

la interrupción voluntaria del embarazo era de origen sudamericano. Nuestros datos completan el perfil de las mujeres: edad de la primera relación entre los 15 y los 19 años, con un porcentaje preocupantemente alto de menores de 15 años (14%). Un 48,6% de las encuestadas aseguraban usar siempre métodos anticonceptivos (diferencias estadísticamente significativas entre españolas y extranjeras: 60% frente a 38,6%,  $p=0,02$ ), con el preservativo, seguido de los anticonceptivos hormonales, como los métodos más utilizados, lo que coincide con los datos de un estudio multicéntrico publicados por Serrano et al.<sup>3</sup> Consideramos importante, de cara a la posible implantación de programas preventivos, informar del alto porcentaje de mujeres (23,3%) que no hacían uso de métodos anticonceptivos o empleaban alguno con tasas de fallo muy altas (*coitus interruptus*), dato ya publicado por Dueñas et al.<sup>4</sup> en un estudio sobre los métodos anticonceptivos y la interrupción voluntaria del embarazo.

Del 43,9% de las mujeres que reconocían no haber usado método anticonceptivo en el embarazo actual, el 38,3% justificaba haberlo acordado con su pareja. Es alarmante que un 12,8% admitió desconocer los métodos anticonceptivos a los cuales podían acceder, mientras que un 14,8% no hacía uso de ellos por temor a sus efectos secundarios. Los problemas económicos fueron el principal motivo de demanda de interrupción voluntaria del embarazo. Finalmente, encontramos un alto porcentaje de mujeres con alguna interrupción voluntaria del embarazo previa (37,4%), mayor en las extranjeras.

Como conclusión, a pesar de los datos aportados serán necesarios estudios prospectivos de análisis sociodemográficos más detallados, y que incluyan un mayor número de mujeres, para establecer programas de información, prevención y asistencia más efectivos.

#### Contribuciones de autoría

J. Vila Martínez ha contribuido en la información a las pacientes, el reparto de los cuestionarios y la recogida de datos. J. Vila Vives, I. Soler Ferrero y J. Hidalgo Mora han realizado la redacción y la búsqueda bibliográfica. N. Gimeno ha realizado el diseño del estudio y el análisis estadístico. A. Pellicer ha realizado la corrección definitiva del texto. Todos los autores han participado en la elaboración del manuscrito, y conocen y están de acuerdo con su contenido.

#### Financiación

Ninguna.

#### Conflictos de intereses

Ninguno.

#### Agradecimientos

A todo el personal administrativo del Centro de Planificación Familiar Trinitat por la ayuda y la colaboración en el desarrollo del estudio.

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<http://dx.doi.org/10.1016/j.gaceta.2013.01.016>

## Changes of age at onset in patients with type 1 diabetes during the last two decades

### Cambios en la edad de inicio en pacientes con diabetes tipo 1 durante las últimas dos décadas

Dear editor:

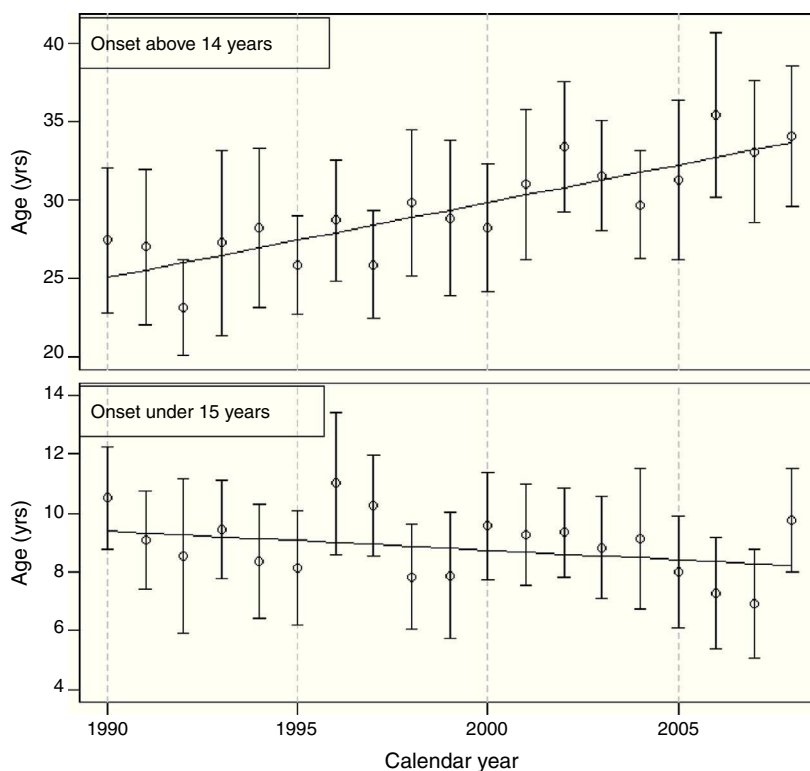
The EURODIAB Group has recently published that the incidence rate of childhood type 1 diabetes rises across Europe by an average of approximately 3-4%.<sup>1</sup> On the other hand, several publications<sup>2</sup> agree that the age of the children at diagnosis is decreasing, so whether there is an actual increase in the incidence of type 1 diabetes or if there is only a displacement to earlier ages is still under discussion.<sup>3</sup> To the best of our knowledge, there are some papers showing the incidence of type 1 diabetes in adults, over 30 years,<sup>4</sup> but no studies have been carried out regarding the variation of age at onset in these patients.

In this study, we analysed if the age at onset has changed during the last two decades in patients with type 1 diabetes in Navarre

(Spain). The subjects of the study are the 716 patients (413 men and 303 women, 280 <15 years and 436 ≥15 years) with type 1 diabetes diagnosed between 1990 and 2008, that have been treated in the Navarra Hospital Complex. Patients with LADA (positive antibodies but insulin dependency ≥6 months after diagnosis) were excluded. There have been no changes in the admission policy of the hospital or in the uptake area during the study period. To assess the evolution of overweight at onset, we calculated the yearly proportion of patients over 85th percentiles from Carrascosa's normal body mass index (BMI) distributions for Spanish population.<sup>5</sup>

To assess the relationship between age at onset and calendar year, we used General Additive Models (GAM). As GAM models showed a linear trend (1 degree of freedom), we additionally adjusted linear regression models with age at onset as dependent variable, and calendar year and BMI as explanatory variables. In the case of children, as normal BMI is different for sexes and changes with age, BMI values were translated into their corresponding percentiles form Carrascosa's distributions.

This study was approved by the regional Ethical Review Board of Navarra.



**Fig. 1.** Age at diabetes onset by calendar year: means and 95%CI (error bars), and linear regression models (lines).

GAM models show a linear relationship between age at onset and calendar year, both in children and in adults. In children we did not find a statistically significant trend, though the findings may suggest certain decreasing tendency ( $p=0.114$ ). In contrast, in patients  $\geq 15$  years, the mean age at onset increases as time goes by (Fig. 1). The average increase was of 0.48 years per calendar year (95%CI: 0.28–0.67), and it is observed all through the study period. The mean (SD) ages at onset were 26.8 (10.3) years in 1990–1994, 27.7 (9.9) years in 1995–1999, 30.6 (10.4) years in 2000–2004, and 33.3 (12.4) years in 2005–2008. This increase is reflected in an increased relative proportion of adults whose age at onset fell into the age group of 30–45 years, and in a reduction in that of the group of 15–29 years ( $p<0.001$ ). The proportion of adults with an age at onset above 45 years remains of around 10% in the study period. No patients had the onset above 60 years.

The proportion of patients with overweight at onset is 3% in those under 15 and 15% in those  $\geq 15$  years. In patients with onset under 15 years of age, we did not observe any association between BMI and the age at onset, nor a trend along the study period in the proportion of patients with overweight. The relationship of calendar year with age at onset remains non-significant after adjusting for BMI. In patients  $\geq 15$  years, we found a positive association of the age at onset with BMI ( $p=0.001$ ), as well as a positive trend in the proportion of patients above 85th BMI percentile ( $p=0.002$ ). However, including the BMI in the linear regression model does not meaningfully affect the estimate of the increase in the age at onset per calendar year (0.44 vs 0.48 years).

We did not find significant differences between males and females in the average age at onset or in its evolution along the study period.

Although high-risk HLA genotypes is a predictor for diabetes progression, we have not made statistical adjustments for other covariables as family history of diabetes, because previous studies dealing with this item, have found that BMI, body size and insulin

resistance are the most important factors influencing the age at onset.<sup>2</sup>

The delay in the age at onset seen in patients  $\geq 15$  years of age could be reflecting an actual epidemiological change in type 1 diabetes onset, but also may be the result of higher accuracy in the diagnosis of type 1 diabetes in adults. Further research is needed in order to clarify this issue.

#### Author contributions

L. Forga has written the article, especially Introduction, Discussion and References. He has approved the final version. M.J. Goñi has thought up this study. She has collaborated redacting the whole text, and she has approved the final version. K. Cambra and B. Ibáñez have designed the study methodology and they have made the statistical analysis of the data. They have also approved the final text. D. Mozas has been collecting the data. He has made the table and he has checked and discussed the article, especially the results in order to approve the final version. M. Chueca has participated collecting data in paediatric patients, reviewing the text, particularly the sections dealing with patients less than 15 years, and she has given her approval to the final text.

#### Funding

This study has been supported by a grant from the Carlos III Institute of Health (PI10/02715) and a grant from the Government of Navarre (53/2008).

#### Conflicts of interests

None.

## Acknowledgments

The authors thank to the other members of *Grupo de Estudio de Diabetes tipo 1 de Navarra* their collaboration in this study: Emma Anda, Marta García-Mouriz, Ana Iriarte, Javier Lafita, Juan Pablo Martínez, María Dolores Ollero, Rosa Rodríguez-Erdozain and Amaya Sainz de los Terreros (Servicio de Endocrinología, Complejo Hospitalario de Navarra, Pamplona); Miren Oyarzábal and Sara Berrade (Sección de Endocrinología Pediátrica, Complejo Hospitalario de Navarra, Pamplona); Javier Pineda and Marta Toni (Endocrinología, Hospital García Orcoyen, Estella); and Francisco Javier Baserra and Patricia Munárriz (Endocrinología, Hospital Reina Sofía, Tudela).

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<http://dx.doi.org/10.1016/j.gaceta.2013.03.011>