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Background

- Growth retardation is seen in about 30% of children with chronic renal failure (CRF). Under-nutrition, anaemia, secondary hyperparathyroidism, acidosis, corticosteroid therapy and abnormalities in the growth hormone/insulin like growth factor system have been implicated.
- Recombinant growth hormone (rGH) therapy is recommended in children showing failure to maintain a normal height velocity despite optimized primary treatments.

Objective and hypotheses

- It has been demonstrated that rGH treatment stimulates growth in short children with CRF.
- However, the extent to which rGH treatment improves final height (FH) has not been clearly defined.

Methods

- We followed, from CRF diagnosis until FH, 53 children with height velocity (HV) <25th percentile, who were treated with rGH (mean duration of rGH treatment: 5.6±2.1 years).
- Anthropometric parameters were compared with those of a matched group of 30 children with CRF who did not receive rGH therapy because HV was not <25th percentile, or due to contraindications to rGH therapy, or refusal of parents.
- Seventy-one children (85%) underwent renal transplantation during follow up.

Results

- The cumulative height SDS gain in rGH-treated patients was 0.33±0.8.
- FH SDS and target adjusted FH SDS were not significantly different in rGH treated and control patients.
- Multivariate analysis showed that rGH therapy and its duration did not affect FH, whereas height SDS at the start of rGH treatment, transplantation and target height SDS positively influenced FH and target adjusted FH SDS (p<0.001).

	rGH-treated patients	Untreated patients	P
FH SDS	-1,32 ±1.2	-1,04±1.2	0.34
Target adjusted FH SDS	-0.93±1.1	-0.72±1.4	0.21
Age at transplantation (yrs)	12.5± 4.1	12.7±4.9	0.63

Conclusions

rGH-treated patients with HV<25th centile reached a FH not significantly different from that of untreated patient, but we can suppose that our rGH-treated children had a more severe clinical phenotype than untreated controls.

Current guidelines recommend rGH therapy in all children with CRF and growth retardation, making unfeasible to design a case-control study with a homogeneous untreated population. The comparison with matched untreated historical controls could help to clarify the effect of rGH on FH.