

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

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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**¹ 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 ($\geq 85\%$ [optimal] vs $< 85\%$ [suboptimal] of prescribed doses administered)
 - Catch-up growth (Δ Height 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-naïve 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.
 - Δ HSDS 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 Δ HSDS** (both $p < 0.001$).
- Catch-up growth (predicted Δ HSDS) in the first year of treatment is shown in **Figure 2**.
 - Starting from 2 years of age, the predicted Δ HSDS **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

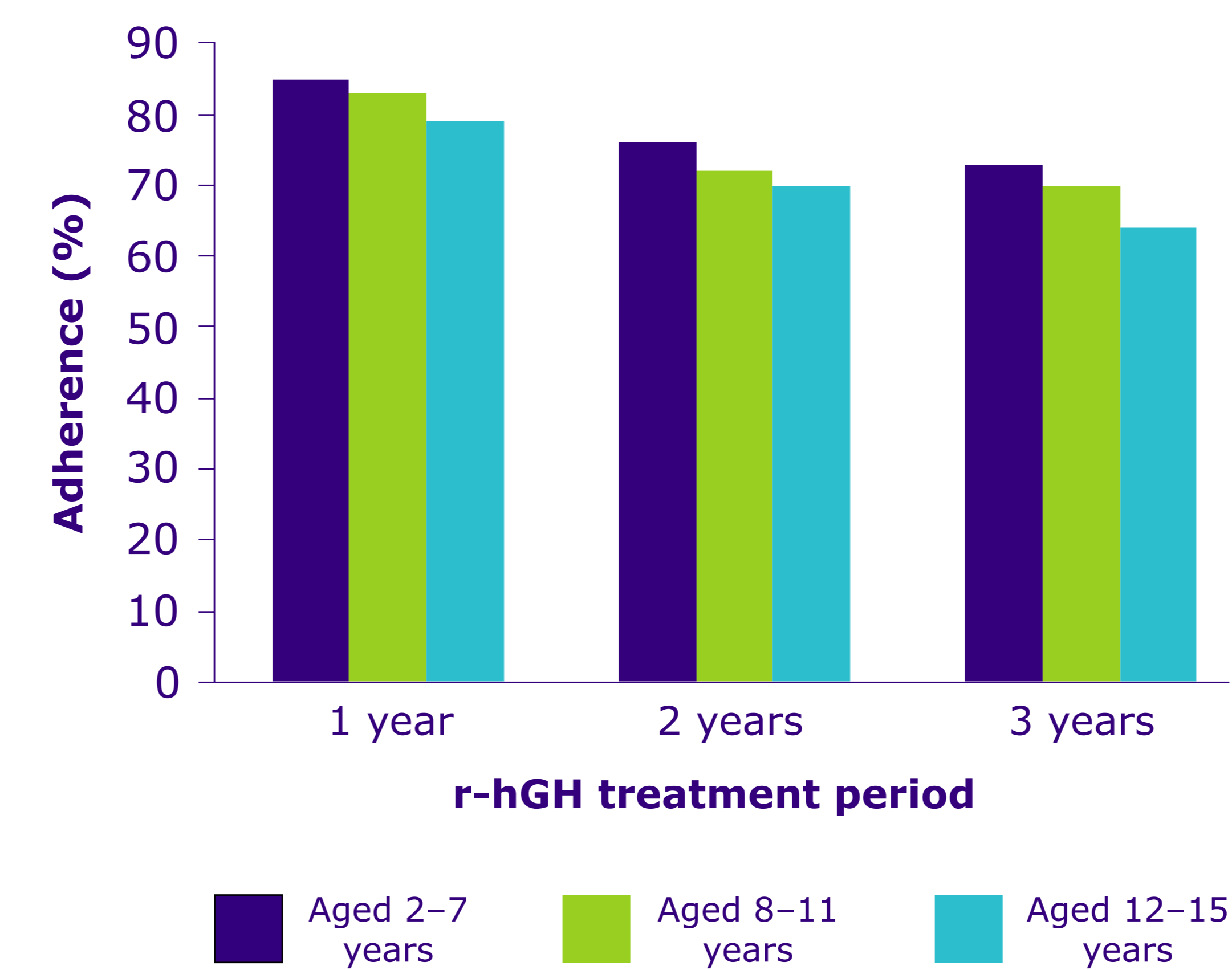
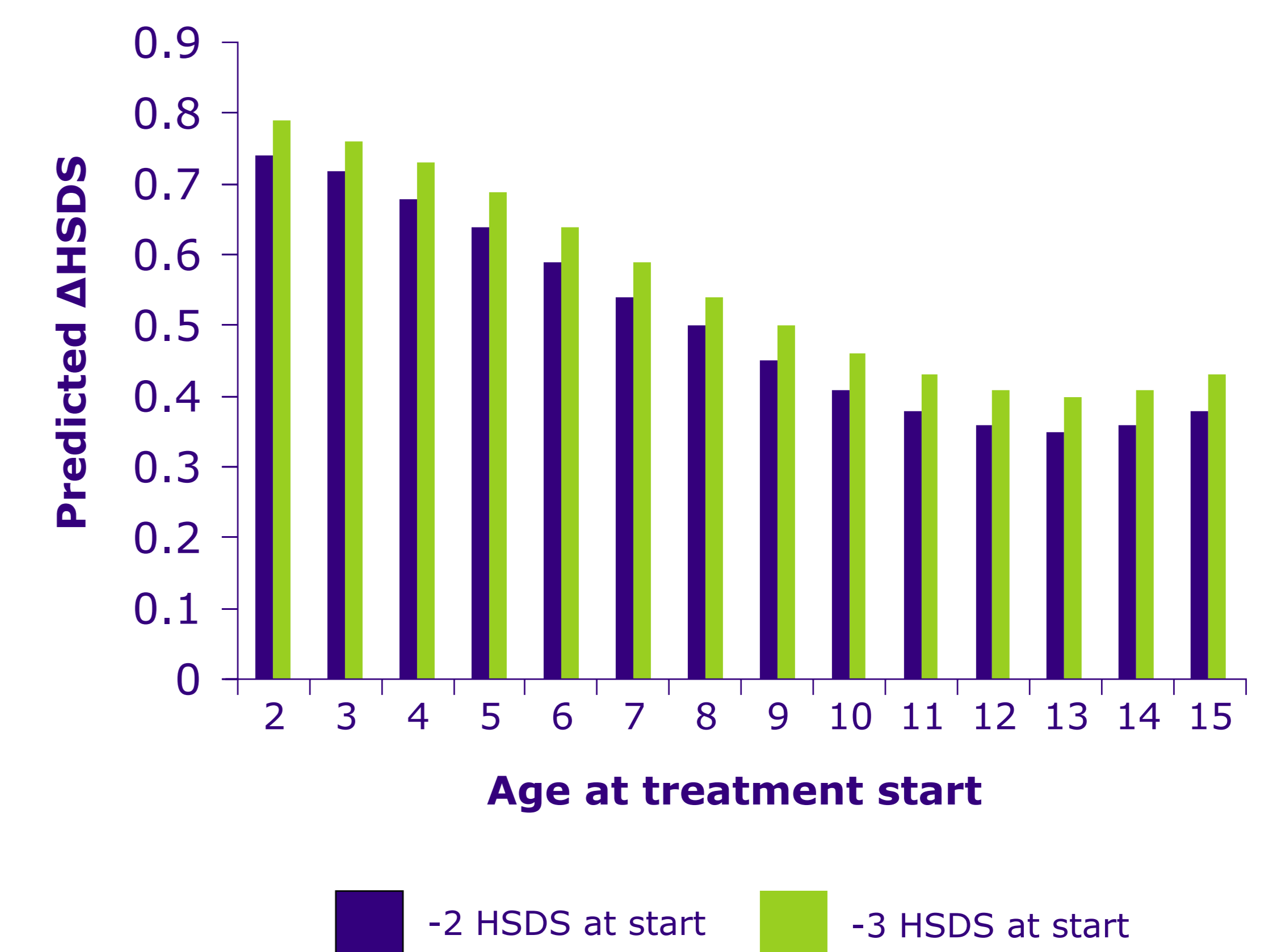


Figure 2. Catch-up growth (Δ HSDS) according to age at treatment start in the first year of treatment



Abbreviations: GHD, growth hormone deficiency; HSDS, height standard deviation score; r-hGH, recombinant human growth hormone; SD, standard deviation; SGA, small for gestational age; TS, Turner syndrome.
References: 1. van Dommelen P, et al. *Acta Paediatr* 2021;110(4):1231–1238; 2. Koledova E, et al. *Endocr Connect* 2018;7(8):914–923.
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