



ORIGINAL ARTICLE

Prevalence of impaired fasting glucose and type 1 and 2 diabetes mellitus in a large nationwide working population in Spain



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KEYWORDS

Diabetes mellitus;
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Abstract

Introduction: To report the prevalence of impaired fasting glucose (IFG), undiagnosed and diagnosed diabetes, and their association to occupational categories in a representative sample of working population in Spain.

Materials and methods: A cross-sectional study of workers who attended routine medical check-ups from January 2007 to December 2007. A structured questionnaire was completed, and physical examinations and routine serum biochemical tests were performed. IFG was defined as fasting glucose levels ranging from 100 to 125 mg/dl with no diagnosis of T1DM or T2DM; T1DM was defined as previous diagnosis of T1DM; and T2DM as previous diagnosis of T2DM, treatment with oral antidiabetic drugs or insulin or fasting glucose levels ≥ 126 mg/dl, according to ADA criteria.

Results: Of the 371,997 participants (median age 35 [interquartile range 29–44] years), 72.4% were male. Raw prevalence rates (95% CI) of IFG, undiagnosed (UKDM), and previously known type 2 (KDM2) and type 1 (KDM1) diabetes were 10.4% (10.3–10.5%), 1.3% (1.2–1.3%), 1.1% (1.1–1.2%), and 0.3% (0.3–0.3%), respectively. With the exception of KDM1, prevalence of these conditions increased with age and was greater among manual/blue-collar workers (12.1%, 1.5%, 1.3% and 0.3%, respectively) as compared to non-manual/white-collar workers (7.3%, 0.8%, 0.8% and 0.3%, respectively). Age- and sex-adjusted prevalence rates of IFG, UKDM and KDM2 were 13.1%, 2.0% and 2.4%, respectively.

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PALABRAS CLAVE

Diabetes mellitus;
Glucemia alterada en ayunas;
Estudios epidemiológicos;
Diagnóstico

Discussion: In this sample of Spanish working population, impaired glycemic profiles were common. Prevalence rates of IFG and T2DM were high among blue-collar workers (except for T1DM). These data emphasize the need for earlier structured preventive schemes.

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Prevalencia de la glucemia alterada en ayunas, diabetes tipo 1 (DM1) y diabetes tipo 2 (DM2) en una población trabajadora en España

Resumen

Objetivo: Describir la prevalencia de glucemia alterada en ayunas (GAA), diabetes no diagnosticada y diabetes, y su asociación con categorías profesionales en una muestra representativa de población trabajadora en España.

Material y métodos: Estudio transversal en trabajadores que realizaron revisión médica entre enero y diciembre de 2007. Se realizó exploración física, análisis de sangre y se utilizó un cuestionario estructurado. Se definió GAA como glucosa en ayunas 100-125 mg/dl sin diagnóstico de diabetes tipo 1 (DM1) o diabetes tipo 2 (DM2); DM1 como diagnóstico previo de DM1; y DM2, según criterios ADA, como diagnóstico previo de DM2, tratamiento con antidiabéticos orales o insulina, glucosa en ayunas ≥ 126 mg/dl.

Resultados: De los 371.997 participantes (mediana de edad 35 [rango intercuartílico 29-44] años), el 72,4% eran varones. La prevalencia (IC 95%) de GAA, diabetes no diagnosticada y DM2 y DM1 conocidas previamente fue del 10,4% (10,3-10,5%); 1,3% (1,2-1,3%); 1,1% (1,1-1,2%) y 0,3% (0,3-0,3%), respectivamente. Excepto para DM1, la prevalencia aumentó con la edad y fue mayor en trabajadores manuales (12,1; 1,5; 1,3; y 0,3% respectivamente) que en trabajadores no manuales (7,3; 0,8; 0,8; y 0,3% respectivamente). La prevalencia de GAA, diabetes no diagnosticada y DM2 ajustada por edad y sexo fue del 13,1, 2,0 y 2,4% respectivamente.

Conclusiones: En esta muestra de población trabajadora en España, las alteraciones del perfil glucémico fueron frecuentes. En trabajadores manuales (excepto en DM1) las prevalencias de GAA y DM2 fueron mayores. Estos datos resaltan la necesidad de programas preventivos de intervención más temprana.

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Introduction

Intricate and heterogeneous, social, healthcare and cultural circumstances underlie the past and projected steady increase in the prevalence of type 2 diabetes.¹ The increasingly younger age of affected individuals demands effective screening and management strategies.^{1,2} Determining population patterns of diabetes and prediabetes can help to refine preventive interventions.

The first robust national estimate of the prevalence of diabetes and prediabetes in Spain was published recently, revealing a worryingly high age- and sex-adjusted prevalence of diabetes mellitus (undiagnosed plus diagnosed) of 13.8%.³ These data suggest a potential increase in diabetes prevalence in the years to come, stressing the need for effective nationwide programs to prevent progression to diabetes, promotion of healthy eating habits and increasing physical activity among young people.

Investigating health risks in workers may be of particular interest as they constitute a large, mostly young and "healthy" population, with a high preventive potential.⁴ For its detection and treatment, it is necessary to take advantage of all appropriate occasions where the subject is in contact with the health system. In this context,

programs to identify and control risk factors in the workplace can be more efficient than those conducted in conventional health centers.⁴

This research is part of the ICARIA study (Ibermutuamur Cardiovascular Risk Assessment)⁵⁻⁷ that aims to detect, stratify and prevent cardiovascular risk in workers affiliated to Ibermutuamur Prevention Society. This Society is specifically focused on preventing diseases and accidents by monitoring and promoting the health of workers through routine annual medical check-ups being in Spain very frequent and even mandatory (in certain productive activities) for the employer to offer the workers access to this occupational health service.

Lack of physical activity and unhealthy diet have been identified as factors contributing to the development of obesity, diabetes and cardiovascular disease (CVD).⁸ Likewise, a close relationship between obesity and type 2 diabetes mellitus is well known,⁹⁻¹¹ that relationship is particularly of interest in this population due to the high and increasing prevalence of obesity and overweight in the Spanish working population especially in male blue-collar workers.¹¹ Thus, young and middle-aged people in their active working years are at increased risk of diabetes and its related complications, with major implications both for work

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