Brief report

Cardiovascular Risk Factors and Lifestyle Associated With Premature Myocardial Infarction Diagnosis

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INTRODUCTION

Atherothrombotic cardiovascular disease is one of the major causes of death in the world.1 The cardiovascular risk profile of young patients diagnosed with acute myocardial infarction (AMI) differs from the rest of the population, as does clinical presentation, angiographic results and coronary disease prognosis.2 Premature coronary disease mainly affects men and exhibits a high prevalence of specific cardiovascular risk factors such as family history of ischemic heart disease, hyperlipidemia or tobacco use. In young patients, the mortality rate from AMI is lower, suggesting they constitute a group of patients with chronic ischemic heart disease who should be submitted to stringent secondary prevention measures.

A family history of coronary disease associates strongly with the appearance of premature AMI, indicating that a substantial hereditary factor exists.3,4 On the other hand, the analysis of cardiovascular risk factors in young patients has identified a high prevalence of tobacco use.5,6 Moreover, although it has not been demonstrated clearly, substance abuse associates with cardiovascular disease in young patients.

METHODS

This ecological study was conducted in the autonomous region of Aragón (northeastern Spain), using the region’s Minimum Basic Data Set (CMDBD) from January 2000 to December 2007. In 2000, the autonomous region had a population of approximately 1 200 000 inhabitants. The CMDBD database is coordinated on a regional basis and collects all data on hospitalization in the public sector healthcare system. It includes both administrative data (age, sex, and in-hospital stay or death) and clinical data, all of which hospitals must report. The inclusion criteria were AMI as principle diagnosis, using International Classification of Disease (ICD-9) criteria, and admission via Emergency Room. From secondary diagnoses, we deduced the presence of cardiovascular risk factors or a family history of cardiovascular disease, as well as data on substance use (tobacco, alcohol and drugs).

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ABSTRACT

Young and old patients with acute myocardial infarction have different risk factor profiles, clinical presentation, angiographic findings and prognosis. In the present study we investigated the clinical profile of patients aged <46 years with acute myocardial infarction.

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FACTORES DE RIESGO CARDIOVASCULAR Y ESTILO DE VIDA ASOCIADOS A LA APARICIÓN PREMATURA DE INFARTO AGUDO DE MIOCARDIO

RESUMEN

Los pacientes jóvenes diagnosticados de infarto agudo de miocardio tienen diferente perfil de riesgo cardiovascular, presentación clínica, hallazgos angiográficos y pronóstico que los demás pacientes. En este estudio se analizan las características y la evolución de los pacientes diagnosticados de infarto agudo de miocardio con edad <46 años.

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RESULTS

We included 12 096 hospitalizations in the period 2000-2007, of which 8806 were men (71.15%). In the sample, 685 hospitalizations were for premature AMI (5.66%), G13 (89.49%) in men. The prevalence of men was significantly greater in the premature AMI group than in non-premature AMI: 89.49% vs. 70.05% (P < .001). Among patients with premature AMI, women showed lower prevalence of obesity, dyslipidemia and tobacco use (Table 1). We found no differences in the frequency of the different revascularization procedures.

In non-premature AMI, we found differences in all risk factors except previous angina. In women, we found greater prevalence of high blood pressure, obesity and diabetes mellitus. However, tobacco use was much more frequent in men and this difference was greater than that found in the premature AMI group. We should highlight the high level of substance abuse among patients diagnosed with premature AMI, with a 76.78% prevalence of smoking; 12.41% of regular alcohol consumption; and 7.59% of other drug types. However, these percentages were lower in the non-premature AMI group: 24.46%, 3.49% and 0.11%, respectively. In both groups, substance use was greater among men. In contrast, the other coronary risk factors were more prevalent in non-premature AMI, except for dyslipidemia (50.21% vs. 35.79%; P < .001) and atherosclerosis (31.67% vs. 27.63%; P = .022).

Logistic regression (Table 2) shows statistically significant associations with premature AMI for all the variables analyzed except previous angina. Premature AMI associated with greater prevalence of obesity (odds ratio [OR] = 22.7 [11.16-44.45]), current tobacco use (OR = 6.35 [5.23-7.71]) and alcohol consumption (OR = 1.6 [1.19-2.15]).

In relation with prognosis of infarction, the in-hospital premature AMI mortality rate was much lower (2.77% vs. 13.65%; P < .001). However, when analyzed by sex, it was greater among women than men (9.72% vs. 1.96%; P < .001). When analyzing probability of readmission, we found differences in the two groups. Specifically, probability of readmission in the non-premature AMI group was 12.53%; in the premature AMI group it was 3.1% (P < .05).

DISCUSSION

The main results of our study are the differences found in cardiovascular risk factors in premature AMI when compared with other age groups. These differences are heightened when men and women are analyzed independently. Moreover, the role of lifestyle in the young population, in terms of the use of toxic and other
Table 2

<table>
<thead>
<tr>
<th>Premature Myocardial Infarction (OR (95% CI))</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>0.79 (0.6-1.06)</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>0.3 (0.22-0.41)</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>0.39 (0.32-0.47)</td>
</tr>
<tr>
<td>Obesity</td>
<td>1.72 (1.35-2.18)</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>1.36 (1.15-1.62)</td>
</tr>
<tr>
<td>Arterial disease</td>
<td>0.23 (0.13-0.42)</td>
</tr>
<tr>
<td>History of ischemic heart disease</td>
<td>0.35 (0.21-0.58)</td>
</tr>
<tr>
<td>Atherosclerosis</td>
<td>0.63 (0.49-0.82)</td>
</tr>
<tr>
<td>Angina</td>
<td>1.79 (1.01-3.2)</td>
</tr>
<tr>
<td>Tobacco use</td>
<td>6.05 (4.95-7.4)</td>
</tr>
<tr>
<td>Alcohol consumption</td>
<td>1.6 (1.19-2.15)</td>
</tr>
<tr>
<td>Drug use</td>
<td>22.7 (11.6-44.45)</td>
</tr>
<tr>
<td>Angioplasty</td>
<td>0.98 (0.74-1.3)</td>
</tr>
<tr>
<td>Catheterization</td>
<td>2.15 (1.62-2.84)</td>
</tr>
<tr>
<td>Derivation + revascularization</td>
<td>0.32 (0.08-1.31)</td>
</tr>
</tbody>
</table>

CI, confidence interval; OR, odds ratio.
Pseudo-R², 24.97%; c-statistic (area under ROC curve), 0.8508.

CONFLICTS OF INTEREST

None declared.

REFERENCES