

Improved growth outcomes with jet delivery of growth hormone in children are maintained over long-term treatment

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OBJECTIVES

- We previously reported in a national cohort, that adherence to subcutaneous growth hormone (GH) treatment in children is better with jet delivery compared with needle devices¹.
- We also separately reported that adherent children showed significantly improved height outcomes at one year².
- The objective of this study was to examine the potential influence of adherence and demographic covariates on growth outcomes of children using GH jet delivery beyond one year of treatment.

METHODS

- A cohort of children aged <16 years treated with GH via jet delivery (ZomaJet[®]) was identified at a split-site centre (GOSH and UCLH, UK). Growth parameters were followed-up over a treatment period beyond one year.
- Adherence was evaluated using the Proportion of Days Covered (PDC) index:
$$\text{PDC} = \frac{\text{Number of Days with Access to Viable heads}}{\text{Number of Days receiving treatment}}$$
- An index score of ≥ 0.8 was classified as adherent at one year of treatment
- Standard deviation scores for Height (HTSDS) and Height Velocity (HVSDS) were primary outcomes compared to start of treatment and target height for a cohort of adherent subjects (PDC ≥ 0.8).
- Repeated measures over time were assessed by ANOVA with co-variate analysis for categorical demographics and subject history.

RESULTS

- From a cohort of 72 patients, 31 (20M, 11F) were defined as adherent at one year and followed-up for a median (range) 3.64 (1.46-5.26) years.
- Mean HTSDS and HVSDS were significantly improved from baseline at one year and assessment end (P<0.001). Improvements in baseline were maintained for up to a 5 year treatment period (P<0.01) as detailed in Figure 1 and Figure 2.
- HTSDS and HVSDS outcomes at end of treatment were not influenced by thyroxine use, previous irradiation, years before start of treatment, sex and age at onset.

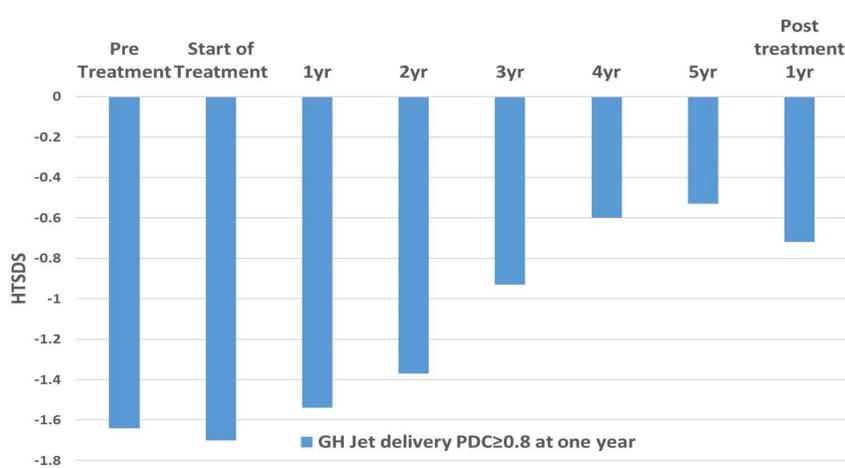


Figure 1 Height SDS and Duration of GH Jet delivery (ZomaJet[®])

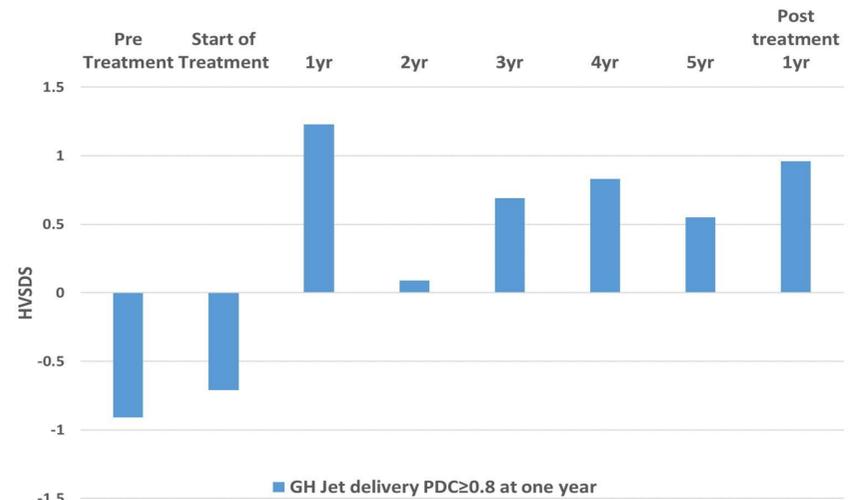


Figure 2 Height Velocity SDS and Duration of GH Jet delivery (ZomaJet[®])

CONCLUSIONS

- Jet delivery of GH for a treatment period beyond one year provides children with improved height outcomes which are independent of demographics pre-treatment.
- High persistence of use with GH jet delivery, as reported earlier, may contribute to these long-term outcome benefits.

REFERENCES

1. Spoudeas HA, Bajaj P, Sommerford N. Maintaining persistence and adherence with subcutaneous growth-hormone therapy in children: comparing jet-delivery and needle-based devices. *Patient preference and adherence*. 2014;8:1255-1263. doi:10.2147/PPA.S70019.
2. Michaelidou M, Whitten S, Bajaj P, Spoudeas HA. Does better adherence to growth hormone (GH) treatment using jet rather than needle delivery translate into improved growth outcomes. *Endocrine Abstracts* 2015: 65. doi: 10.1530/endoabs.39.EP103

