



ORIGINAL ARTICLE

Population prevalence and control of cardiovascular risk factors: What electronic medical records tell us

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Primary health care;
Prevalence

Abstract

Objective: To analyze the prevalence, control, and management of hypertension, hypercholesterolemia, and diabetes mellitus type 2 (DM2).

Design: Cross-sectional analysis of all individuals attended in the Catalan primary care centers between 2006 and 2009.

Location: History of cardiovascular diseases, diagnosis and treatment of hypertension, hypercholesterolemia, DM2, lipid profile, glycemia and blood pressure data were extracted from electronic medical records. Age-standardized prevalence and levels of management and control were estimated.

Participants: Individuals aged 35–74 years using primary care databases.

Main measures: A total of 2,174,515 individuals were included (mean age 52 years [SD 11], 47% men).

Results: Hypertension was the most prevalent cardiovascular risk factor (39% in women, 41% in men) followed by hypercholesterolemia (38% and 40%) and DM2 (12% and 16%), respectively. Diuretics and angiotensin-converting enzyme inhibitors were most often prescribed for hypertension control (<140/90 mmHg, achieved in 68% of men and 60% of women treated). Hypercholesterolemia was controlled (low-density lipoprotein cholesterol <130 mg/dl) in just 31% of men and 26% of women with no history of cardiovascular disease, despite lipid-lowering treatment, primarily (90%) with statins. The percentage of women and men with DM2 and with

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PALABRAS CLAVE

Historia clínica electrónica;
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 Diabetes Mellitus tipo 2;
 Atención Primaria;
 Prevalencia

glycated hemoglobin <7% was 64.7% and 59.2%, respectively; treatment was predominantly with oral hypoglycemic agents alone (70%), or combined with insulin (15%).

Conclusions: Hypertension was the most prevalent cardiovascular risk factor in the Catalan population attended at primary care centers. About two thirds of individuals with hypertension or DM2 were adequately controlled; hypercholesterolemia control was particularly low.

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Prevalencia y control de factores de riesgo cardiovascular en la población general: ¿qué nos dice la historia clínica electrónica?

Resumen

Objetivos: Analizar la prevalencia, control y manejo de la hipertensión arterial, hipercolesterolemia y diabetes mellitus tipo 2.

Diseño: Análisis transversal de todos los individuos atendidos en centros de atención primaria entre 2006 y 2009.

Emplazamiento: Se extrajo de la historia clínica electrónica los antecedentes de enfermedad cardiovascular, el diagnóstico y tratamiento de la hipertensión arterial, hipercolesterolemia, diabetes mellitus tipo 2, el perfil lipídico, la glicemia y la presión arterial. Las prevalencias y las variables de manejo y control se estandarizaron por edad.

Participantes: Individuos de 35 a 74 años registrados en las bases de datos de atención primaria.

Mediciones principales: Se analizaron registros de 2.174.515 de individuos (47% hombres, edad media 52 años (DE 11)).

Resultados: La hipertensión arterial fue el factor de riesgo más prevalente (39% en mujeres y 41% en hombres), seguido de la hipercolesterolemia (38% y 40%) y la diabetes mellitus tipo 2 (12% y 16%), respectivamente. Los diuréticos y los inhibidores de la enzima convertidora de angiotensina fueron los fármacos más frecuentemente recetados para el control de la presión arterial (68% de hombres y 60% de mujeres presentaron valores <140/90 mmHg). Sólo el 31% de los hombres y el 26% de las mujeres sin antecedentes de enfermedad cardiovascular presentaron hipercolesterolemia controlada (colesterol de las lipoproteínas de baja densidad <130 mg/dl), a pesar del porcentaje de tratamiento con estatinas (90%). EL porcentaje de mujeres y hombres con diabetes mellitus tipo 2 y hemoglobina glicada <7% era de 64.7% y 59.2%, respectivamente; el tratamiento se realizó predominantemente con antidiabéticos orales únicamente (70%) o asociados con insulina (15%).

Conclusiones: La hipertensión arterial fue el factor de riesgo cardiovascular más prevalente en población catalana atendida en centros de atención primaria. Alrededor de dos tercios de los individuos con hipertensión arterial o diabetes mellitus tipo 2 estaban adecuadamente controlados; mientras que el control de la hipercolesterolemia fue especialmente bajo.

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Introduction

Cardiovascular disease (CVD) causes 56 million deaths annually all over the world and accounts for 30% of recorded deaths in developed countries.¹ In Spain, CVD was responsible for one fourth of all deaths recorded in 2010.² Atherosclerosis, the common cause of all CVDs, has a long, generally asymptomatic, induction period that often leads to an event such as myocardial infarction or stroke, with more than 35% mortality.³ The control of cardiovascular risk factors leads to a reduction in CVD incidence,⁴ making primary prevention of CVD a crucial issue in primary care. A better understanding of CVD mechanisms and the role of associated risk factors, particularly hypercholesterolemia, hypertension and diabetes mellitus type 2 (DM2), is essential to the design and implementation of the preventive public health interventions that are needed.⁵

Data routinely collected in primary care settings and stored in electronic medical records (EMR) databases have

recently been validated for estimating the prevalence of cardiovascular risk factors in the general population in Spain.⁶ The strengths of this type of database are mainly based on the universal coverage of the Spanish National Health System, which guarantees a representative population, and the collection of clinical and treatment data by each individual's general practitioner and primary care nurse, increasing data quality and avoiding the inaccuracies inherent in self-reported data. EMR in the National Health System are stored in a centralized database that can be accessed by all health professionals. Recently, clinical decision support systems, such as the electronic clinical practice guidelines, have been integrated at several points in the EMR software.⁷ A two-steps project has been designed to analyze the impact of such interactive documents in the clinical management. The first phase of this study aimed to analyze the prevalence and control of three cardiovascular risk factors (hypercholesterolemia, hypertension, and DM2) before implementing the electronic clinical practice guidelines.⁸

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