

USEFULNESS OF TRANSIENT TREATMENT SUSPENSION WITH GROWTH HORMONE IN PREPUBERTAL CHILDREN

M. Martínez Barahona¹, L. Cecenarro², M. Murillo Vallés¹, M.L. Granada Ybern³, E. Ropero Ramos⁴, J. Bel Comos¹.

¹Pediatric department. ³Biochemistry department. Germans Trias i Pujol Hospital. ²Fellow Foundation Leo Messi. ⁴Mataró Hospital

Background

The primary goal of treatment is to achieve a final height within the normal range and avoid the physical and psychological consequences of short stature (SS). If after a time, treatment efficacy criteria are not achieved, it is necessary to revalue its usefulness. There is no consensus about which conduct should be adopted in these cases of inadequate therapeutic response. An alternative, is the suspension of rhGH treatment and evaluate the clinical and biochemical results to decide to continue or discontinue treatment definitively. This discontinuation of rhGH treatment, we have called "transient treatment suspension" (TTS).

Objective and method

Determine the characteristics of a group of prepubertals patients undergoing TTS with rhGH and establish its usefulness in clinical practice. It is a retrospective study of a group of patients, which indicated TTS with rhGH between 2006 and 2015. We selected only patients prepubertal and with good adherence to treatment.

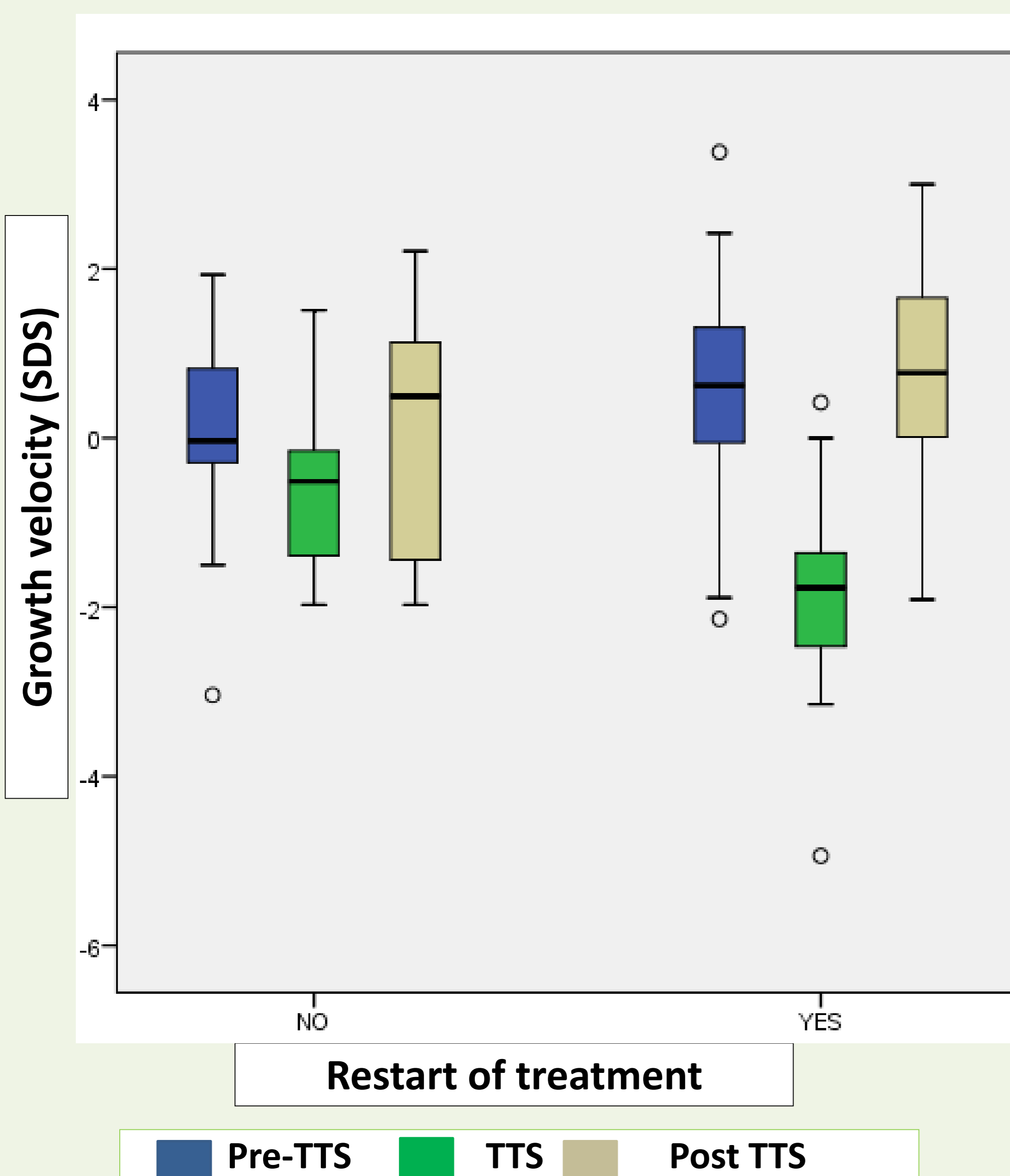
Results

TTS was performed on 41 patients of total 272 patients with rhGH treatment

Characteristics of the patients

- Gender: 32 boys (78%) and 9 girls (22%).
- Diagnosis: 70% (29) idiopathic GH deficiency (IGHD) and 30% (12) Small gestational age (SGA).
- GH treatment start:
 - 7.49 ± 2.5 years for IGHD
 - 4.74 ± 1.7 years for SGA
- The mean onset of TTS was 9.98 ± 2.26 years
- TTS mean duration: 11.3 months.
- The mean rhGH dose used was 0.22 mg / kg / week (± 0.05)

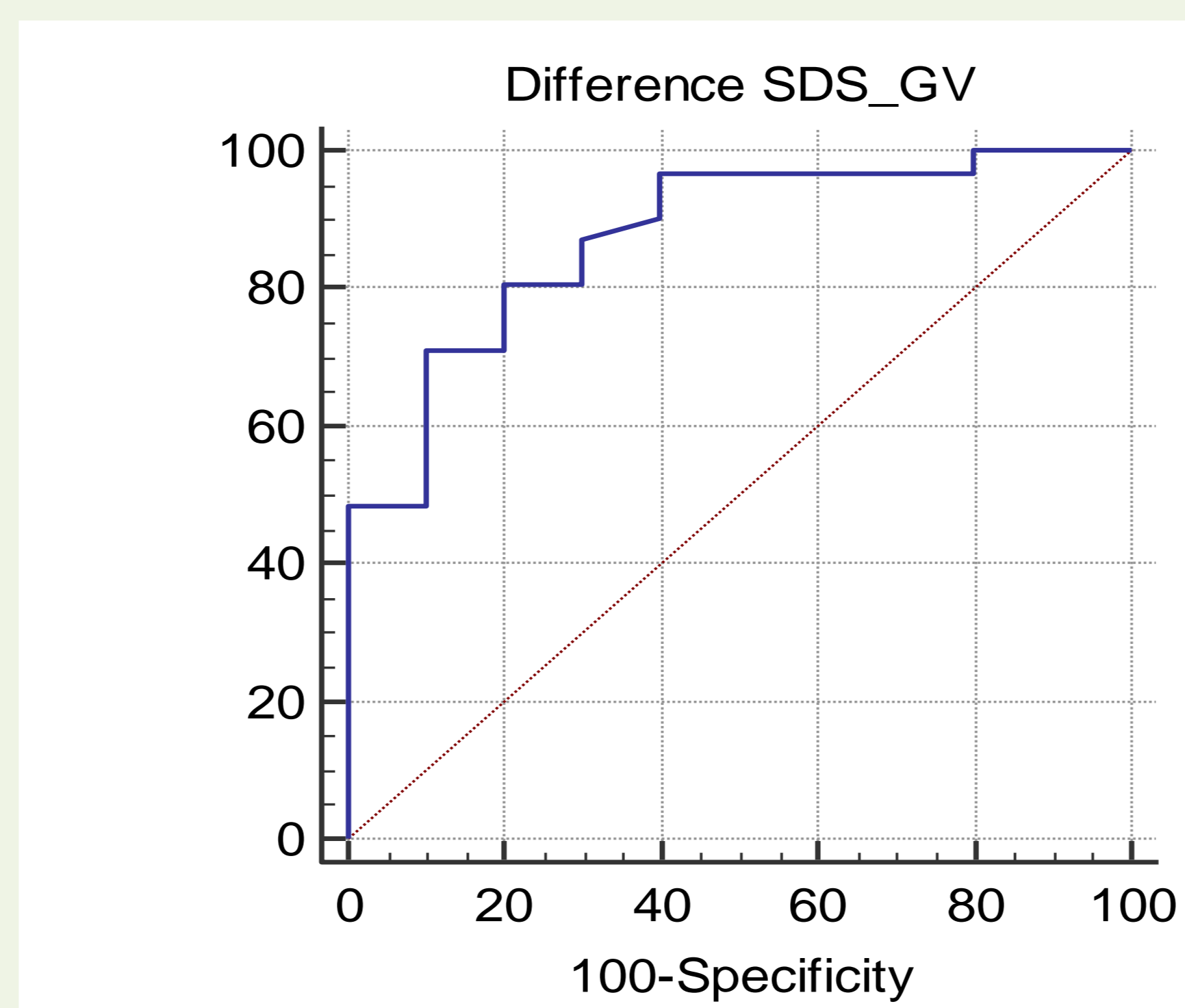
	Pre-TTS	TTS	Post-TTS
RESTORATION TREATMENT YES			
GV-SDS	0.48±1.24	-1.97±1.29*	0.77±1.24
H-SDS	-1.67±0.87	-1.88±0.86*	-1.77±0.87
IGF-1-SDS	1.10±0.81	0.13±0.91*	1.35±0.61
RESTORATION TREATMENT NO			
GV-SDS	-0.40±1.23	-0.56±0.95	0.24±1.53
H-SDS	-1.77±0.58	-1.78±0.57	-1.61±0.64
IGF-1-SDS	0.95±0.82	0.30±1.01	1.22±0.39



Treatment was restored in 76% of patients, because they showed a significant deterioration in their growth during the TTS period respect to Pre-TTS in:

- **Height (H)** (-1.88±0.86 SDS vs -1.67±0.87 SDS)
- **Growth velocity (GV)** (-1.97±1.29 SDS vs 0.48±1.24 SDS)
- **IGF-1 levels** (0.13±0.91 SDS vs 1.10±0.81 SDS)
- A significant recovery of the 3 parameters after 12 months of restoration of rhGH treatment was achieved.

In the remaining 24%, rhGH was not restarted due to it was not observed significant difference in GV, H and IGF-1, compared to Pre-TTS.



Through ROC curve analysis observed that differences in GV (SDS) between Pre-TTS and TTS period is a useful parameter to identify dependent rhGH patients (AUC = 0.876, p < 0.0001).

A decrease in GV-SDS between the Pre-TTS and TTS period ≥ 0.97 was the best cut-off point associated with the reinstated of treatment (sensitivity 80%, specificity 80%).

Conclusion

- Based on our results, we can declare that an inadequate response to treatment with rhGH the TTS may be clinically useful to decide to continue or discontinue definitively. Thus, the costs and inconveniences caused by the daily administration of an ineffective treatment would be reduced.
- The transient treatment suspension does not worsen height in these patients, since patients worsened during TTS recover your size (SDS) one year after restart of treatment.

Germans Trias i Pujol Hospital
Institut Català de la Salut

UAB
Universitat Autònoma de Barcelona