

Original article

Trends from 1995 to 2006 in the prevalence of self-reported cardiovascular risk factors among elderly Spanish diabetics

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Abstract

Aim. – In this study, we examined the trends from 1995 to 2006 in cardiovascular risk factors (CVRF) in Spaniards aged 65 years or older with diabetes.

Methods. – We looked at the individual data from adults aged ≥ 65 years from the Spanish National Health Surveys of 1995 ($n = 1117$), 1997 ($n = 1111$), 2001 ($n = 4328$), 2003 ($n = 6134$) and 2006 ($n = 7835$). Those classified as having diabetes had answered the two following questions in the affirmative: Has your doctor told you that you currently have diabetes? Have you taken any medication to treat diabetes in the last two weeks? The CVRF of interest included high blood pressure (HBP), high cholesterol levels, obesity ($\text{BMI} \geq 30 \text{ kg/m}^2$), smoking and sedentarity, which were estimated and compared for prevalence by survey year, age group and gender. Progression over time was analyzed using logistic-regression models.

Results. – During the study period, the prevalences of all of the CVRF of interest were significantly higher among the elderly with diabetes compared with those without diabetes, except for current smoking, which was less frequent. The percentages of diabetic patients with HBP and obesity increased from 49.6 and 17.1%, respectively, in 1995 to 64 and 30.6%, respectively, in 2006 (adjusted ORs: 1.95 for HBP; 2.22 for obesity).

Conclusion. – Overall, the self-reported prevalence of CVRF among elderly patients with diabetes did not improve during 1995–2006 but, instead, showed significant increases in self-reported obesity and HBP. This lack of improvement calls for further investigations, and the dedicated attention of both healthcare providers and the diabetic patients themselves.

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Keywords: Diabetes; Cardiovascular risk factors; Elderly; Obesity; Tobacco; High blood pressure; Longitudinal study; National Health Survey; Spain

Résumé

Évolution pour la période 1995 à 2006 de la prévalence des facteurs de risque cardiovasculaire chez les personnes âgées atteintes de diabète en Espagne.

Objectif. – Cette étude avait pour buts d'examiner les tendances en matière de facteurs de risque cardiovasculaire chez les espagnols âgés de 65 ans ou plus, atteints de diabète de 1995 à 2006.

Méthodes. – Nous avons utilisé les données individuelles des adultes âgés de 65 ans ou plus à partir des National Health Surveys de 1995 ($n = 1117$), 1997 ($n = 1111$), 2001 ($n = 4328$), 2003 ($n = 6134$) et 2006 ($n = 7835$). Les patients ont été classés diabétiques si une réponse positive a été donnée aux questions suivantes : « Votre médecin vous a-t-il dit que vous souffrez de diabète ? », et/ou, « Avez-vous pris des médicaments destinés à traiter le diabète au cours des deux dernières semaines ? » Les facteurs de risque cardiovasculaire analysés ont été les suivants : pression artérielle élevée (hypertension), concentrations élevées de cholestérol, obésité ($\text{IMC} \geq 30$), tabagisme et sédentarité. Nous avons estimé et comparé les prévalences en tenant compte de l'année des enquêtes, des groupes d'âge et du sexe. L'évolution au cours du temps a été analysée à l'aide de modèles de régression logistique.

Abbreviations: CVRF, cardiovascular risk factors; HBP, high blood pressure; BMI, body mass index; ADA, American Diabetes Association; NHS, National Health Survey; NSI, National Statistics Institute; BRFSS, Behavioral Risk Factor Surveillance System.

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Résultats. – Au cours de la période étudiée, la prévalence de l'ensemble des facteurs de risque cardiovasculaire a été significativement plus élevée chez les sujets âgés et les patients atteints de diabète que chez les non diabétiques, exception faite des fumeurs. Le pourcentage de patients diabétiques souffrant d'hypertension et d'obésité est passé respectivement de 49,6 et 17,1 % en 1995 à 64 et 30,6 % en 2006 (OR ajusté 1,95 à 2,22 pour l'hypertension et l'obésité).

Conclusion. – La prévalence totale de facteurs de risque cardiovasculaire chez les patients âgés atteints de diabète n'a pas été améliorée de manière substantielle pendant la période 1995 à 2006, et une augmentation de l'obésité et l'hypertension artérielle a été notée. Cette absence d'amélioration demande un engagement plus important de la part des diabétiques et des professionnels de santé.

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Mots clés : Diabète ; Sujet âgé ; Facteurs de risque cardiovasculaire ; Obésité ; Tabagisme ; Hypertension artérielle ; Étude longitudinale ; Étude nationale de santé ; Espagne

1. Introduction

Coronary heart disease is the most frequent cause of death among patients with diabetes [1,2]. Adult diabetics have a cardiac disease mortality rate that is approximately two to four times higher than that of nondiabetic adults. Also, their risk of cardiac disease recurrence is two to four times greater than that of nondiabetics [1,2].

The ADA recommends that those who are diagnosed with this disease should strictly control their glycaemia, HBP and lipid levels to prevent acute complications and lower the risk of long-term complications. For those who are overweight and obese, the ADA also recommends that they lose weight. In addition, all diabetics should participate in regular physical activity and stop smoking [3].

The prevalence of diabetes in the general Spanish population is approximately 5–6%, a figure that increases with the ageing of the population [4–6]. A number of studies have indicated high prevalence of CVRF and unhealthy lifestyle behaviours among adult Spanish diabetics [5,7–13]. These reports indicate that HBP, high cholesterol, obesity and a sedentary lifestyle are more frequently seen in diabetic individuals compared with the general population [5,7–13].

In an earlier study, we assessed the trend in CVRF prevalence among Spanish adults with diabetes by comparing data from the Spanish NHS conducted in 1993 and 2003 [5]. In that study, we found a significant increase in the prevalence of CVRF in elderly diabetics, which suggested that it would be of interest to carry out a more thorough analysis in such a population, including evaluating the changes, thereby adding to the current information, using data provided by the NHSs conducted in 1995, 1997, 2001 and 2006.

Given the importance of the relationship between cardiovascular risk and diabetes, the objective of the present study was to examine the trends over 11 years in self-reported CVRF among Spaniards aged 65 years or older with a history of diabetes, based on the data from all five surveys carried out from 1995 to 2006. More specifically, HBP, high levels of cholesterol, obesity, smoking and sedentarity were analyzed.

2. Materials and methods

The present study involved the use of individual data obtained from the Spanish NHSs for the years 1995, 1997, 2001, 2003 and 2006. These were studies carried out by the Ministry of Health

and Consumer Affairs and the NSI, and involved a representative sample of the non-institutionalized, elderly Spanish population. The inclusion criteria were: not being institutionalized; being included in the Spanish census in the year of the survey; and speaking Spanish. The NHS in 1995 involved 1117 adults aged ≥ 65 years; in 1997, there were 1111 such adults; in 2001, 4328 such adults; in 2003, 6134 such adults; and in 2006, 7835 such adults. Details of the methodology of the NHS are available at the websites of the Ministry of Health and Consumer Affairs and the NSI [14,15]. The variables included in the present study were derived from a series of questions stated in exactly the same way as found in the five surveys.

Individuals were classified as diabetic if they responded in the affirmative to one or both of the following questions: Has your doctor told you that you currently have diabetes? Have you taken any medication to treat diabetes in the last two weeks? Similarly, participants were considered to have HBP and/or high cholesterol if they responded affirmatively when asked if a doctor had diagnosed them as having these illnesses and/or they had taken medications for these illnesses during the past two weeks.

Each patient's BMI was calculated from the self-reported body weight and height, and those with a BMI ≥ 30 kg/m² were classified as obese. Smoking habits differentiated between current smokers and nonsmokers (which grouped those who never smoked with ex-smokers). Patients were considered to have a 'sedentary lifestyle' when they admitted to participating in no physical activities during their free time.

2.1. Statistical analysis

For each NHS, we first calculated the prevalence of diabetic and nondiabetic Spaniards aged ≥ 65 years. Prevalences were estimated specifically by survey year, age group and gender, and were then compared, after being adjusted for age and gender using logistic regression. We also analyzed the distribution according to sociodemographic variables (age and gender).

In addition, we obtained the percentage of individuals who reported having CVRF among the diabetics and repeated the process with nondiabetics, and compared the results. The CVRF prevalence were then adjusted for age and gender, using the direct method, and using the Spanish population in 2006, according to the NSI [16], as the reference population.

To evaluate the trends for the prevalences of HBP, high cholesterol, obesity, smoking and sedentarity among diabetics

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