JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY
© 2017 BY THE AMERICAN COLLEGE OF CARDIOLOGY FOUNDATION
PUBLISHED BY ELSEVIER

VOL. 70, NO. 15, 2017
ISSN 0735-1097/$36.00
http://dx.doi.org/10.1016/j.jacc.2017.08.027

ORIGINAL INVESTIGATIONS

The Importance of Breakfast in Atherosclerosis Disease

Insights From the PESA Study

Irina Uzhova, MSc,[a] Valentín Fuster, MD, PhD,[a,b] Antonio Fernández-Ortiz, MD, PhD,[a,c,d,e] José M. Ordovás, PhD,[a,f,g] Javier Sanz, MD,[a,b] Leticia Fernández-Friera, MD, PhD,[a,c,h] Beatriz López-Melgar, MD, PhD,[a,h] José M. Mendiguren, MD,[i] Borja Ibáñez, MD, PhD,[a,c,j] Héctor Bueno, MD, PhD,[a,d,k] José L. Peñalvo, PhD[l]

ABSTRACT

BACKGROUND Daily habits, including the number and quality of eating occasions, are potential targets for primary prevention strategies with large health impacts. Skipping breakfast is considered a frequent and unhealthy habit associated with an increased cardiovascular (CV) risk.

OBJECTIVES The study sought to explore the association between different breakfast patterns and CV risk factors and the presence, distribution, and extension of subclinical atherosclerosis.

METHODS Cross-sectional analysis was performed within the PESA (Progression of Early Subclinical Atherosclerosis) study, a prospective cohort of asymptomatic (free of CV events at baseline) adults 40 to 54 years of age. Lifestyle and multivascular imaging data along with clinical covariates were collected from 4,052 participants. Multivariate logistic regression models were used in the analysis.

RESULTS Three patterns of breakfast consumption were studied: high-energy breakfast, when contributing to >20% of total daily energy intake (27% of the population); low-energy breakfast, when contributing between 5% and 20% of total daily energy intake (70% of the population); and skipping breakfast, when consuming <5% of total daily energy (3% of the population). Independent of the presence of traditional and dietary CV risk factors, and compared with high-energy breakfast, habitual skipping breakfast was associated with a higher prevalence of noncoronary (odds ratio: 1.55; 95% confidence interval: 0.97 to 2.46) and generalized (odds ratio: 2.57; 95% confidence interval: 1.54 to 4.31) atherosclerosis.

CONCLUSION Skipping breakfast is associated with an increased odds of prevalent noncoronary and generalized atherosclerosis independently of the presence of conventional CV risk factors. (Progression of Early Subclinical Atherosclerosis [PESA]; NCT01410318) (J Am Coll Cardiol 2017;70:1833–42) © 2017 by the American College of Cardiology Foundation.

Listen to this manuscript's audio summary by *JACC* Editor-in-Chief Dr. Valentin Fuster.

From the [a]Centro Nacional de Investigaciones Cardiovasculares Carlos III, Madrid, Spain; [b]Icahn School of Medicine at Mount Sinai, New York, New York; [c]CIBER de Enfermedades CardioVasculares, Madrid, Spain; [d]Universidad Complutense, Madrid, Spain; [e]Cardiovascular Institute, IDISSC, Hospital Clínico San Carlos, Madrid, Spain; [f]U.S. Department of Agriculture Human Nutrition Research Center on Aging, Tufts University, Boston, Massachusetts; [g]IMDEA Food Institute, CEI UAM + CSIC, Madrid, Spain; [h]HM Hospitales-Centro Integral de Enfermedades Cardiovasculares, Madrid, Spain; [i]Banco de Santander, Madrid, Spain; [j]IIS-Fundación Jiménez Díaz Hospital, Universidad Autónoma, Madrid, Spain; [k]i+12 Research Institute and Cardiology Department, Hospital 12 de Octubre, Madrid, Spain; and the [l]Friedman School of Nutrition Science and Policy, Tufts University, Boston, Massachusetts. The PESA (Progression of Early Subclinical Atherosclerosis) study is co-funded equally by the Fundación Centro Nacional de Investigaciones Cardiovasculares Carlos III (CNIC) (Madrid, Spain) and Banco Santander (Madrid, Spain). The study also receives funding from the Institute of Health Carlos III (PI15/02019) and the European Regional Development Fund. The CNIC is supported by the Ministry of Economy, Industry and Competitiveness (MINECO) and the Pro-CNIC Foundation, and is a Severo Ochoa Center of Excellence (MINECO award SEV-2015-0505). Dr. Bueno was funded by the Instituto de Salud Carlos III (PIE16/00021); has received research funding from AstraZeneca, Bristol-Myers Squibb, Janssen, and Novartis; consulting fees from Abbott, AstraZeneca, Bayer, Bristol-Myers Squibb/Pfizer, and Novartis; and speaking fees or support for attending scientific meetings from

ABBREVIATIONS AND ACRONYMS

BMI = body mass index
CAC = coronary artery calcium
CI = confidence interval
CVD = cardiovascular disease
EI = energy intake
HBF = high-energy breakfast
LBF = low-energy breakfast
MetS = metabolic syndrome
OR = odds ratio
SBF = skipping breakfast
WC = waist circumference

Several conditions associated with the development of cardiovascular disease (CVD) such as diabetes (1), obesity (2), hypertension (3), and dyslipidemia (4) are known to be modifiable by changes in lifestyle. Among lifestyle factors, our diet, including both the nutritional quality and our acquired eating patterns, constitutes a major target of CVD prevention strategies.

Eating patterns are highly dependent on cultural, social and psychological determinants, as people integrate them into their daily life routines. A particular habit that might have a significant effect on CV health is breakfast consumption, as it is associated with factors such as satiety (5), daily energy intake (EI) (6), metabolic efficiency of the diet, and appetite regulation (7). A number of studies have reported associations between the habit of omitting breakfast and increased cardiometabolic health markers (8), including obesity (9), diabetes (10), and unfavorable lipid profile (11). Although there are some studies linking skipping breakfast with coronary heart disease risk (12,13), to the best of our knowledge, no studies have investigated the association with this dietary habit on the presence of subclinical atherosclerosis. The aim of our study was to characterize the association between different breakfast patterns and CVD risk factors, and in particular, whether regularly skipping breakfast is associated with subclinical atherosclerosis, by investigating the presence of atherosclerotic plaques in the carotid arteries, aorta, and iliofemoral arteries or coronary artery calcium, in a population with no previous history of CVD.

SEE PAGE 1843

METHODS

STUDY OVERVIEW. The PESA (Progression of Early Subclinical Atherosclerosis) study is an ongoing observational prospective cohort of 4,082 employees of the Bank Santander Headquarters in Madrid, Spain, aiming to discover the factors related to the development and progression of atherosclerosis. A detailed description of the study design and procedures of data collection has been reported elsewhere (14). The study protocol was approved by the Ethic committee of Instituto de Salud Carlos III (Madrid, Spain). All participants provided written informed consent (14).

STUDY PARTICIPANTS. Male and female volunteers 40 to 54 years of age were included in the study if at baseline they were free of any CV or chronic kidney disease, were not under active treatment for cancer, did not have previous transplant, did not exceed body mass index (BMI) of 40 kg/m^2, and did not have any disease that might affect life expectancy and decrease it to <6 years. Of the initial participants, 26 having missing values in some of the variables of interest, and 4 reporting extreme values for daily EI (<800 or >4,200 kcal for men, and <500 or >3,500 kcal for women) (15) were excluded from the analyses. The final sample consisted therefore of 4,052 participants.

DIETARY ASSESSMENT. To estimate usual diet of PESA study participants we used a computerized questionnaire (dietary history of the ENRICA [Estudio de Nutrición y Riesgo Cardiovascular] study) developed and validated for the Spanish population within the ENRICA study (16) containing nutritional information on 861 food items (including 184 typically consumed Spanish meals and dishes). Briefly, subjects were asked to report foods consumed in the past 15 days, taking into consideration eating occasions (waking up, breakfast, midmorning, lunch, midafternoon, and dinner). Once a food item was consumed at least once, it was considered "usually consumed." Conversion factors were used to calculate the annual frequency of consumption (16). Based on these data, the variable "energy consumed during breakfast" was computed and the breakfast patterns in our study was based on the percentage of the daily total EI consumed at breakfast. As a first step, our definition of breakfast was based on quantitative description provided by Timlin and Pereira (7), where it is defined as "the first meal of the day that breaks the fast after the longest period of sleep, eaten before or at the start of daily activities (e.g., errands, travel, work), within 2 h of waking, typically no later than 10:00 in the morning, and of an energy level between 20 and 35% of total daily energy need." Based on this definition, we identified foods consumed before 10:00 AM in the PESA study database and those participants whose energy intake at breakfast exceeded 20% of total energy intake, were considered breakfast consumers (high-energy breakfast [HBF]). As a second step, we applied the qualitative definition of breakfast provided by O'Neil et al. (17), where

AstraZeneca, Bayer, Bristol-Myers Squibb/Pfizer, Ferrer, Novartis, Servier, and theheart.org/Medscape. All other authors have reported that they have no relationships relevant to the contents of this paper to disclose. Dr. Peñalvo is currently an employee at Merck KGaA. P.K. Shah, MD, served as Guest Editor for this paper.

Manuscript received July 24, 2017; accepted August 16, 2017.

Download English Version:

https://daneshyari.com/en/article/5607164

Download Persian Version:

https://daneshyari.com/article/5607164

Daneshyari.com