Elderly Diabetics With Peripheral Arterial Disease and No Coronary Artery Disease Have a Higher Incidence of New Coronary Events Than Elderly Nondiabetics With Peripheral Arterial Disease and Prior Myocardial Infarction Treated With Statins and With No Lipid-Lowering Drug

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Background. We report data showing the incidence of new coronary events in diabetics with prior myocardial infarction (MI), nondiabetics with prior MI, diabetes with no coronary artery disease (CAD), and nondiabetics with no CAD who were treated with and without statins.

Methods. We investigated—in an observational prospective study of 274 diabetics and 386 nondiabetics with peripheral arterial disease, mean age 80 ± 9 years, and a serum low-density lipoprotein cholesterol level of ≥125 mg/dl—the incidence of new coronary events in diabetics with prior MI, nondiabetics with prior MI, diabetics with no CAD, and nondiabetics with no CAD who were treated with and without statins. Follow-up was 39 ± 23 months.

Results. In patients treated with statins, the incidence of new coronary events was 73% in diabetics with prior MI (group 1), 37% in nondiabetics with prior MI (group 2), 57% in diabetics with no CAD (group 3), and 27% in nondiabetics with no CAD (group 4). In patients treated with no lipid-lowering drug, the incidence of new coronary events was 91% in diabetics with prior MI (group 5), 72% in nondiabetics with prior MI (group 6), 86% in diabetics with no CAD (group 7), and 52% in nondiabetics with no CAD (group 8). Significant p values were p < .0001 for group 1 versus 2, group 7 versus 8, and group 2 versus 6; p = .0006 for group 3 versus 4; p = .0007 for group 3 versus 7; p = .001 for group 5 versus 6; p = .002 for group 4 versus 8; p = .003 for group 1 versus 5; p = .015 for group 2 versus 3; and p = .047 for group 6 versus 7.

Conclusions. In patients treated with and without statins, diabetics with no CAD had a higher incidence of new coronary events than did nondiabetics with prior MI.

DIABETES mellitus is a major risk factor for coronary artery disease (CAD) (1–4). Haffner and colleagues (5) found that diabetics without previous myocardial infarction (MI) have as high a risk of new MI as do non-diabetic patients with previous MI.

Statins reduce the incidence of new coronary events in diabetics with CAD and increased serum low-density lipoprotein (LDL) cholesterol (5–8). We are reporting data showing the incidence of new coronary events in diabetics with prior MI, nondiabetics with prior MI, diabetics with no CAD, and nondiabetics with no CAD who were treated with and without statins.

METHODS

Two hundred sixty-four men and 396 women (mean age 80 ± 9 years [range 60 to 99 years]), with symptomatic peripheral arterial disease and a serum LDL cholesterol of ≥125 mg/dl treated with a statin or with no lipid-lowering drug were followed prospectively in a long-term health-care facility for the incidence of new coronary events (9). Persons were considered to have prior MI if they had a documented clinical history of MI or electrocardiographic evidence of Q-wave MI. Persons considered to have no clinical evidence of CAD had no history of anginal symptoms or other cardiovascular symptoms, no history of MI, and no evidence of MI or myocardial ischemia on their electrocardiograms.

New coronary events were diagnosed if the person developed nonfatal or fatal MI (10) or sudden coronary death (11), as previously described. Diabetes mellitus was diagnosed according to the American Diabetes Association’s new criteria (12).

In this study, the full-time staff physicians taking care of the persons treated 318 of 660 persons (48%) with a statin and 342 persons (52%) with no lipid-lowering drug. The attitude of different physicians toward treating hypercholesterolemia in older persons determined whether statins were prescribed.

Of the 318 persons treated with statins, 85 (27%) had diabetes mellitus and prior MI, 100 (31%) had no diabetes mellitus and prior MI, 60 (19%) had diabetes mellitus and no CAD, and 73 (23%) had no diabetes mellitus and no CAD. Of the 342 persons treated with no lipid-lowering drug, 78 (23%) had diabetes mellitus and prior MI, 126 (37%) had no diabetes mellitus and prior MI, 51 (15%) had diabetes mellitus and no CAD, and 87 (25%) had no diabetes mellitus and no CAD.
Table 1. Incidence of New Coronary Events in Diabetics With Prior Myocardial Infarction and With No Coronary Artery Disease and in Nondiabetics With Prior Myocardial Infarction and With No Coronary Artery Disease Treated With Statins and With No Lipid-Lowering Drug

<table>
<thead>
<tr>
<th>Drug</th>
<th>New Coronary Events*</th>
<th>Treated With Statins</th>
<th>No Lipid-Lowering Drug</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes and prior myocardial infarction</td>
<td>62/85 (73)</td>
<td>71/78 (91)</td>
<td>.003</td>
<td></td>
</tr>
<tr>
<td>No diabetes and prior myocardial infarction</td>
<td>37/100 (37)</td>
<td>91/126 (72)</td>
<td>&lt;.0001</td>
<td></td>
</tr>
<tr>
<td>Diabetes and no coronary artery disease</td>
<td>34/60 (57)</td>
<td>44/51 (86)</td>
<td>.0007</td>
<td></td>
</tr>
<tr>
<td>No diabetes and no coronary artery disease</td>
<td>20/73 (27)</td>
<td>45/87 (52)</td>
<td>.002</td>
<td></td>
</tr>
</tbody>
</table>

*Superscripted numerals indicate group number. Group 1 versus 2: p < .0001; group 3 versus 4: p = .0006; group 5 versus 6: p = .001; group 7 versus 8: p < .0001; group 2 versus 3: p = .015; group 6 versus 7: p = .047. Follow-up times were 34 ± 23 months for group 1 versus 23 ± 16 months for group 5, p = .001; 51 ± 22 months for group 2 versus 37 ± 25 months for group 6, p < .0001; 37 ± 19 months for group 3 versus 30 ± 18 months for group 7, p = .056; 51 ± 20 months for group 4 versus 42 ± 19 months for group 8, p = .003.

Persons were followed until the time of a new coronary event, death, or cutoff date for analysis of the data. Follow-up was 39 ± 23 months (range 1–129 months). Chi-square tests or Fisher’s exact tests were used for the comparisons of new coronary events, mortality, and follow-up times between groups.

RESULTS

Table 1 shows the incidence of new coronary events in elderly persons with diabetes mellitus and prior MI, with no diabetes mellitus and prior MI, with diabetes mellitus and no CAD, and with no diabetes mellitus and no CAD who were treated with statins and with no lipid-lowering drug. Table 1 also lists levels of statistical significance. Gender was not a factor in the outcome. Table 1 also lists follow-up times for the eight different groups and levels of statistical significance between groups 1 and 5, 2 and 6, 3 and 7, and 4 and 8.

Table 2 shows the incidence of mortality in elderly persons with diabetes mellitus and prior MI, with no diabetes mellitus and prior MI, with diabetes mellitus and no CAD, and with no diabetes mellitus and no CAD treated with statins and with no lipid-lowering drug. Table 2 also lists levels of statistical significance.

DISCUSSION

Haffner and colleagues (5) found that the 7-year incidence rates of MI in nondiabetics with and without prior MI were 18.8% and 3.5%, respectively. The 7-year incidence rates of MI in diabetics with and without prior MI were 45% and 20.2%, respectively (5).

Although lipid-lowering drugs should be used to reduce the serum LDL cholesterol to <100 mg/dl in elderly diabetes with and without CAD, lipid-lowering drugs are underutilized in these persons at very high risk for cardiovascular morbidity and mortality (13–16). In our prospective observational study of elderly persons with peripheral arterial disease and increased serum LDL cholesterol, statins reduced the incidence of new coronary events in diabetics and nondiabetics with prior MI and in diabetics and nondiabetics with no CAD. However, the presence of diabetes mellitus increased the incidence of new coronary events in elderly persons with prior MI and with no CAD.

In elderly persons treated with statins, the incidence of new coronary events was 57% in diabetics with no CAD versus 37% in nondiabetics with prior MI (p = .015). In elderly persons treated with no lipid-lowering drug, the incidence of new coronary events was 86% in diabetics with no CAD versus 72% in nondiabetics with prior MI (p = .047). We conclude from our data that in patients with hyperlipidemia treated with and without statins, diabetics with no CAD had a higher incidence of new coronary events than did nondiabetics with prior MI.

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REFERENCES


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