Determinants of final height in patients born small for gestational age treated with recombinant growth hormone (rGH).

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INTRODUCTION

About 15% of children born small for gestational age (SGA) do not reach final height within normal range.

Recombinant human growth hormone (rGH) has shown to be effective in catching up growth velocity and height in children born SGA.

OBJECTIVE

Identify the predictive factors of final height in children born SGA treated with rGH.

MATERIAL & METHODS

Study:
- Monocentric.
- Retrospective.
- In a tertiary pediatric endocrinology referral center.

Patients:
- Age > 16 years
- Born SGA defined as birth length or weight <10th centile.
- Final height (FH) available.
- Treated with rGH for more than one year.
- Treated or not treated with GnRH analogues (GnRHa).
- Patients treated with aromatase inhibitors were excluded.

RESULTS

255 patients were included in this analysis (table 1).

Birth length: -2.0 (±0.7) SD. Height at onset of rGH: -2.2 (±0.9) SD.

Duration of rGH treatment: 4.5 (±2.8) years.

120 patients received GnRH analogues.

During treatment the height increased from -2.2 (±0.9) SD to -1.2 (± 0.8) SD. The final height was: to -1.5 (± 0.9) SD.

The Figure 1 shows the evolution of height SD of the whole cohort from birth until FH.

Safety results (figure 2)

IGF1 increased from -1 SD (±0.8), to 0.4 SD (±1.2) after one year, until 0.8 SD (±1) at the end of rGH. It remained in the target range.

CONCLUSION

In this large cohort of patients who achieved their growth we were able to identify several factors influencing the final height and the response to growth hormone therapy in children born SGA.

Our results confirm that the efficiency of rGH is associated with the duration of treatment and the timing of puberty. They are concordant with the study of Van Pareren and al. (Adult height after long-term, continuous growth hormone (GH) treatment in short children born small for gestational age: results of a randomized, double-blind, dose-response GH trial. J Clin Endocrinol Metab. août 2003)

This will likely help the management of rGH in the future for this specific target population.