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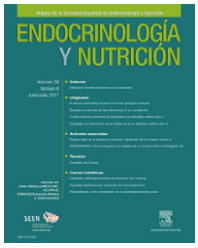

ORIGINAL ARTICLE

Metabolic control and treatment patterns in patients with type 1 diabetes in Castilla-La Mancha: The DIAbetes tipo 1 in Castilla La Mancha study☆

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KEYWORDS
Type 1 diabetes mellitus;
Adults;
Glycemic control;
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Insulin treatment

Abstract
Objective: To assess glycemic control, the degree of control of cardiovascular risk factors, and treatment schemes used in patients with type 1 diabetes mellitus (T1DM) in Castilla-La Mancha (Spain).
Patients and methods: A cross-sectional, multicenter study on adult patients with T1DM seen at outpatient endocrinology clinics for 12 months (from September 2009 to August 2010). Diabetes duration was >5 years in all cases. Sociodemographic, clinical, anthropometric, and laboratory variables were collected, as well as treatment data. A multivariate logistic regression analysis was used to assess variables independently associated with good glycemic control.
Results: A total of 1465 patients (48.5% women) with a mean age of 39.4 ± 13.5 years and a mean diabetes duration of 19.4 ± 10.6 years, were enrolled. Mean glycosylated hemoglobin (HbA1c) level was 7.8%, and 26% had HbA1c values $\leq 7\%$. Predictors of good glycemic control (HBA1c $\leq 7\%$) included intensive insulin treatment [odds ratio (OR): 2.56], non-smoking status (OR: 1.66), and a higher educational level (OR: 1.33). Fifteen percent of patients were obese, 35% had dyslipidemia, 23% were hypertensive, and 26% were smokers. Four or more of the recommended control goals were achieved by 68% of patients, but more than 33% required additional drug treatment.

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◊ Researchers in the study group DIACAM 1 are reflected in Appendix A.

Conclusions: Glycemic control was inadequate in this cohort of T1DM patients. Promotion of healthy attitudes and intensification of insulin treatment may improve glycemic control. Prevalence of cardiovascular risk factors is high, although a great proportion of patients achieve good lipid and blood pressure control.

PALABRAS CLAVE
Diabetes mellitus tipo 1;
Adultos;
Control glucémico;
Factores de riesgo cardiovascular;
Pautas de tratamiento con insulina

Situación de control metabólico y pautas de tratamiento en pacientes con diabetes tipo 1 en Castilla-La Mancha: estudio de diabetes tipo 1 en Castilla-La Mancha

Resumen
Objetivo: Evaluar el grado de control glucémico y de los factores de riesgo cardiovascular y las pautas de tratamiento empleadas en pacientes con diabetes mellitus tipo 1 (DM1) atendidos en las 8 áreas de salud de Castilla-La Mancha.
Pacientes y métodos: Estudio transversal multicéntrico que incluyó a pacientes diagnosticados de DM1 adultos y con más de 5 años de evolución, valorados en consultas externas durante 12 meses (septiembre 2009-agosto 2010). Se analizaron variables sociodemográficas, clínicas, antropométricas, analíticas y los tratamientos utilizados. Los factores asociados al control glucémico se estudiaron mediante un análisis de regresión logística múltiple.
Resultados: Se incluyó a 1.465 pacientes, 48,5% mujeres, con una edad media de $39,4 \pm 13,5$ años y un tiempo de evolución de $19,4 \pm 10,6$ años. El valor medio de la hemoglobina glucosilada (HbA1c) fue de 7,8%, y el 26% de los pacientes consiguieron HbA1c $\leq 7\%$. Como factores predictivos de buen control (HbA1c $\leq 7\%$) se hallaron: la utilización de pautas intensificadas de insulina con autocontrol glucémico activo (odds ratio [OR] 2,56), la ausencia de tabaquismo (OR 1,66) y alcanzar un nivel de estudios medio o superior (OR 1,33). El 15% tenían obesidad, el 35% dislipidemia, el 23% hipertensión y el 26% fumaban. El 68% de los pacientes cumplían 4 o más de los objetivos de control recomendados, precisando tratamiento farmacológico más de una tercera parte de los pacientes incluidos.
Conclusiones: El control glucémico de esta cohorte de pacientes es insuficiente. Fomentar la adquisición de hábitos saludables y la utilización de pautas de tratamiento insulínico activas podría aumentar la proporción de pacientes con un control óptimo. La prevalencia de los factores de riesgo cardiovascular es alta aunque un porcentaje amplio consigue buen control lipídico y tensional.

Introduction

Type 1 diabetes mellitus (T1DM) is a chronic disease with a prevalence ranging from 0.2% to 0.4%, which accounts for 5–15% of all cases of diabetes. The incidence of T1DM is increasing in Europe[1–3] and Spain,[4] but with significant regional variations. In Castilla-La Mancha, recent data on the prevalence (1.44/1000 inhabitants under 15 years of age) and the incidence of T1DM in children and adolescents (27.6/100,000) suggest that they are both high in this region.[5]

T1DM represents a healthcare problem of less magnitude than that caused by type 2 diabetes mellitus (T2DM). In addition, the severe impact of microangiopathic chronic complications in T1DM has improved in recent decades with intervention measures.[6] The results of the Diabetes Control and Complications Trial (DCCT)[7] and the Epidemiology of Diabetes Interventions and Complications Study (EDIC)[8] showed the benefits of more strict control of blood glucose in the intensive treatment group, where microangiopathic and macroangiopathic complications were reduced by approximately 50% in long-term follow-up.

As it occurs with T2DM patients, an integral approach to cardiovascular risk factors is currently the most adequate strategy in adult patients with T1DM. The recommended control goals are difficult to achieve in standard clinical practice, but most recent data from national registries[9] show that results have improved over the years.

Few epidemiological studies are available in Spain showing the actual situation regarding metabolic control and complications in the population with T1DM.[10–12] The DIACAM 1 study (*DIAbetes tipo 1 en CAstilla-La Mancha*, Type 1 diabetes in Castilla-La Mancha) was promoted by the Society of Endocrinology, Nutrition, and Diabetes of Castilla-La Mancha (SCAMENDI) and designed to ascertain the control and complications in patients with T1DM in the community of Castilla-La Mancha.

This first analysis addresses glycemic control, the extent of control of cardiovascular risk factors, and the treatment regimens used in the diabetic cohort enrolled into the DIACAM 1 study.

Patients and methods

DIACAM 1 was a cross-sectional, observational study of a cohort of 1465 patients aged $\geq$16 years with T1DM starting at least 5 years previously, where these patients were being