issued in 2011, which clarified that the increased risk means >5% of risk of cardiovascular events.\textsuperscript{17} In patients with CAD, ASA should be used in all patients without contraindications.\textsuperscript{2} The use of ASA in patients with CAD enrolled in the Kardia-Pol registry (nearly 85%) was higher as compared with about 75% in patients enrolled in the earlier RECENT registry.\textsuperscript{13,14}

Good control of cardiovascular risk factors is essential in the treatment of both CAD and DM and has been shown to have a positive effect on a 3-year cardiovascular event rate in patients with stable atherosclerotic disease.\textsuperscript{18} Plasma total and LDL cholesterol as well as systolic and diastolic blood pressure are especially important. There are some differences regarding the actual target values of these risk factors depending on the guidelines. Serum total and LDL cholesterol concentrations should be less than 175 and 100 mg/dl, respectively, both in patients with DM and patients with CAD.\textsuperscript{1,2} However, the guidelines on the management of dyslipidemia issued in 2011 recommend LDL levels below 70 mg/dl in such patients.\textsuperscript{10} Similarly, targets for blood pressure...
also differ both for patients with DM and for pa-
tients with CAD according to the European and
Polish guidelines on the treatment of hyperten-
sion, CAD, and DM (generally between <130/80
and <140/90 mmHg). For these reasons, we have
assessed the control of plasma lipids and
blood pressure by counting the number of pa-
patients with 3 or 4 values at target using the arbi-
trarily chosen 2 categories of “more strict” control
(LDL, <70 mg/dl; blood pressure, <130/80 mmHg)
and “less strict” control (LDL, <100 mg/dl; blood
pressure, <140/90 mmHg). We found that good
control was more frequent in patients with CAD
than in patients with DM, both when more and
less strict criteria were used.

DM and CAD often coexist. In the Polish pop-
ulation, approximately 25% of the patients with
DM have concomitant CAD.11 Similarly, a quar-
ter of the patients with CAD have concomitant
DM.12 Given the fact that the coexistence of these
2 diseases markedly increases the cardiovascular
risk and that patients with DM often have atyp-
ical symptoms of CAD, these patients should pe-
riodically undergo routine tests to detect CAD.
Similarly, patients with CAD should periodical-
ly undergo tests to detect possible abnor-
malities in glucose metabolism.12 In our study, these
tests were not performed in almost a quarter of the
studied sample – a surprising finding given the
fact that the tests recommended in the guide-
lines are simple, noninvasive, easy achievable, and
relatively inexpensive.1,2

Limitations of the study There are several impor-
tant limitations of the Kardia-Pol registry. First,
the design of the study allowed only for the col-
lection of data available in medical documenta-
tion. Since data on HbA1c, an important parame-
ter for the control of DM, were available for less
than a half of the studied patients, it may not re-
reflect the actual level of this parameter in the gen-
eral population of patients with DM in Poland.
Second, this registry was conducted only among
primary care physicians. Treatment of patients
by primary care physicians may be different from
treatment by specialists. In fact, some differences
were found in the treatment of patients between
diabetologists and non-diabetologists in Poland.13
Third, the registry excluded patients with coex-
ist DM and CAD. As discussed above, there is a
25% overlap in these 2 populations. Conse-
quently, the registry is representative for about
75% of the population of patients with DM and
75% of the population of patients with CAD in
Poland. Finally, although the registry included pa-
patients with DM and no CAD, about 7% of the pa-
patients with DM had concomitant clinical mani-
festation of arterial atherosclerosis in the form of
peripheral artery disease.

In conclusion, the registry shows some differ-
ces in the level of adherence of primary care
physicians in Poland to the guidelines on treat-
ment of patients with DM and patients with CAD.
While the majority of patients in both groups
received guideline-recommended cardiovascular
treatment (ACEIs, statins, ASA), use of statins
and ASA was less frequent in patients with DM.
Simple diagnostic tests to detect abnormalities
in glucose metabolism in patients with CAD and
to detect CAD in patients with DM were not per-
domed in about 25% of the patients. Depending
on how strict were the criteria of control of mod-
ifiable risk factors, there was a substantial pro-
portion of both patients with DM and patients
with CAD in whom the values of these risk fac-
tors were found to be too high. However, good
control was more frequent in patients with CAD
than in patients with DM.

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Primary prevention of cardiovascular events with low dose aspirin and vit-a-
min E in type 2 diabetic patients: results of the Primary Prevention Project


ARTYKUŁ ORYGINALNY

Terapia sercowo-naczyniowa, procedury diagnostyczne i kontrola czynników ryzyka u pacjentów z cukrzycą lub chorobą wieńcową w Polsce – rejestr Kardia-Pol

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SŁOWA KLUCZOWE

czynniki ryzyka, procedury diagnostyczne, rejestr

STRESZCZENIE

WPROWADZENIE Cukrzyca (diabetes mellitus – DM) i choroba tętnic wieńcowych (coronary artery disease – CAD) wiążą się ze zwiększonym ryzykiem sercowo-naczyniowym.

CELE Celem badania było porównanie sposobów leczenia pacjentów wysokiego ryzyka z DM i pacjentów z CAD w Polsce.

PACJENCI I METODY W losowo wybranych gabinetach lekarzy pierwszego kontaktu włączano pacjentów w wieku ≥55 lat z DM bez udokumentowanej CAD (n = 210) lub z CAD bez udokumentowanej DM (n = 186).

WYNIKI Statyny otrzymało 64% vs 87% (p <0,05), kwas acetylosalicylowy (acetylsalicylic acid – ASA) – 53% vs 84% (p <0,05), a inhibitory enzymu konwertującego angiotensynę – 70% vs 69% (p = 0,8) pacjentów odpowiednio z DM i CAD. Badania przesiewowe w celu wykrycia zaburzeń gospodarki węglowodanowej u pacjentów z CAD lub w celu wykrycia CAD u pacjentów z DM nie były wykonywane u 26% pacjentów z DM i 24% pacjentów z CAD (p = 0,64). Średnie skurczowe ciśnienie tętnicze wynosiło 136,8 ±13,6 vs 131,7 ±15,8 mm Hg (p = 0,001), ciśnienie rozkurczowe wynosiło 80,4 ±7,4 vs 79,4 ±11,6 mm Hg (p = 0,316), a stężenie cholesterolu całkowitego 196 ±42 vs 183 ±42 mg/dl (p = 0,003) u pacjentów odpowiednio z DM i CAD. Odsetek pacjentów, u których uzyskano ciśnienie tętnicze <140/90 mm Hg, stężenie cholesterolu całkowitego <175 mg/dl i stężenie cholesterolu frakcji lipoprotein o małej gęstości (low-density lipoprotein – LDL) <100 mg/dl wynosił 15% vs 25% (p = 0,055), natomiast odsetek pacjentów, u których uzyskano ciśnienie tętnicze <130/80 mm Hg, stężenie cholesterolu całkowitego <175 mg/dl i stężenie cholesterolu LDL <70 mg/dl wynosił 1% vs 3% (p = 0,016) odpowiednio w grupie pacjentów z DM i CAD.

WNIOSKI U pacjentów z CAD stosowano statyny i ASA częściej niż u pacjentów z DM. Kontrola czynników ryzyka była lepsza w grupie CAD, ale wciąż pozostawała niezadowalająca u większości pacjentów.