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Special article

Update in Cardiology: Vascular Risk and Cardiac Rehabilitation

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ABSTRACT

Cardiovascular disease develops in a slow and subclinical manner over decades, only to manifest suddenly and unexpectedly. The role of prevention is crucial, both before and after clinical appearance, and there is ample evidence of the effectiveness and usefulness of the early detection of at-risk individuals and lifestyle modifications or pharmacological approaches. However, these approaches require time, perseverance, and continuous development. The present article reviews the developments in 2013 in epidemiological aspects related to prevention, includes relevant contributions in areas such as diet, weight control methods (obesity is now considered a disease), and physical activity recommendations (with warnings about the risk of strenuous exercise), deals with habit-related psychosocial factors such as smoking, provides an update on emerging issues such as genetics, addresses the links between cardiovascular disease and other pathologies such as kidney disease, summarizes the contributions of new, updated guidelines (3 of which have recently been released on topics of considerable clinical importance: hypertension, diabetes mellitus, and chronic kidney disease), analyzes the pharmacological advances (largely mediocre except for promising lipid-related results), and finishes by outlining developments in the oft-neglected field of cardiac rehabilitation. This article provides a briefing on controversial issues, presents interesting and somewhat surprising developments, updates established knowledge with undoubted application in clinical practice, and sheds light on potential future contributions.

Temas de actualidad en cardiología: riesgo vascular y rehabilitación cardiaca

Palabras clave:
Puesta al día
Factores de riesgo
Ejercicio físico
Tabaco
Hipertensión arterial
Diabetes mellitus

RESUMEN

La enfermedad cardiovascular se establece de manera lenta y subclínica durante décadas, para a menudo manifestarse de modo abrupto e inesperado. El papel de la prevención, antes y después de la aparición de la clínica, es capital y existen numerosas pruebas de la eficacia y la eficiencia de las medidas dirigidas a detectar precozmente a los sujetos en riesgo y actuar mediante modificaciones en el estilo de vida o medidas farmacológicas, pero ello exige tiempo, constancia y actualización permanente. Este artículo resume las novedades de 2013 en los aspectos epidemiológicos relacionados con la prevención, incorpora relevantes contribuciones en materias como la dieta, las formas de control del peso (la obesidad ha pasado a ser considerada una enfermedad) y las recomendaciones sobre la actividad física (con advertencias sobre el riesgo del ejercicio extenuante), aborda los factores psicosociales tan relacionados con hábitos como el tabaquismo, actualiza aspectos emergentes como la genética, trata el ligamen de la enfermedad cardiovascular con otras como la renal, resume la aportación de nuevas guías que actualizan las previas (han visto la luz muy recientemente tres de ellas sobre aspectos de gran peso clínico: hipertensión, diabetes mellitus y enfermedad renal crónica) y analiza los avances farmacológicos, ciertamente no espectaculares, pero algunos, como en lípidos, prometedores, para acabar poniendo al día el siempre olvidado campo de la rehabilitación cardiaca. La lectura de esta actualización pone al día temas controvertidos, aporta novedades de interés y algunas sorprendentes, sedimenta viejos conocimientos de indudable aplicación en el ejercicio clínico y abre las puertas a aportaciones de futuro.

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Abbreviations

BP: Blood pressure
CV: Cardiovascular
CVD: Cardiovascular disease
ESC: European Society of Cardiology
LDL: Low density lipoprotein

INTRODUCTION

Cardiovascular disease (CVD) is a major cause of disability, substantially increases health care costs, and is the most common cause of death in developed countries. One of the most important health care activities is cardiovascular (CV) prevention, whether primary or secondary (the latter being closely linked to cardiac rehabilitation). CV prevention shows clear benefits, and has contributed to a notable reduction in CV morbidity and mortality in developed countries in recent decades. Nonetheless, much work remains to be done, as shown by data on the so-called residual risk, and the achievements made fail to mask patent deficiencies in numerous areas.[1–3]

The current article examines in depth the most notable developments of the last year, critically analyzing and summarizing recent results and serving as a comprehensive although not exhaustive update on these topics.

EPIDEMIOLOGICAL ASPECTS

Although atherosclerotic CVDs are the main cause of death worldwide,[2] this group of diseases have known risk factors that can be tackled by prevention.

In 2012, the latest European guidelines on CV prevention were published.[3] While the guidelines continue to recommend the use of the SCORE scale for risk stratification, they include some changes and make various recommendations to achieve the targets for the different risk factors, focusing on lifestyle interventions and cardioprotective drug use. All patients should reach these targets, but that goal is far from being met, which is why knowledge of the degree of guideline implementation is essential. Accordingly, results from the EUROASPIRE IV study were presented at the recent European Society of Cardiology (ESC) meeting. This study was performed in 24 European countries to determine whether the recommendations of the latest guidelines are being followed in patients with established coronary heart disease and whether prevention has improved compared with the EUROASPIRE I, II, and III surveys.[1]

Reports were collected on 13 500 coronary patients, 49% of whom were interviewed. Only those younger than 80 years that had had an event between 6 months and 3 years before the interview were selected. Only 51% of smokers ceased smoking, although the percentage was 73% in Spain; 82% were overweight, a third were obese, and half had abdominal obesity. Moreover, only 41% participated in some type of prevention program. The participation rate did increase to 81% in those who were notified of the existence of the program, but only half had been informed.

A higher than recommended blood pressure (BP) was shown by 43% of patients (by 40% in Spain); 25% were unaware that they were hypertensive, and only 53% of those receiving treatment reached the BP targets. The lipids of 2 out of every 3 patients were not controlled, and 81% had a low-density lipoprotein (LDL) cholesterol level above 70 mg/dL. Spain showed the best lipid control, in 59% of patients. Although 87% of patients in the survey were being treated with lipid-lowering drugs, only 21% of these were controlled. An average of 27% of the patients (or 33% in Spain) was diabetic. Another 13% had a fasting blood glucose level > 126 mg/dL and, of these, 47% had a glycated hemoglobin hba level above 7%.

Therefore, according to this study, most coronary patients do not achieve their risk factor control targets (Table 1), even those undergoing treatment, and in turn half are not aware of the presence of these risk factors or of their levels, suggesting inadequate treatment and control. Nonetheless, the percentage of patients receiving the recommended treatments was high: anticoagulants were being taken by 94%, statins by 86%, beta-blockers by 83%, and angiotensin-converting enzyme inhibitors or angiotensin receptor blockers 75%. In sum, not only is risk factor control poor, but also improvements are not seen.

In the PURE study,[4] performed in a cohort of 154 000 patients with history of coronary heart disease or stroke in 17 countries, the prevalence of healthy lifestyles was low, with only half quitting smoking, 19% still smoking, and just 39% and 35% with a suitable diet and level of physical activity, respectively. Although these percentages are increasing in developed countries, they remain below 50%.

In Spain, the ENRICA[5] study found adequate blood cholesterol control in 43% of patients with previous CVD. A registry of the Barbanza group[6] also showed poor risk factor control in 1108 patients with chronic ischemic heart disease, with data even worse than those of the EUROASPIRE study. Lower percentages of cardioprotective drug use were seen, with the exception of lipid-lowering drugs, which reached 88%.

Clearly, the data indicate the need for comprehensive and multidisciplinary prevention programs in both patients and their families, and, fundamentally, an integrated organizational model of primary and specialized care.

DIET, WEIGHT, AND PHYSICAL ACTIVITY

The most relevant diet-related contribution has been provided by the PREDIMED. The Spanish authors of this study demonstrated that a Mediterranean diet with olive oil reduced the incidence of

Table 1
Targets Reached in Each of the Recommendations of the Guidelines for Patients With Coronary Heart Disease, According to the EUROASPIRE IV Study

Guideline recommendation	Targets reached, %
Smokers that quit smoking	51
Body mass index	
< 25	18
< 30	62
Waist circumference	
Men < 102 cm	47
Women < 88 cm	25
Blood pressure	
< 140/90 mmHg	57
(< 140/80 mmHg in DM)	
LDL-C < 70 mg/dL	19
DM-HbA$_{1c}$ < 7%	53
Antiplatelet agents	94
Beta-blockers	83
Statins	86
ACE inhibitors/ARB	75

ACE, angiotensin-converting enzyme; ARB, angiotensin receptor blockers; LDL-C, low-density lipoprotein cholesterol; DM, diabetes mellitus; HbA$_{1c}$, glycated hemoglobin.