Child Growth Hormone Deficiency

CHI Formulary Treatment Algorithm

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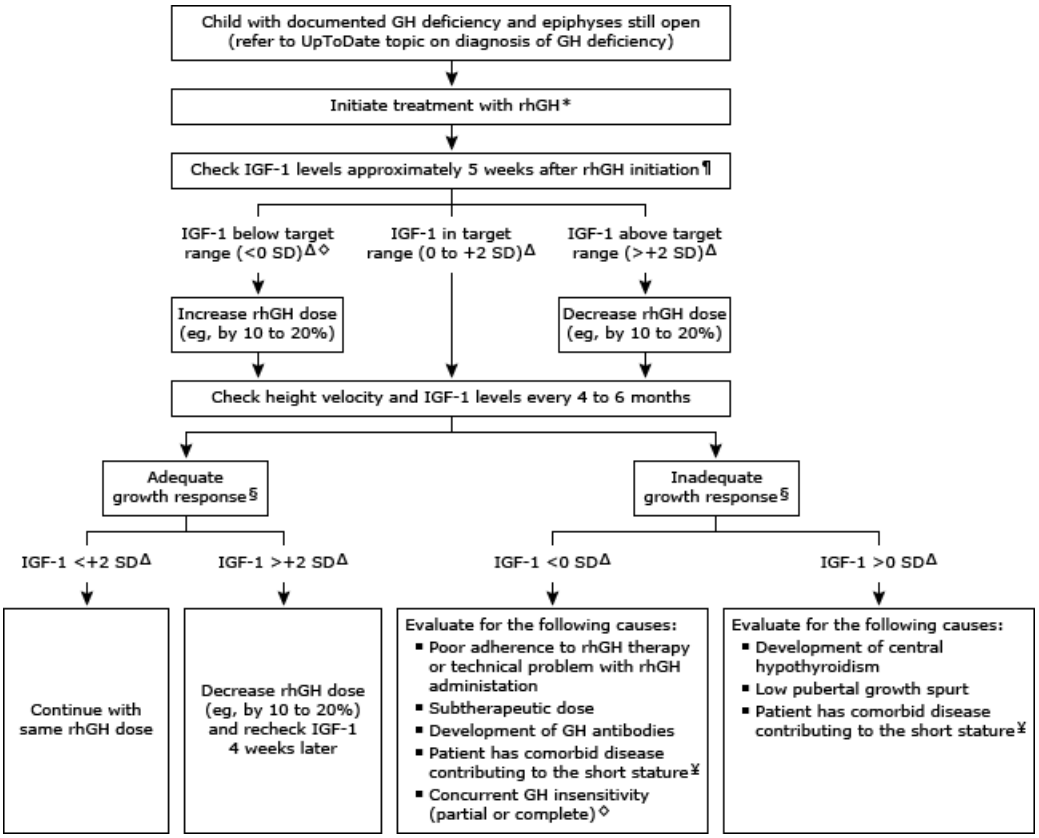
Treatment Algorithm – November 2023

Supporting treatment algorithm for the clinical management of Child Growth Hormone Deficiency (CGHD)

Figure 1 outlines a comprehensive treatment algorithm for Child Growth Hormone Deficiency (CGHD), respectively, aimed at addressing the different lines of treatment after thorough review of medical and economic evidence by CHI committees.

For further evidence, please refer to CHI **Child Growth Hormone Deficiency (CGHD)** full report. You can stay updated on the upcoming changes to our formulary by visiting our website at https://chi.gov.sa/AboutCCHI/CCHIprograms/Pages/IDF.aspx

Our treatment algorithm offers a robust framework for enhancing patient care and optimizing treatment outcomes across a range of treatment options, holding great promise for improving healthcare delivery.



GH: growth hormone; IGF-1: insulin-like growth factor 1; SD: standard deviation; rhGH: recombinant human growth hormone.

* For most patients, we use standard rhGH (somatropin), using a starting dose of approximately 35 micrograms/kg/day (for a total weekly dose of 0.24 mg/kg). For patients with severe GH deficiency, we use a lower starting dose of approximately 20 micrograms/kg/day because these individuals are more sensitive to the drug. For dosing of one of the long-acting rhGH formulations (Lonapegsomatropin-tcgd, somapacitan, or somatrogon), refer to local product information or UpToDate content.

¶ If rhGH is administered daily, then random sampling is sufficient for determining IGF-1 concentration. If a long-acting rhGH preparation is used, interpretation of the IGF-1 result depends on the timing of the sample compared with the preceding dose and the particular long-acting preparation because pharmacokinetics vary among these preparations; refer to UpToDate content.

Δ For monitoring rhGH therapy, target range for IGF-1 is the upper one-half of the normal range (ie, IGF-1 0 to +2 SD). IGF-1 levels below this target range are associated with subnormal growth response to therapy; IGF-1 levels above this target range (ie, >+2 SD) may be associated with possible adverse effects of rhGH. For the long-acting preparations, optimal IGF-1 targets have not been established, but it is reasonable to target mean IGF-1 values in the upper one-half of the normal range, similar to the strategy for standard rhGH preparations.

◊ If the rhGH dose is increased to >0.3 mg/kg/week but IGF-1 levels remain low (<−1 SD) despite good adherence to therapy, the patient may have GH insensitivity. If such patients also fail to have an appropriate growth response to rhGH therapy, the possibility of a GH insensitivity syndrome should be explored; refer to UpToDate content on GH insensitivity.

§ The growth response is typically considered adequate if the height velocity increases to above the 75th percentile for the child's age and gender during the period of "catch-up" growth. Refer to UpToDate topic text for details.

¥ In patients with a comorbid disease that contributes to or causes the short stature, IGF-1 levels vary depending on the nutritional status but are typically below the normal range or in the low end of the normal range.

[1]

[1] https://www.uptodate.com/contents/treatment-of-growth-hormone-deficiency-in-children?search=treatment%20of%20growth%20hormone%20deficiency%20in%20children&source=search_result&selectedTitle=1~140&usage_type=default&display_rank=1