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ORIGINAL ARTICLE

Metabolic control and chronic complications during a 3-year follow-up period in a cohort of type 2 diabetic patients attended in primary care in the Community of Madrid (Spain)

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KEYWORDS
Type 2 diabetes;
Incidence;
Chronic complications;
Primary care;
Metabolic control

Abstract
Background: Our aim was to analyze both metabolic control and chronic complications of type 2 diabetes mellitus (T2D) patients regularly attended in primary care during a 3 years of follow-up in the Community of Madrid (Spain).
Methods: From 2007 to 2010 we prospectively included 3268 patients with T2D attended by 153 primary care physicians from 51 family health centers. An prospective cohort study with annual evaluation over 3 years to the same population was performed. We measured the goals of control in diabetic patients and the incidence of chronic complications of diabetes during the study period.
Results: A significant decrease in serum glucose levels (143 ± 42 mg/dl vs 137 ± 43 mg/dl, $p < 0.00$), HbA1c ($7.09 \pm 1.2\%$ vs $7.02 \pm 1.2\%$, $p < 0.00$), total cholesterol (191.4 ± 38 mg/dl vs 181.5 ± 36 mg/dl, $p < 0.00$), LDL cholesterol (114.7 ± 31 mg/dl vs 105.5 ± 30 mg/dl, $p < 0.00$) and triglyceride levels (144.5 ± 93 mg/dl vs 138 ± 84 mg/dl, $p < 0.00$) during study period was documented. On the contrary, a significant elevation in HDL cholesterol levels was observed (49.2 ± 14 mg/dl vs 49.9 ± 16 mg/dl, $p < 0.00$). The incidence of diabetic complications throughout the study period was low, with a incidence of coronary heart disease of 6.2%, peripheral arterial disease 3%, ischemic stroke 2.8%, diabetic foot 11.2%, nephropathy 5.9%, retinopathy 4.5%, and neuropathy 3%.

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Conclusion: Metabolic control in T2D patients attended in primary care in the Community of Madrid throughout 3 years is adequate and is accompanied by low percent of chronic diabetic complications during this period of follow-up.

PALABRAS CLAVE
Diabetes tipo 2;
Incidencia;
Complicaciones crónicas;
Atención primaria;
Control metabólico

Control metabólico y complicaciones crónicas durante un período de 3 años en una cohorte de pacientes diabéticos tipo 2 atendidos en asistencia primaria en la Comunidad de Madrid (España)

Resumen
Antecedentes: Nuestro objetivo ha sido analizar el control metabólico y las complicaciones crónicas de pacientes con diabetes mellitus tipo 2 (DM2) que acudían regularmente a consultas de asistencia primaria durante 3 años de seguimiento en la Comunidad de Madrid (España).
Métodos: Desde 2007 a 2010, 153 médicos de asistencia primaria de 51 centros de salud familiares incluyeron prospectivamente 3268 pacientes con DM2. Se realizó un estudio de cohorte prospectivo con evaluación anual de la misma población durante 3 años. Se determinaron los objetivos de control y la incidencia de complicaciones crónicas de la diabetes.
Resultados: Se comprobaron descensos significativos de los niveles séricos de glucosa (143 ± 42 mg/dl frente a 137 ± 43 mg/dl, $p < 0{,}00$), HbA1c ($7{,}09 \pm 1{,}2\%$ frente a $7{,}02 \pm 1{,}2\%$, $p < 0{,}00$), colesterol total ($191{,}4 \pm 38$ mg/dl frente a $181{,}5 \pm 36$ mg/dl, $p < 0{,}00$), colesterol LDL ($114{,}7 \pm 31$ mg/dl frente a $105{,}5 \pm 30$ mg/dl, $p < 0{,}00$) y triglicéridos ($144{,}5 \pm 93$ mg/dl frente a 138 ± 84 mg/dl, $p < 0{,}00$) durante el período del estudio. Por el contrario, se observó una elevación significativa de los niveles de colesterol HDL ($49{,}2 \pm 14$ mg/dl frente a $49{,}9 \pm 16$ mg/dl, $p < 0{,}00$). La incidencia de complicaciones diabéticas durante el período del estudio fue baja: enfermedad coronaria 6,2%, enfermedad arterial periférica 3%, ictus isquémico 2,8%, pie diabético 11,2%, nefropatía 5,9%, retinopatía 4,5% y neuropatía 3%.
Conclusión: El control metabólico de los pacientes con DM2 atendidos en asistencia primaria en la Comunidad de Madrid durante 3 años era adecuado e iba acompañado de un porcentaje bajo de complicaciones crónicas durante este período de seguimiento.

Introduction

Type 2 diabetes mellitus (T2D) is one of the chronic diseases that have increased both its prevalence and incidence in the last 50 years.[1,2] The prevalence is about 5% and its incidence varies from 12 to 36 per 10,000 inhabitants per year. In Spain the prevalence of T2D is around 6%, with a range from 4.8% to 18.7%, according to the population studied population.[3] The PREDIMERC study the Community of Madrid refers a global prevalence of T2D of 8.1%, being higher in men (10.2%) compared to women (6%).[4]

Epidemiological evidence indicates that T2D is an independent risk factor for macrovascular and microvascular disease. Cardiovascular disease is one of the main causes of increased morbidity and death of T2D population. The cardiovascular risk is two-fold in T2D than in people without diabetes. In our National Health Care System, the diagnosis, treatment and follow-up of the majority of T2D patients rests on the primary care physician. Only those T2D patients with chronic complications or with difficulties in clinical management are referred to the endocrinologist. T2D is a complex disease which requires an intensive, individual approach and multidisciplinary management.[5–7] It has been demonstrated that intensified treatment of T2D with adequate control of blood pressure, body mass index, serum glucose, and lipid profile is beneficial to prevent chronic complications.[7–11] That is why the appropriate metabolic control with reduction and prevention of the cardiovascular risk factors have been considered the first line of treatment for T2D.[12]

Our aim was to analyze the grade of metabolic control and the chronic complications evolution in the setting of clinical practice in primary care through 3 years of follow-up.

Patients and methods

Studied cohort

The Diabetes Type 2 Study (Evolution Study Diabetes 2) is an observational, prospective cohort study of 3268 T2D outpatients sampled from 56 primary health care centers recruited from the metropolitan urban area of Madrid (Spain). Study patients were selected by simple random sampling by participating general practitioners ($n = 163$) using the list of patients with a T2D diagnosis in their computerized clinical records. Data were collected by general practitioners at baseline visit (2007) and annually during the follow-up period (2007–2010). These data were recorded in electronic Case Report Forms. After collection, all data were internally audited to ensure quality. This involved randomly selecting 50 of the participating general practitioners