

Growth response to growth hormone therapy in growth hormone deficient (GHD) children in relation to the distance between their height SDS (HtSDS) and their mid-parental height

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Introduction

Mid-parental height (MPH) is a helpful tool in predicting final adult height in normal children and those on growth hormone (GH) therapy.

Aim of the study :
To evaluate the growth response to GH therapy in GHD children in relation to their MPH.

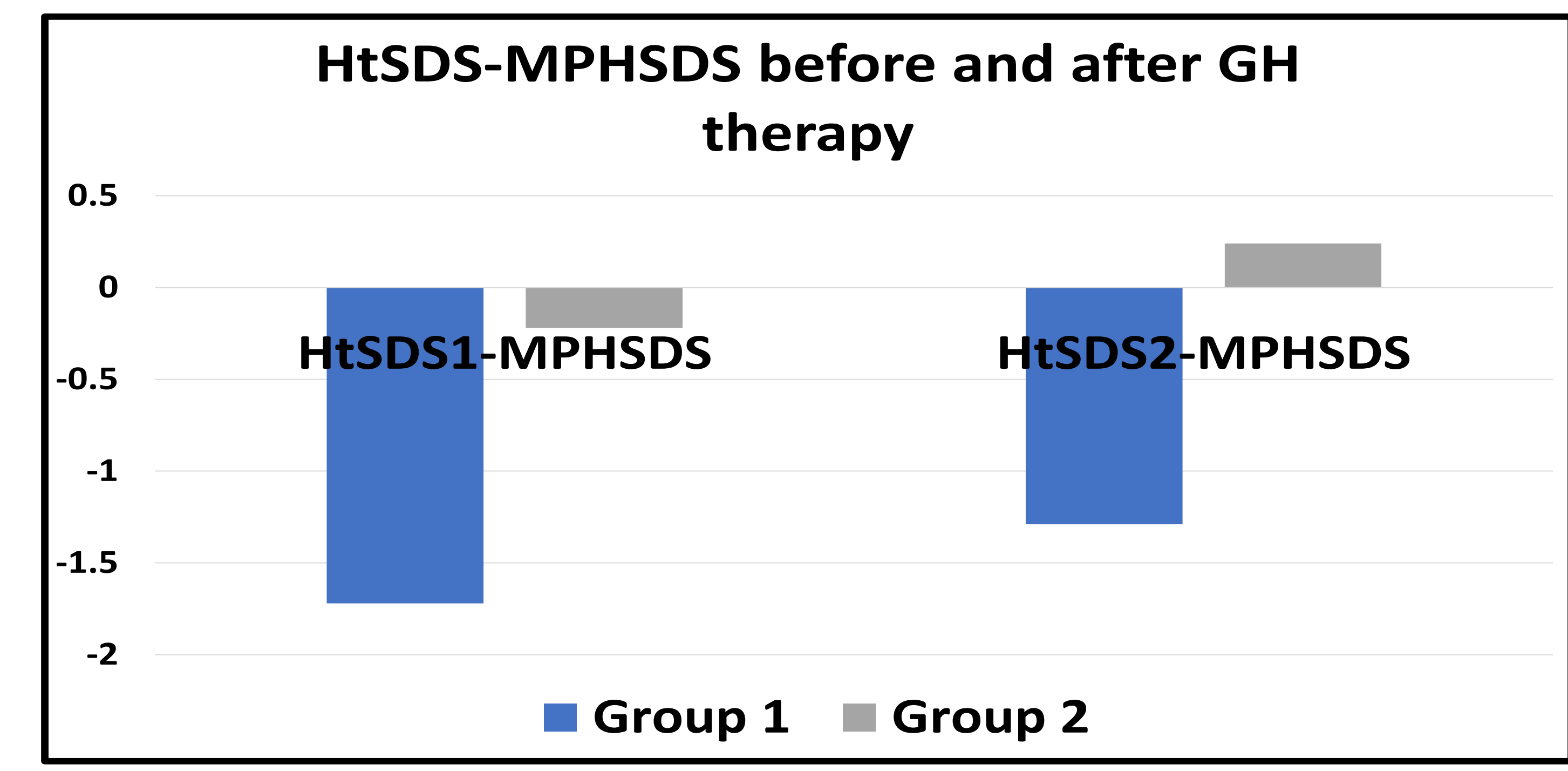
Methodology

This retrospective study included 22 short prepubertal children with GHD (peak GH < 10 µg/l). They were followed in the Endocrine clinic between the period 2017-2018.

Children were classified based on their HtSDS distance from MPHTSDS:

- Group 1 : HtSDS - MPHTSDS > -1SDS (N=13) .
- Group 2 : HtSDS – MPHTSDS < -1SDS (N=9).

HtSDS, BMI SDS , weight gain (WG) Growth velocity (GV), and difference from MPHTSDS were measured after a year of GH therapy (0.03 to 0.5 mg/kg/day) to keep their IGFSDS in the normal range (0 – 2 SD).



Results

Children in group 1 had HtSDS = -1.72 ± 0.63 far from their MPHTSDS. Group 2 had HtSDS = -0.22 ± 0.94 far from their MPHTSDS.

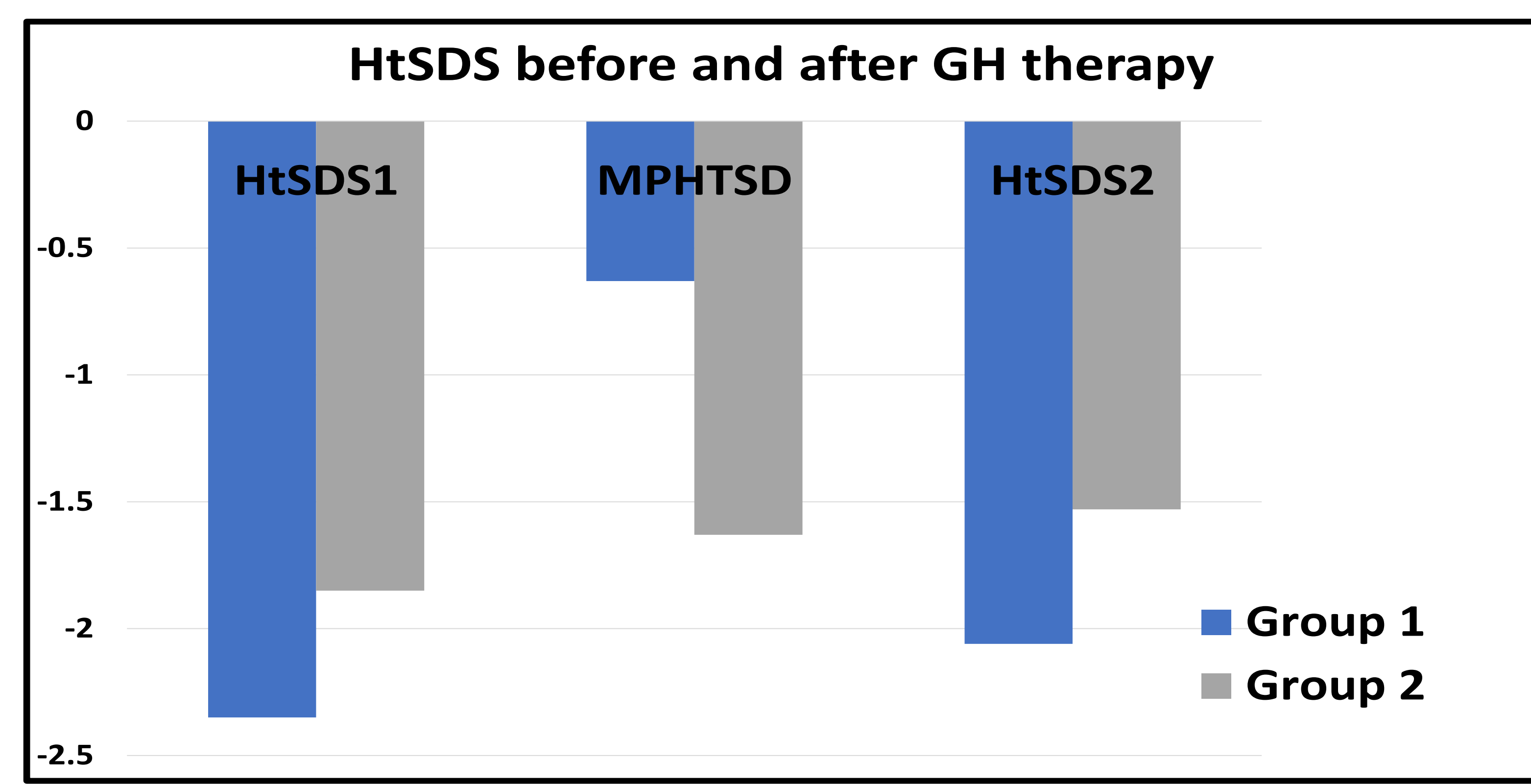
No statistical difference was noticed in the HtSDS, BMISDS, IGF1SDS or bone age between the two groups at presentation.

Group 2 had significantly shorter parents (MPHTSDS = -1.63 ± 1.1) compared to parents in group 1 (MPHTSDS = -0.63 ± 0.84) (p= 0.04).

After a year of follow-up while on GH therapy, both groups had increased their HtSDS.

The HtSDS difference from MPHTSDS in group 1 improved by (0.64 ± 0.97) (P<0.03) and in group 2 improved by (0.40 ± 0.28) (P=0.01).

The difference in the weight gain was not statistically significant among the two groups.



Conclusion

Irrespective of the distance between the HtSDS and MPHTSDS, GH deficient children significantly improved their HtSDS.

In those with shorter parents (group 2), GH therapy improved their HtSDS to above their MPHTSDS (+0.24) in one year. Further controlled long-term studies are needed to investigate this topic. .

Groups	Age	HtSDS1	MPHTSD	HtSDS1-MPHSDS	HtSDS2	HtSDS2-MPHSDS	Delta HtSDS	Delta HtSDS-MPHSDS
Group 1	10.38	-2.35	-0.63	-1.72	-2.06	-1.29	0.35	0.64
	2.63	0.55	0.84	0.63	0.58	0.65	0.56	0.97
P					0.03#	0.03#		
Group 2	8.66	-1.85	-1.63	-0.22	-1.53	0.24	0.31	0.4
	4.67	0.68	1.1	0.94	0.9	1.15	0.25	0.28
P			0.04*	0	0.01#	0.01#		

Group 1; HtSDS-MPHSD > -1
Group 2: HtSDS-MPHSD < -1
*P < 0.05 between groups
#P < 0.05 in the same group

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