Adherence to the Mediterranean Diet in Patients With Coronary Artery Disease

Adherencia a la dieta mediterránea de los pacientes con cardiopatía isquémica

To the Editor,

Diet is part of the secondary prevention treatment in patients with coronary artery disease (CAD). The guidelines of American societies usually recommend following a diet that is low in saturated fats, whereas European guidelines also include adopting eating habits based on the Mediterranean diet (MedD); however, this diet is only referred to explicitly in the National Institute for Clinical Excellence (NICE) guidelines.

Recently, the PREMIDE Med study, conducted amongst the Spanish population without coronary disease but at high cardiovascular risk, showed the superior efficacy of the MedD supplemented with virgin olive oil or nuts and dried fruit versus a low-fat diet against cardiovascular morbidity and mortality. In this study, the 14-point Mediterranean diet adherence screener (MEDAS–14) was validated, and a good correlation was shown between proper adherence to the diet and its efficacy. In secondary prevention, the Lyon Diet Heart Study demonstrated the benefit of a diet that closely followed the MedD in reducing reinfection and clinical manifestations of CAD. Studies conducted in patient cohorts who had suffered acute coronary syndrome observed clinical benefits associated with greater adherence to the MedD, including a reduction in total mortality.

We decided to investigate MedD adherence by CAD patients seen at a primary care center, using the MEDAS–14 screener.

We studied 110 patients selected from the total number of patients seen at the primary care centre, aged between 55 and 80 years, who were diagnosed with CAD, in ascending order starting from the oldest diagnostic coding date. Institutionalised patients and patients with health problems that could shorten their life expectancy or who were incapable of answering a questionnaire were excluded. The patients answered the MEDAS–14 screener and completed the data collection protocol, which included sociodemographic variables, domestic habits, physical activity, cardiovascular risk factors, and prescription of cardioprotective drugs.

Eighty per cent were retired males and 60% performed non-intensive regular exercise 3 or more days per week. The principal characteristics of the series are listed in the Table. The mean score on the screener was 8.9 points (scale from 0 to 14), and ≥ 9 points (acceptable adherence criterion) in 63% (95% confidence interval, 54%–72%). Adherence to each of the 14 points

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of the screener is shown in the Figure. Compared with studies in which the same screener was used, the mean score was similar to the baseline score of the PREDIMED study and higher than that of general population surveys. The percentage of patients with acceptable adherence (63% with a score ≥ 9) was also higher compared with the general population, but similar to the baseline of the PREDIMED study, 54%. We did not find any studies in the literature that used MEDAS–14 to screen patients with CAD. We believe it is reasonable for CAD patients to show greater adherence, particularly if the disease is relatively recent, as they would probably be more receptive to an educational intervention to promote the uptake of heart-healthy habits than the general population or patients at low risk.

Identifying the screener items that are not fully met is just as valuable as determining the degree of adherence. According to the recommendations, these include insufficient consumption of wine, fruit, pulses, vegetables and nuts or dried fruits, and olive oil should certainly be added too (Figure).

The general recommendation of restricting, for example, the ingestion of fruit in diabetics, alcohol in hypertensive patients or pulses, or oil and nuts or dried fruit in obese patients may have influenced the results. In order to improve adherence, each item of the MedD should be examined in detail and recommendations should be tailored to each patient’s circumstances.

With regard to the established recommendations, the knowledge provided by the PREDIMED study is of particular interest, as it highlights the additional consumption of extra virgin olive oil and nuts or dried fruit, together with the increased adherence to the

**Figure.** Adherence to each of the 14 points of the MedD adherence screener (MEDAS–14) of the 110 patients with coronary artery disease. 95%Cl, 95% confidence interval.

**Table**

Principal Characteristics of Patients Diagnosed With Coronary Artery Disease Who Answered the MEDAS–14 Screener

<table>
<thead>
<tr>
<th>Patients with CAD, n</th>
<th>110</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>88  (80)</td>
</tr>
<tr>
<td>Females</td>
<td>22  (20)</td>
</tr>
<tr>
<td><strong>Age, mean (SD) years</strong></td>
<td>67.6 (8.9)</td>
</tr>
<tr>
<td><strong>Socioeconomic level</strong></td>
<td></td>
</tr>
<tr>
<td>Actively employed</td>
<td>9   (8)</td>
</tr>
<tr>
<td>Pensioner</td>
<td>96  (87)</td>
</tr>
<tr>
<td>Unemployed or with no benefits</td>
<td>5 (5)</td>
</tr>
<tr>
<td><strong>Physical activity (Caspersen and Powell)</strong></td>
<td></td>
</tr>
<tr>
<td>Sedentary</td>
<td>14  (13)</td>
</tr>
<tr>
<td>Irregular</td>
<td>22  (20)</td>
</tr>
<tr>
<td>Regular, nonintensive</td>
<td>66 (60)</td>
</tr>
<tr>
<td>Regular, intensive</td>
<td>8   (7)</td>
</tr>
<tr>
<td><strong>CVRF</strong></td>
<td></td>
</tr>
<tr>
<td>Smoker</td>
<td>8   (7)</td>
</tr>
<tr>
<td>Arterial hypertension</td>
<td>75  (68)</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>69  (63)</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>40  (36)</td>
</tr>
<tr>
<td><strong>Manifestation of CAD</strong></td>
<td></td>
</tr>
<tr>
<td>Angina</td>
<td>44  (40)</td>
</tr>
<tr>
<td>ACS</td>
<td>69  (63)</td>
</tr>
</tbody>
</table>
Table (Continued)
Principal Characteristics of Patients Diagnosed With Coronary Artery Disease Who Answered the MEDAS–14 Screener

<table>
<thead>
<tr>
<th>Duration of CAD</th>
<th>Number (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–2 years</td>
<td>40 (36)</td>
</tr>
<tr>
<td>3–5 years</td>
<td>40 (36)</td>
</tr>
<tr>
<td>6–12 years</td>
<td>20 (18)</td>
</tr>
<tr>
<td>12 or more years</td>
<td>10 (9)</td>
</tr>
</tbody>
</table>

Seen in hospital in the past 12 months by
- Cardiologist 53 (48)
- Cardiology nurse 8 (7)
- Cardiology accident and emergency services 11 (10)
- Admitted to cardiology 9 (8)

Treated with cardioprotective drugs
- Statins 104 (95)
- ACE-inhibitors or ARA-II 78 (71)
- Beta-blockers 80 (73)
- Antiplatelet agents 105 (95)
- MEDAS-14, mean (SD), score 8.9 (2.3)
  - <9 points 41 (37)
  - ≥9 points 69 (63)

ACE-inhibitors, angiotensin converting enzyme inhibitors; ACS, acute coronary syndrome; ARA-II, angiotensin II receptor antagonist; CAD, coronary artery disease; CVRF, cardiovascular risk factors; MEDAS-14, 14-point mediterranean diet adherence screener.

MedD, as key elements for the superior efficacy of this diet compared with a low-fat diet.

It is likely that the MedD will be clearly reinforced as an intervention to be included in nonpharmacological treatment for preventing cardiovascular disease, thanks to the possibility of new studies backing the results published by de Lorgeril et al.

The data from this study show that a majority of patients with CAD (63%) had acceptable adherence to the MedD. The application of the MEDAS-14 screener makes it possible to identify which aspects require improvement and provides the opportunity to focus and adapt a dietary intervention.

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The CASSANDRA-REGICOR system permits an estimate of the number of fatal and nonfatal coronary events that would occur in the Spanish population in the next 10 years in different scenarios according to trends in prevalence of cardiovascular risk factors. The system uses incidence data on coronary disease and risk factor prevalence from the REGICOR study. Extrapolation to Spain is based on data from the IBERICA study (incidence) and the DARIOS study (risk factor prevalence). The number of coronary events was predicted for 2010 to 2020 in patients aged between 35 and 75 years old. Population projections were provided by the Catalan Statistics Institute (IDESCAT) and Spanish National Statistics Institute (INE). The application enables an assessment of the impact of different scenarios of risk factor prevalence.

The HTE-DLP is the first CDSS for lipid-lowering treatment developed in Spain (KTAS8/09) (Figure). It is based on the 2011 European guidelines for lipid-lowering treatment. Taking in vascular risk.

Theoretical Impact on Coronary Disease of Using a Computerized Clinical Decision Support System in the Prescription of Lipid-lowering Treatment

Impacto teórico en la enfermedad coronaria de usar un sistema informatizado de ayuda en la prescripción del tratamiento hipolipemiante

To the Editor,

Low-density lipoprotein cholesterol (LDL-C) is a strong cardiovascular risk factor, especially for coronary artery disease. However, in Spain, there is plenty of room for improvement in increasing the number of patients at very high cardiovascular risk who attain lipid goals. Recently, our group published the results of the first validation study of the computerized European clinical decision support system (CDSS) specific to lipid-lowering therapy (designated in Spanish as HTE-DLP). The study shows that the number of patients who reach the treatment goal of LDL-C < 70 mg/dL increases 4.4 times with use of the HTE-DLP by experts in vascular risk. The objective of the present study was to assess the theoretical impact on the frequency of coronary artery disease of using the HTE-DLP throughout Spain with the CASSANDRA-REGICOR methodology.

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