

Breakfast Habits in Patients Hospitalized for Acute Coronary Syndrome



Hábitos dietéticos en el desayuno de pacientes que ingresan por síndrome coronario agudo

To the Editor,

Control of lifestyle and diet is an essential measure in cardiovascular prevention.¹ In recent years, it has become manifestly clear that not only is adherence to the Mediterranean diet a vital factor,² but also that the simple action of eating breakfast-and this means a proper breakfast-is also crucial.³ Skipping breakfast has been associated with a higher prevalence of risk factors and an incidence of infarction that is 21% to 27% higher than that of individuals who do eat breakfast.⁴ In view of these findings, we studied the breakfast habits of patients with acute coronary syndrome (ACS).

This cross-sectional study involved consecutive patients admitted to 2 hospitals for ACS between February and July 2014. The patients were asked to respond to a 10-item questionnaire based on the recommendations of the European Society of Cardiology¹:

1. Do you usually eat breakfast?
2. Do you consume only liquids at breakfast?
3. Do you consume dairy products at breakfast?
4. Do you eat dried fruits and/or nuts at breakfast?
5. Do you eat fruit at breakfast?
6. Do you eat dried fruits and/or nuts on a regular basis?
7. Do you eat at least 2 pieces of fruit a day?
8. Do you eat vegetables at least 3 times a week?
9. Do you eat fish at least twice a week?
10. Do you exercise for a period of 30 minutes at least 3 times a week?

Of the last 5 questions, the first 4 were used to quantitatively estimate adherence to the Mediterranean dietary pattern, with positive responses scoring 1 point and negative responses 0 points, whereas all 5 were employed to assess healthy lifestyle and diet.

The analysis was performed using the SPSS 20.0 software package (SPSS Inc., Chicago, Illinois, United States). The factors independently associated with poor breakfast habits were identified by means of logistic regression. The calibration of the logistic regression model was evaluated using the Hosmer-Lemeshow test and the diagnostic value was determined on the basis of the area under the receiver operating characteristic curve of the probability estimated by the model.

Of the 181 patients included, 44 (24.3%; 95% confidence interval [95%CI], 24.1%-24.5%) admitted that they usually did not eat breakfast and 60 (33.1%; 95%CI, 29.9%-33.3%) that they consumed only liquids; in all, 76 patients (42%; 95%CI, 40.6%-42.4%) had one or more poor breakfast habit, and these individuals had a lower mean age, a higher prevalence of smoking, and a higher incidence of ST-segment elevation acute coronary syndrome (Table). Moreover, the dietary pattern they reported was more unfavorable, they had a more sedentary lifestyle (Figure), and they scored lower in the estimation of adherence to the Mediterranean diet (1.6 ± 1.1 vs 2.6 ± 1.1 ; $P < .01$) and in healthy lifestyle and diet (1.8 ± 1.3 vs 3.2 ± 1.3 ; $P < .01$). No differences were observed between the patients included from one center or the other.

Multivariable analysis to identify which variables were independently associated with poor breakfast habits was carried out by means of a logistic regression analysis, adjusted by age, sex, risk factors, and previous treatments. The resulting independent variables were smoking (odds ratio [OR] = 3.66; 95%CI, 1.13-11.84; $P = .03$), male sex (OR = 3.82; 95%CI, 1.10-13.64; $P = .04$), and sedentary lifestyle (OR = 3.87; 95%CI, 1.34-11.06; $P < .01$). The

Table
General Characteristics of the Patient Population According to Breakfast Habits

Variable	Total	Good habits	Poor habits	P
Patients	181	105 (58)	76 (42)	
Age, years	65.8 $\pm$ 11.9	67.4 $\pm$ 10.8	63.6 $\pm$ 13.0	.03
Men, %	76.8	72.4	82.9	.10
BMI, kg/m ²	27.4 $\pm$ 3.9	27.6 $\pm$ 3.7	27.2 $\pm$ 4.1	.56
Systolic BP, mmHg	137 $\pm$ 31.3	144 $\pm$ 31.6	129 $\pm$ 38.7	.01
Diastolic BP, mmHg	74 $\pm$ 15.1	75 $\pm$ 14.3	73 $\pm$ 16.0	.37
Diabetes mellitus, %	27.6	25.7	30.3	.50
HT, %	59.7	57.1	63.2	<.41
Active smokers, %	32.4	22.0	46.1	<.01
Dyslipidemia, %	51.9	49.5	55.3	.45
Previous CVD, %	33.7	35.2	31.6	.61
Obesity, %	22.7	24.7	20.0	.46
GFR < 60 mL/min/1.72 m ² , %	17.6	19.8	14.9	.40
STEACS, %	30.9	21.9	43.4	<.01
Hemoglobin, g/dL	13.8 $\pm$ 1.8	13.8 $\pm$ 1.8	13.9 $\pm$ 1.8	.61
GFR, mL/min/1.72 m ²	85.4 $\pm$ 28.9	82.6 $\pm$ 26.9	89.0 $\pm$ 31.1	.15
Total cholesterol, mg/dL	168.6 $\pm$ 44.3	168.5 $\pm$ 41.0	168.7 $\pm$ 48.1	.98
HDL-C, mg/dL	41.3 $\pm$ 12.1	40.8 $\pm$ 13.2	42.0 $\pm$ 10.7	.53
Triglycerides, mg/dL	132.5 $\pm$ 66.5	127.6 $\pm$ 64.1	1378.0 $\pm$ 69.3	.45
LDL-C, mg/dL	99.9 $\pm$ 37.3	96.6 $\pm$ 32.6	104 $\pm$ 42.6	.20

BMI, body mass index; BP, blood pressure; CVD, cardiovascular disease; GFR, glomerular filtration rate; HDL-C, high-density lipoprotein cholesterol; HT, hypertension; LDL-C, low-density lipoprotein cholesterol; STEACS, ST-segment elevation acute coronary syndrome. Unless otherwise indicated, the results are expressed as No. (%) or mean $\pm$ standard deviation.

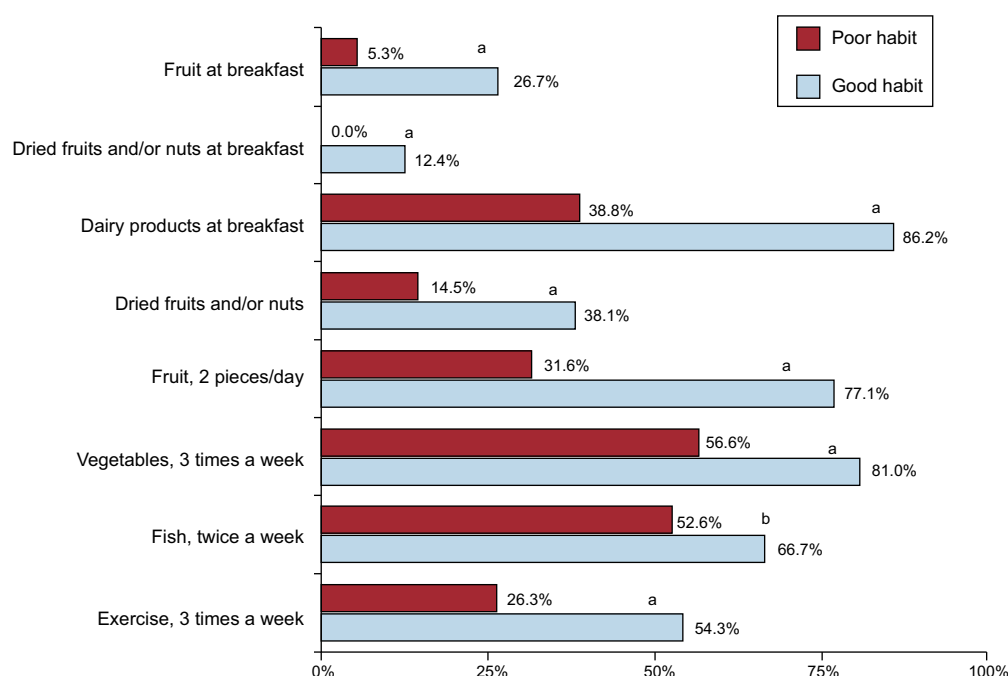


Figure. Results of the abbreviated questionnaire on the Mediterranean dietary pattern and lifestyle.

^a $P < .01$.

^b $P = .06$.

logistic regression model was found to be well-calibrated ($P = .63$) and to be of high diagnostic value (area under the received operating characteristic curve, 0.78; 95%CI, 0.69–0.88; $P < .01$).

The results of our study reveal a high prevalence of poor breakfast habits among patients admitted for ACS and an association between these habits and a less healthy lifestyle and diet. These are the first data on breakfast habits in ACS patients in Spain, and the specific focus of the study on ACS may also explain the finding of a prevalence of breakfast skipping much higher than the 10% to 18% reported in studies involving the general population.⁴

Breakfast is one of the main meals of the day, and its characteristics are highly specific and differ from food intake at any other time. For example, it is preceded by the longest period of fasting and rest and is the meal that most strongly produces a feeling of fullness.³ Some of the beneficial effects of diet are directly related to weight control,² while others are related to protective mechanisms of the components of the diet.⁵ Given that breakfast is the meal with the highest nutrient uptake, it could be the ideal time for consumption of these foods.

In conclusion, in this study, we observed that half of the patients who were hospitalized for ACS had poor breakfast habits and that this was associated with an unhealthy lifestyle and diet. There is a great deal of room for improvement in terms of education and intervention in the habits that affect the lives and diets of patients with ACS, especially in a meal as important to lipid and glucose metabolism as breakfast.

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REFERENCES

1. Diaz-Buschmann I, Castro A, Galve E, Calero MJ, Dalmau R, Guzman G, et al. Comentarios a la guía de práctica clínica de la ESC sobre prevención de la enfermedad cardiovascular (versión 2012). Un informe del Grupo de Trabajo del Comité de Guías de Práctica Clínica de la Sociedad Española de Cardiología. *Rev Esp Cardiol*. 2012;65:869–73.
2. Peñalvo JL, Oliva B, Sotos-Prieto M, Uzhova I, Moreno-Franco B, Leon-Latre M, et al. La mayor adherencia a un patrón de dieta mediterránea se asocia a una mejora del perfil lipídico plasmático: la cohorte del Aragon Health Workers Study. *Rev Esp Cardiol*. 2015;68:290–7.
3. Astbury NM, Taylor MA, Macdonald IA. Breakfast consumption affects appetite, energy intake, and the metabolic and endocrine responses to foods consumed later in the day in male habitual breakfast eaters. *J Nutr*. 2011;141:1381–9.
4. Cahill LE, Chiuve SE, Mekary RA, Jensen MK, Flint AJ, Hu FB, et al. Prospective study of breakfast eating and incident coronary heart disease in a cohort of male US health professionals. *Circulation*. 2013;128:337–43.
5. Vilahur G, Padro T, Casani L, Mendieta G, Lopez JA, Streitenberger S, et al. El enriquecimiento de la dieta con polifenoles previene la disfunción endotelial coronaria mediante la activación de la vía de Akt/eNOS. *Rev Esp Cardiol*. 2015;68:216–25.

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