Growth hormone (GH) treated children with IGF-I deficiency and excluded growth hormone (GH) insensitivity despite normal GH secretion may attain similar final height as children with GH deficiency

Smyczyńska Joanna, Stawerska Renata, Lewiński Andrzej, Hilczer Maciej

Department of Pediatric Endocrinology & Department of Endocrinology and Metabolic Diseases, Medical University of Lodz, Polish Mother's Memorial Hospital - Research Institute, Lodz, Poland; e-mail: endo-iczmp@lodz.home.pl

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Introduction

The diagnosis of growth hormone (GH) deficiency (GHD) is usually based on decreased GH peak in stimulating tests (GHST). In recent years, GHD has been re-defined as secondary IGF-I deficiency (IGFD). However, IGF-I may increase during GH therapy in the patients with normal GH peak in GHST, suggesting a diagnosis of non-primary IGFD (npIGFD). It seems worth to wonder, if the patients who have IGF-I deficiency and respond to GH administration should be still considered as ones with idiopathic short stature.

The aim of the study was to compare GH therapy effectiveness in children with GHD and in ones with npIGFD (responding to GH administration despite normal results of GHST).

Patients and methods

The analysis comprised 300 children (228 boys, 72 girls), with short stature and:

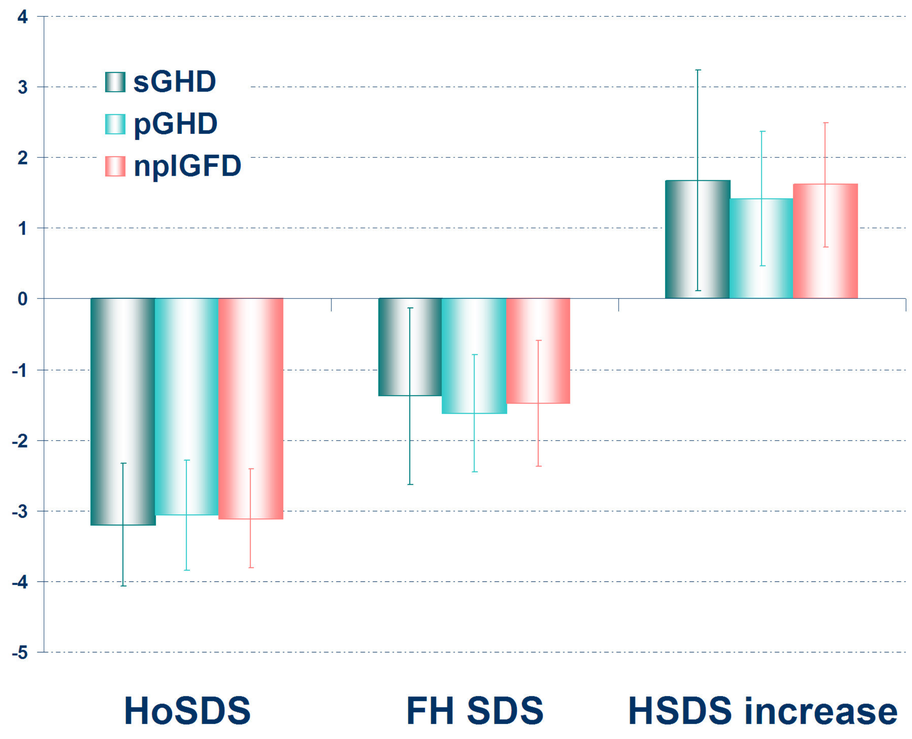
- **severe GHD (sGHD)** - GH peak in GHST <5 ng/ml, height SDS at GH therapy onset (HoSDS) -3,20±0.87 (mean±SD), n = 43;
- **partial GHD (pGHD)** - GH peak in GHST 5-10 ng/ml, HoSDS was -3.06±0.78, n = 188;
- **non-primary IGF-I deficiency (npIGFD)** - GH peak in GHST >10 ng/ml, decreased IGF-I (*i.e.* IGF-I SDS for age and sex <-1.0), increasing significantly during generation test (*i.e.* at least doubling the initial value and reaching normal range), HoSDS was -3.11±0.70, n = 69.

All the patients were treated with GH in a dose of 0.18 mg/kg/week up to the attainment of final height (FH).
Selected auxological indices of GH therapy effectiveness were compared:

1/ **FH SDS** for age and sex;
2/ FH SDS corrected by target height SDS (**corrFH SDS**);
3/ an increase of FH SDS with respect to HoSDS (**ΔHSDS**).

Results

The attained FH SDS was slightly worse in npIGFD (-1.48±0.89) than in sGHD (1.38±1.25) but better than in pGHD (-1.62±0.83), while corrFH SDS was very similar in all the Groups (-0.32±0.87 in sGHD vs. -0.38±1.09 in pGHD vs. -0.39±0.97 in npIGFD). Moreover, HSDS increase was similar in npIGFD (1.62±0.88) and in sGHD (1.68±1.56), being even better than in pGHD (1.42±0.95).
It seems very important to mention that all the differences among the Groups were insignificant.



Conclusion

It seems that GH therapy should be considered in children with non-primary IGFD, responding to GH despite normal results of GHST, because the efficacy of treatment is similar as in the patients with GHD. In our opinion, such patients should be no longer diagnosed as ones with idiopathic short stature.