Long-term Safety and Effectiveness of Growth Hormone Treatment in Pediatric Patients with Growth Hormone Deficiency : Interim Results of LG Growth Study (LGS)

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BACKGROUND

- LGS has been designed to monitor the long-term safety and effectiveness of Growth Hormone (GH) treatment among pediatirc patients in Korea.
- Over 4 years, 1,990 pediatric patients received Eutropin® and EutropinPlus® (daily and weekly recombinant human GH, respectively, LG Life Sciences, Ltd.) while enrolled in LGS.
- We present here LGS experience for GH treatment during 4 years in growth hormone deficiency (GHD).

OBJECTIVE

- To evaluate the long-term safety and effectiveness of Eutropin® and EutropinPlus® in Korean pediatric patients with GHD.

METHODS

Study design

- A multi-center, long-term, prospective and retrospective cohort study

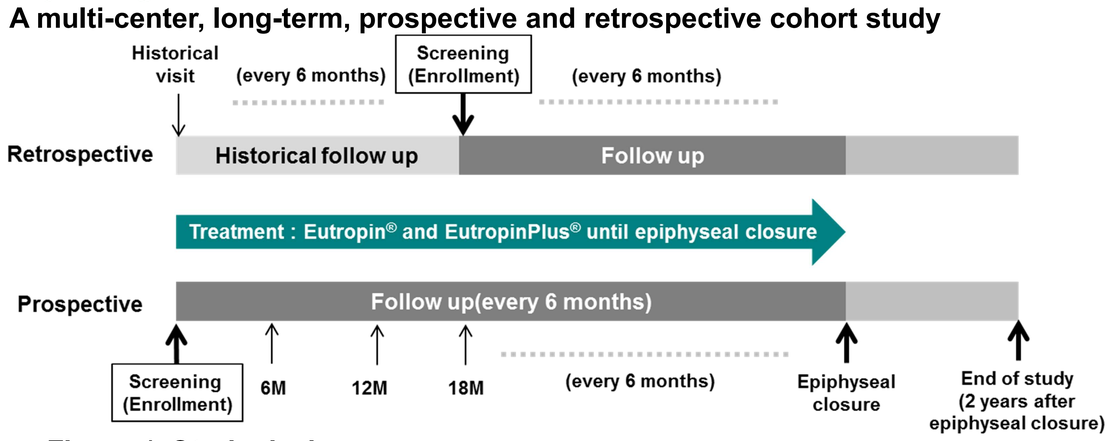


Figure 1. Study design

Study population

- Pediatric patients aged ≥ 2 years with GHD
- Written informed consent from the patients, their parents or legal guardians

Endpoints

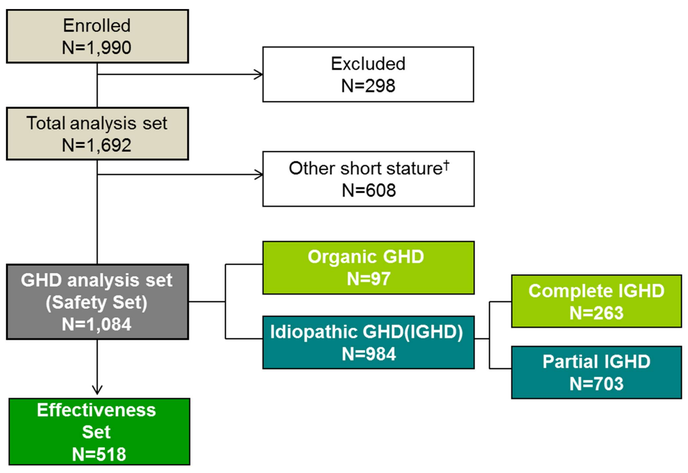
- Effectiveness endpoints: Height Velocity (HV), Height SDS, IGF-I SDS
- Safety endpoints: Adverse events including laboratory test results

Statistical analysis

- The interim analysis was conducted in all patients who enrolled from Jan 2012 to Mar 2016.
- The difference between groups was tested using the two sample t-test or Wilcoxon's rank sum test. Categorical data were tested using the Chi-square test or Fisher's exact test. Data are presented by mean values or n(%).

RESULTS

Subject disposition



† Idiopathic Short Stature(n=276), Turner Syndrome(n=187), Small For Gestational Age(n=138), Chronic Renal Failure(n=7)
* Some patients with missed data did not included for the sub-analysis.

Figure 2. Subject disposition

Baseline characteristics

Table 1. Baseline characteristics

Treatment group (Safety set)	GHD (N=1,084)
Male, N(%)	643 (59%)
Age, years	8.1±3.2
Bone age, years	6.6±3.2
Height, cm	116.4±16.2
Weight, kg	23.9±9.6
Height SDS	-2.4±0.8
Weight SDS	-1.7±1.3
BMI SDS	1.1±2.2

RESULTS(Cont'd)

Effectiveness

- During the first year of treatment, HV was 8.7cm/year at 12 month and ΔHeight SDS was 0.7. Height SDS was improved over 4 years of treatment.
- IGF-I SDS level ranged from 0 to +2 after 12 month of treatment.
- In the subgroup analysis, HV in Idiopathic GHD higher than Organic GHD at 12, 24, 36 month but there was no statistical differences for Height SDS. And there were no statistical differences between Complete and Partial IGHD sub-groups.

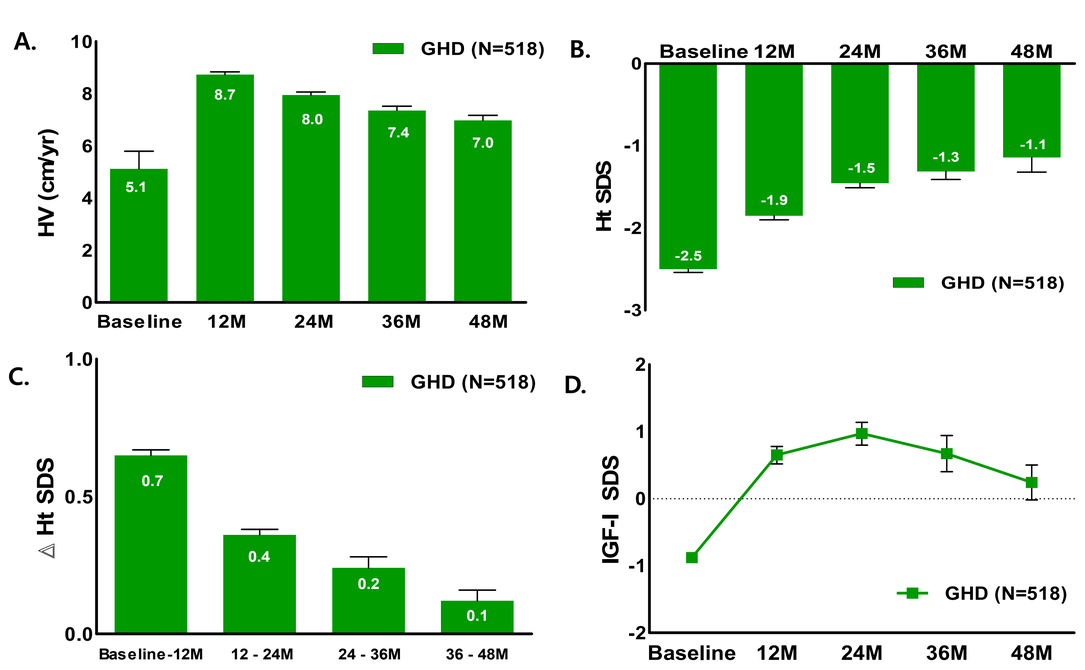


Figure 3. Growth responses (HV(A), Ht SDS(B), △Ht SDS(C), IGF-I SDS(D))

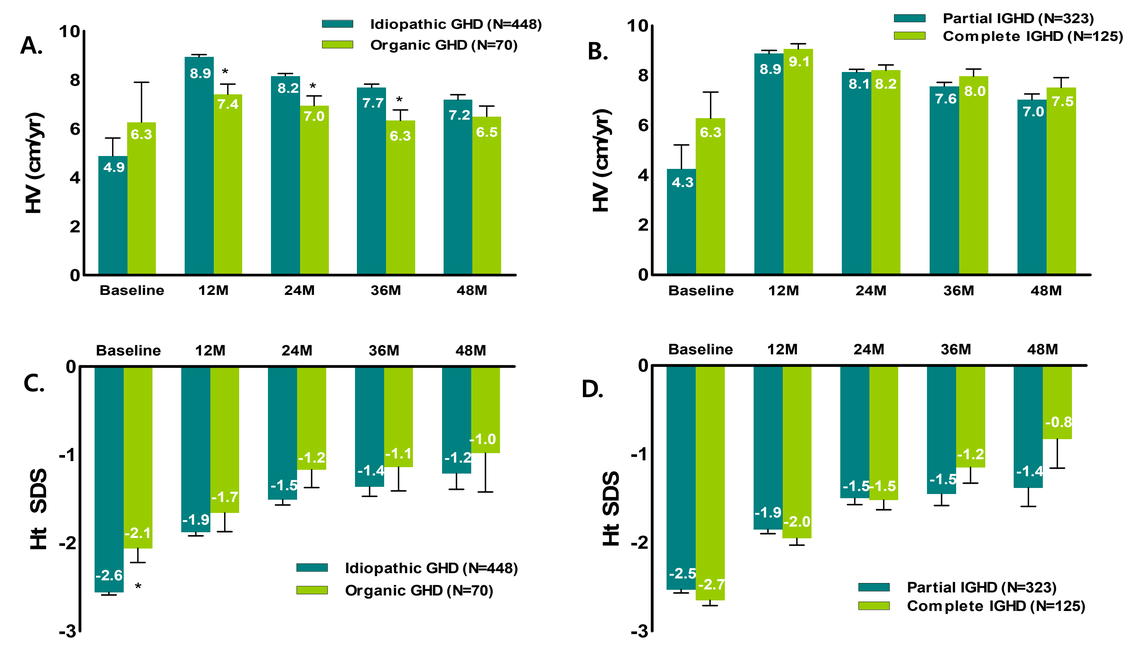


Figure 4. Sub-analysis of growth response (HV in IGHD & OGHD(A), Partial IGHD & Complete IGHD(B), Ht SDS in IGHD & OGHD(C), Partial IGHD & Complete IGHD(D))

Safety

- Adverse events (AE) were reported in 18.4% in total and most of them were mild. The incidence of adverse drug reactions was 4.1%. Most common AEs were Upper respiratory tract infection (2.5%), Headache (1.5%).

Table 2. Adverse events occurred during GH treatment

Treatment group (Safety set)	GHD (N=1,084)	Idiopathic GHD (N=984)	Organic GHD (N=97)	Partial IGHD (N=703)	Complete IGHD (N=263)
	Incidence rate of AE [N, (%)]				
AE	199 (18.4%)	166 (16.9%)	33 (34.0%)	110 (15.7%)	52 (19.8%)
ADR	44 (4.1%)	34 (3.5%)	10 (10.3%)	24 (3.4%)	9 (3.4%)
SAE	27 (2.5%)	19 (1.9%)	8 (8.3%)	11 (1.6%)	8 (3.0%)
SADR	4 (0.4%)*	2 (0.2%)	2 (2.1%)	2 (0.3%)	0 (0%)

* : Arrhythmia, Autoimmune thyroiditis, Craniopharyngioma, Neoplasm recurrence
AE. Adverse events; ADR, Adverse drug reactions; SAE, Serious AE; SADR Serious ADR

CONCLUSION

- The growth response to GH (Eutropin® and EutropinPlus®) in all GHD children remained effectively without specific safety concerns during 4 years.

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Late Breaking

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