

Study of the effectiveness of growth hormone in children born small for gestational age in an area of northwestern Spain and its associated factors

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Introduction

Recombinant growth hormone (GH) is an effective treatment for short children who are born small for gestational age (SGA), approved by the EMA in 2003. Short children born SGA who fail to demonstrate catch-up growth by 4 years of age are candidates for GH treatment. GH treatment at a dose of 35-70 µg/kg/day should be considered for those with very marked growth retardation. Factors associated with response to GH treatment during the initial 2-3 years of therapy include age and height standard deviation scores at the start of therapy, midparental height, and GH dose. It is important to know the effectiveness of the treatment in our geographical area and compare the clinical and analytical results with those of other populations.

Objective

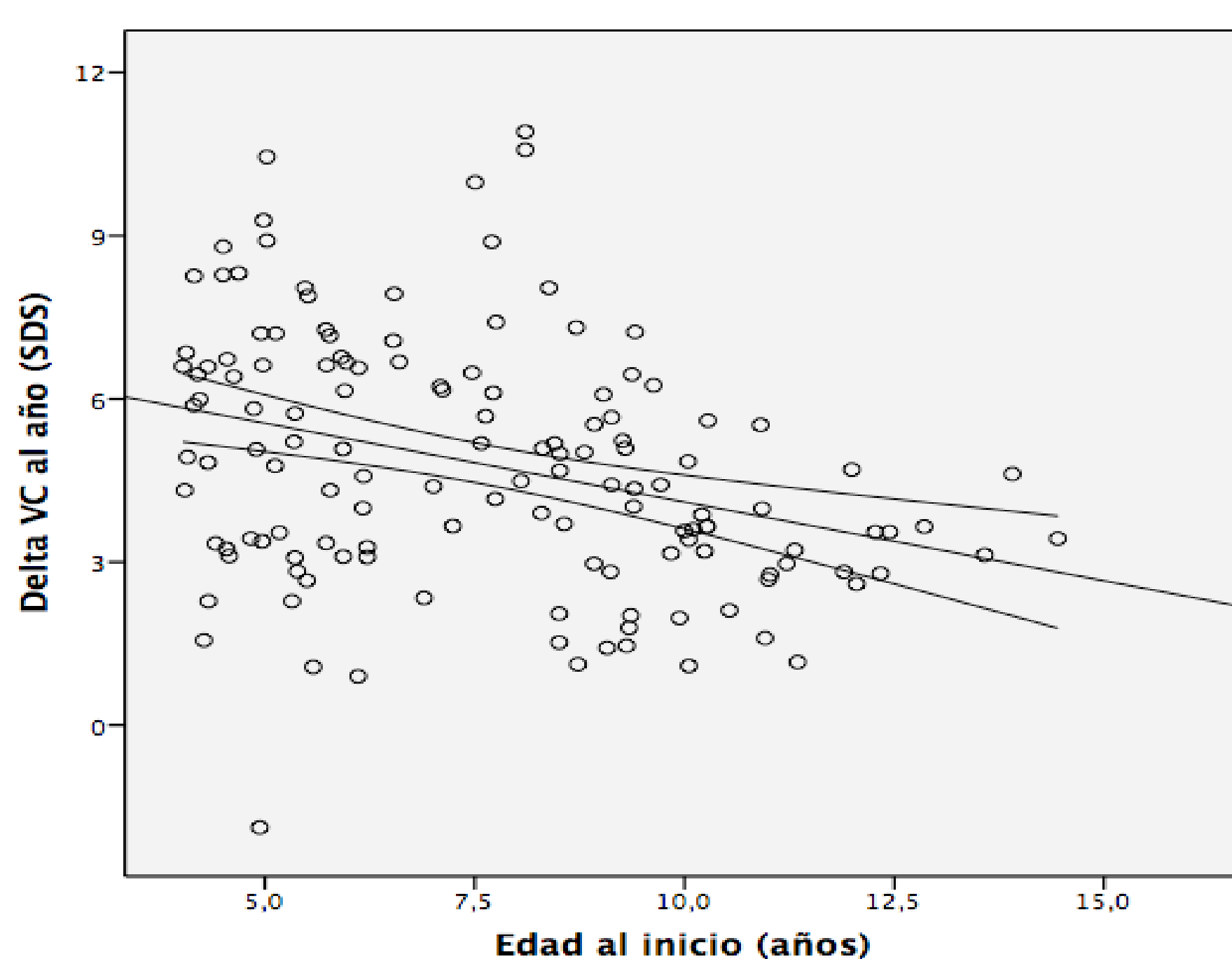
The aim is to study the predisposing factors of good response in SGA children treated with rhGH in our community, as well as its possible adverse effects.

Methods

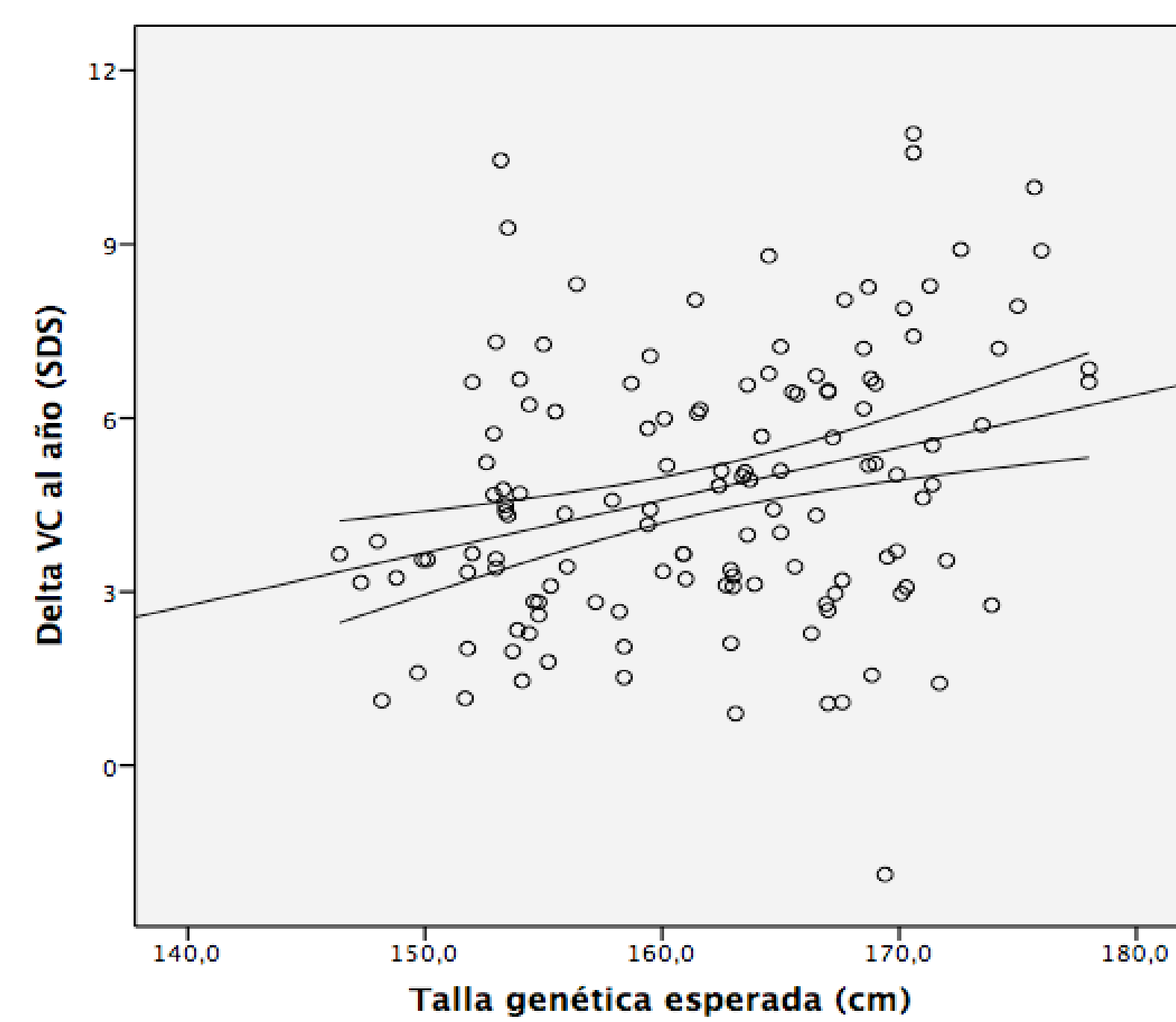
Retrospective study of PEG children without recovery growth, in which they were evaluated: a) perinatal history; b) anthropometry / auxology; c) biochemical data. Information from the application protocols for growth hormone treatment has been collected in the advisory committee of our geographical area (Northwest Spain) for a period of 10 years.

The auxological and the others data were analyzed according to reference tables for our population and sex.

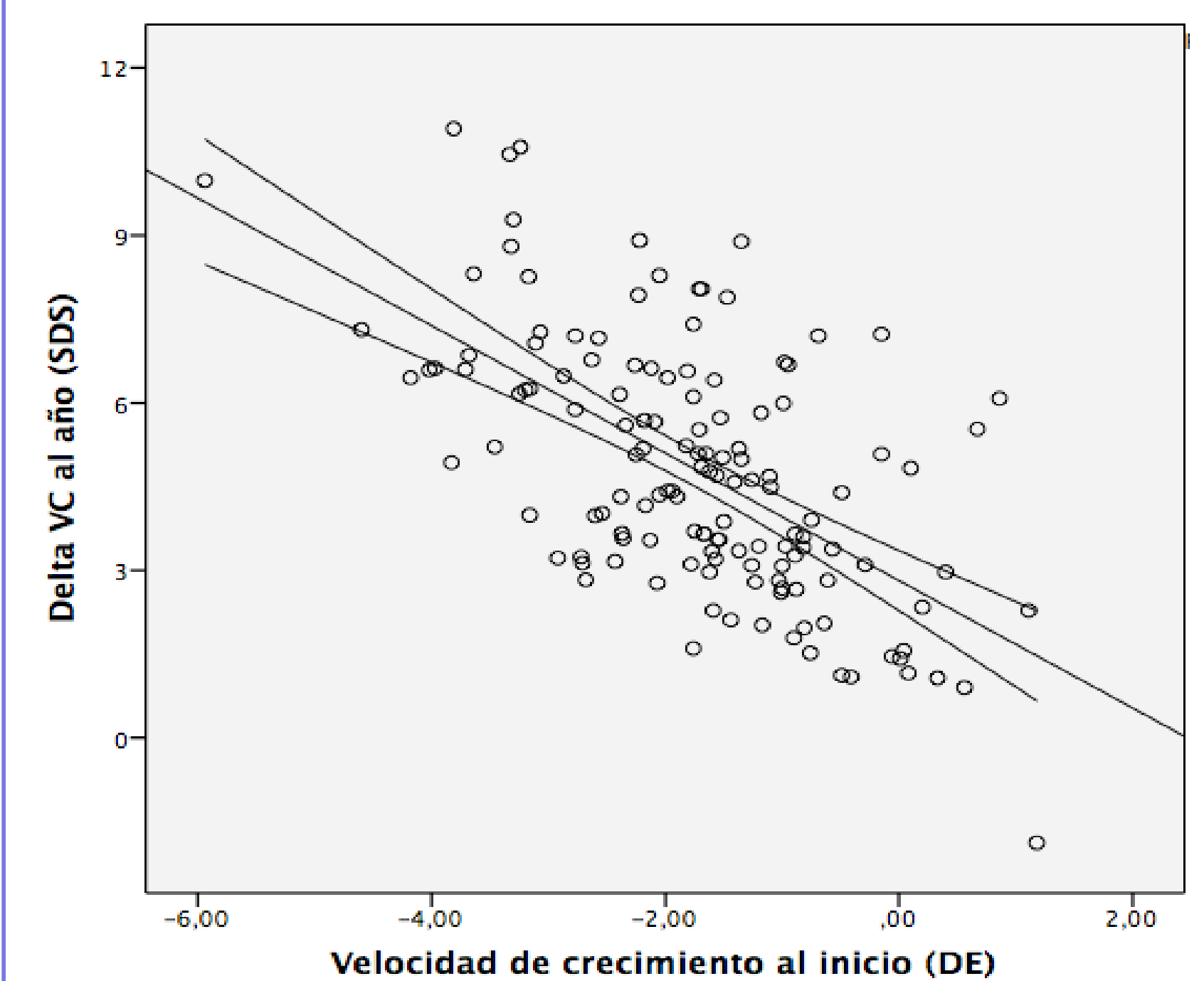
It has been made a descriptive and analytical statistical study using SPSS 20.0. Tests used T-Student and Pearson correlation ($p < 0.05$).



A negative correlation was obtained between age at onset and Δ growth velocity at one year. (Pearson coefficient = -0.327) ($p < 0.001$).



A positive correlation was obtained between age at genetic height and Δ growth velocity at one year. (Pearson coefficient = 0.298) ($p < 0.001$).



A negative correlation was obtained between initial growth velocity and Δ growth velocity at one year. (Pearson coefficient = -0.603) ($p < 0.001$).

Results

Valid data of 180 patients (52.2% males; 47.8% females) have been obtained. All of them met the standards required by the European Medicines Agency.

Background: 12.8% multiple pregnancy; 18.3% associated perinatal pathology; 10.6% associated non-perinatal pathology. Birth information: weight -1.88 SDS; length -2.83 SDS.

Information at the beginning of treatment: age 7.39 ± 2.6 years; height -3.16SDS; growth rate at start -1.74 SDS. 96.1% started treatment before the onset of puberty.

Information at one year of treatment: height -2.34 SDS; rate of growth +3.03 SDS. Information at second year of treatment: growth rate +1.48 SDS

The average treatment dose was 0.036 mg / kg / day

The final height in patients who finished GH treatment was of -1.70 ± 0.65 SD. Initial height was -3 ± 0.36 SDS, and in the first control of -2.34 ± 0.62 SDS.

The response to the treatment was correlated with the genetic height, the height at the beginning, the age of onset and the growth rate at the beginning of the treatment. of -1.74 ± 0.74 SD.

No adverse events due to GH treatment were reported.

Conclusions / Comments

The use of GH in the treatment of children with a history of PEG produces a response to positive treatment.

Our results agree with other published series and these are representative of our population. We observe an age of late onset of treatment, however, with an adequate response in growth.

This response to the treatment was correlated with the genetic height, the height at the beginning, the age of onset and the growth rate at the beginning of the treatment.

It is important to optimize the treatment in these patients to achieve catch-up growth to a normal height in early childhood, maintain a normal height gain throughout childhood, and achieve an adult height within the normal target range.

Although a high dose of up to 0.067 mg / kg / day is relatively safe for young children with growth failure, adequate response to lower doses should be considered in the light of long-term comorbidities after GH therapy in these patients.