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ORIGINAL ARTICLE

Adherence to somatotropin treatment administered with an electronic device☆

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KEYWORDS
Human growth hormone;
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Abstract
Introduction: Adherence to somatotropin treatment is associated with increased growth velocity and improved adult height. The purpose of this study is to determine the adherence of patients undergoing treatment with an electronic device and its relationship with different variables (age, gender, duration of treatment, diagnosis, height, and growth rate).
Material and methods: Descriptive, longitudinal and retrospective study of children less than 14 years of age undergoing treatment with somatotropin administered with the Easypod® electronic device in the Paediatric Endocrinology Outpatient Clinic of the General University Hospital of Ciudad Real, Spain. Adherence was monitored for 12 months and was defined according to the equation: (days administered at the prescribed dose/prescribed days) × 100. The data analysis was performed using SPSS software.
Results: Data were collected from 30 patients, with a predominance of males (57%), a mean age of 6.09 years, with 51% of children less than 5 years old. The most common reasons for the treatment were: small for gestational age (55%) and growth hormone deficiency (38%). The mean duration of treatment was 4.3 years (3.6–5). A mean adherence of 92.3% (87.7–96.9) was observed, and there was a significant correlation with age (Pearson $R = -0.384$, $P = 0.03$), and duration of treatment (Pearson $R = -0.537$; $P = 0.003$).
Conclusions: The adherence in our patients with electronic device is high (92.3%), and is inversely associated with age and duration. The use of electronic devices allows monitoring of therapeutic compliance, which affects the optimisation of treatment.

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PALABRAS CLAVE
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Somatotropina;
Adherencia;
Dispositivo

Adherencia al tratamiento con somatotropina administrada con dispositivo electrónico

Resumen
Introducción: La adherencia al tratamiento con somatotropina se relaciona con el aumento de la velocidad de crecimiento y la mejora de la talla adulta. El objeto de este estudio es conocer la adherencia de pacientes en tratamiento con dispositivo electrónico y determinar la relación con diferentes variables (edad, sexo, duración del tratamiento, diagnóstico, talla y velocidad de crecimiento).
Material y métodos: Estudio descriptivo, longitudinal y retrospectivo de menores de 14 años de la consulta de Endocrinología Pediátrica del Hospital General Universitario de Ciudad Real, en tratamiento con somatotropina administrada con el dispositivo electrónico Easypod®. Se realiza seguimiento de la adherencia durante 12 meses. Se define adherencia según la fórmula: (días administrados a la dosis prescrita/días prescritos) × 100. El análisis de los datos se realizó con el software SPSS.
Resultados: Se recogió a 30 pacientes: predominio varones (57%), edad media 6,09 años, menores de 5 años el 51%. Las causas más frecuentes de tratamiento: pequeño para la edad gestacional (55%) y déficit de hormona de crecimiento (38%). Tiempo medio de tratamiento 4,3 años (3,6-5). Se evidenció una adherencia media del 92,3% (87,7-96,9), observándose una correlación significativa con la edad (R de Pearson = −0,384; p = 0,03) y la duración del tratamiento (R de Pearson = −0,537; p = 0,003).
Conclusiones: La adherencia en nuestros pacientes con dispositivo electrónico es alta (92,3%), relacionándose inversamente con la edad y la duración del tratamiento. El uso de dispositivos electrónicos permite un seguimiento del cumplimiento terapéutico, lo que repercute en la optimización del tratamiento.

Introduction

Non-adherence to somatotropin therapy is the main cause of poor response to treatment.[1] Adherence is particularly relevant in this type of therapy, because it involves daily dosing that often lasts for years; is complex to administer; and is not related to any life-threatening condition. As a result, both patients and relatives may lack motivation regarding correct adherence to therapy. Nevertheless, treatment adherence is essential, because it is correlated to increased growth rate and secondarily to improved height in adult life.[2,3]

The identification of non-compliance in somatotropin treatment has a significant clinical and cost impact, since it allows for differentiation between non-responders and non-compliers, so avoiding unnecessary tests, and allowing for dose optimization.[1]

The data published to date on adherence are very heterogeneous, largely because of the variability in the data collection methodology used and the different types of devices employed for treatment administration. Electronic devices for the administration of somatotropin have been available since 2007. Compared to other methods such as conventional or prefilled syringes, electronic devices have been associated with improved treatment compliance thanks to their convenience and easy use. They moreover allow for a more objective evaluation of adherence.[4]

Therefore, the objective of this study was to assess adherence in a group of patients treated with somatotropin administered using an electronic device, and to determine the relationship between adherence and variables, such as age, gender, treatment duration, diagnosis, degree of height impairment, and growth rate. It should be noted that very few publications on treatment adherence have been published since the introduction of these electronic devices on the market, and no studies have been made in our setting with one particular device as in our case.

Material and methods

A retrospective, longitudinal descriptive study was carried out. We included patients under 14 years of age from the Pediatric Endocrinology Clinic of Hospital General Universitario de Ciudad Real (Ciudad Real, Spain), treated with somatotropin administered using the Easypod® device (Saizen Easypod System, Merck Laboratory). The patients were selected through non-probability consecutive sampling.

Data corresponding to the period between May 2015 and May 2016 were analyzed. Patients who had not completed one year of treatment or who had completed it before 2015 were excluded, as were patients not falling within the health area of Ciudad Real, in which the follow-up of the device was made from the pharmacy of their hospital of origin. The following data were collected for each patient: gender, age (expressed in years with decimal places and stratified as ≤5 years, 6–10 years, and 11–14 years), reason for starting treatment according to the criteria established by the