Starting recombinant human growth hormone treatment at an early age improves adherence and catch-up growth in patients with growth disorders, and highlights the importance of the new guideline on referral of short children to pediatric care.

CONCLUSIONS

Our real-world data show that an early age at treatment start has a positive effect on adherence and catch-up growth.

This study highlights the importance of early referral for children with growth failure, which is facilitated by the evidence-based referral criteria for children aged 0–9 years in the new preventative child health care guideline.

INTRODUCTION

• A new preventative child health care guideline for referral of short/tall children has been developed to facilitate and improve early detection of growth disorders.
• Understanding the impact of early treatment initiation on recombinant human growth hormone (r-HGH) adherence and catch-up growth can support guideline use.

OBJECTIVE

To evaluate the impact of age at r-HGH treatment start in children with growth disorders on:
• Adherence (≥85% [optimal] vs <85% [suboptimal] of prescribed doses administered)
• Catch-up growth (ΔHeight Standard Deviation Score [HSDS])

METHODS

Data collection
• Adherence data extracted from easypod™ connect.
• Height data analyzed from patients receiving r-HGH during the easypod™ connect observational study (ECOS).2
  – Additional height measurements for these patients taken from easypod™ connect.
• Adherence and height data extracted for patients aged 2–15 years at treatment start.
• Further criteria for the height analyses were: treatment-naive patients aged 2–18 years with growth hormone deficiency (GHD), small for gestational age (SGA), or Turner syndrome (TS). HSDS ≤-1 at start and ≥1 measurement between 0.5–3.5 years of treatment.

Data analysis
• Regression analyses were used to study the impact of age at treatment start on adherence and HSDS between 0.5–3.5 years of treatment.
  – ΔHSDS expressed as predicted HSDS (using model from regression analyses) minus HSDS at start.

RESULTS

• Adherence and height data were available for 18,562 and 1,212 patients, respectively, with 7,485 height measurements:
  – GHD (n=885).
  – SGA (n=243).
  – TS (n=84).
• Treatment adherence is shown in Figure 1.
  – An early age at treatment start resulted in a higher adherence and higher ΔHSDS (both p<0.001).
• Catch-up growth (predicted ΔHSDS) in the first year of treatment is shown in Figure 2.
  – Starting from 2 years of age, the predicted ΔHSDS decreased by nearly 0.05 SD with every year of delayed treatment start until the patient reached 10 years of age, remaining stable thereafter.

Figure 1. Proportion of optimal mean adherence according to age at start and r-HGH treatment period

Figure 2. Catch-up growth (ΔHSDS) according to age at treatment start in the first year of treatment