RHGH replacement therapy and side- effects: A retrospective study of 10 years

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INTRODUCTION

Treatment with Recombinant Human Growth Hormone(rhGH) has been of significant value in promoting quality of life in children with GH deficiency. However, it has been associated with several side-effects in the literature, including hypothyroidism, usually transient during the replacement therapy. The aim of this study was to evaluate the side effects of hGH replacement therapy, among children who were followed up at the Pediatric Endocrinology Outpatients Unit of our hospital during the years 2008-2017.

MATERIALS AND METHODS

A total of 160 children were referred to the Pediatric Endocrinology Outpatients Unit during a period of ten years, due to short stature. Following clinical examination, necessary laboratory and imaging studies, growth hormone deficiency was diagnosed and treatment with rhGH was initiated. The effects of the treatment on thyroid function, glucose metabolism and IGF-1 levels were assessed.

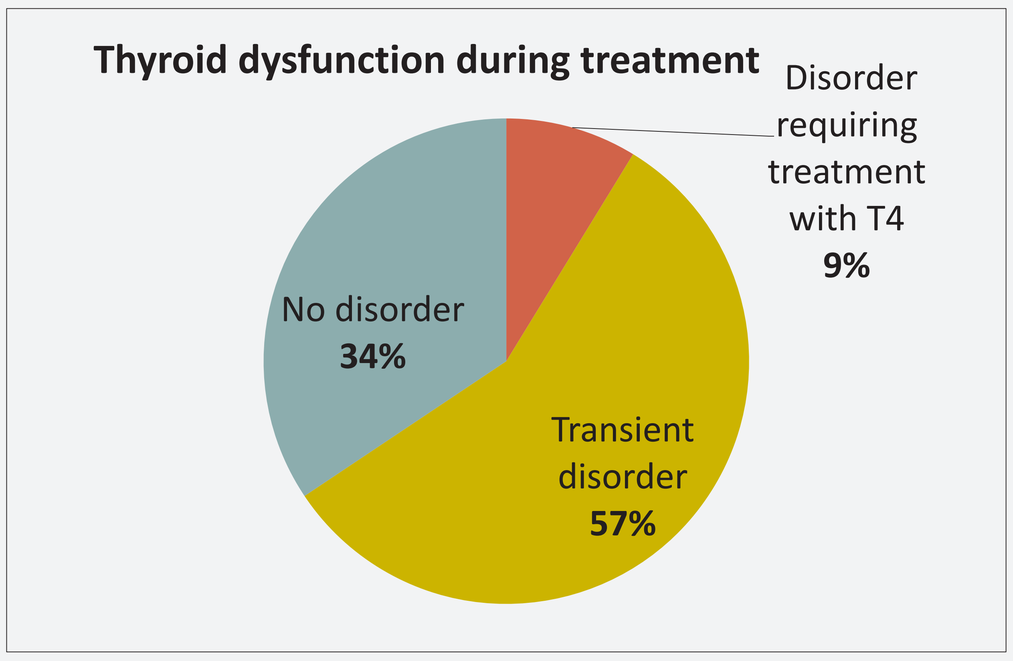
RESULTS

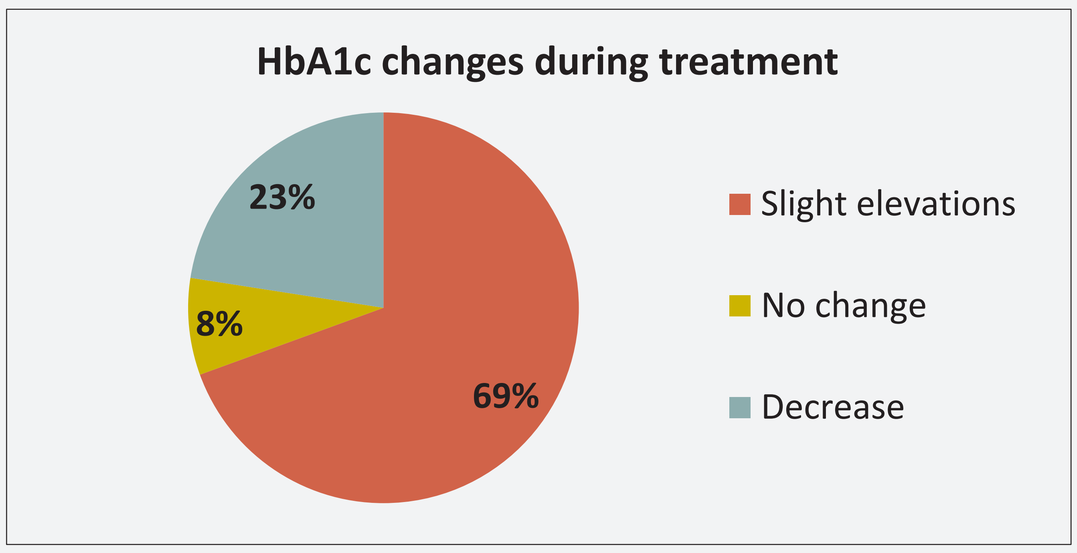
RHGH replacement therapy was administered to 160 patients (61.9% males). Three of them were diagnosed with Turner syndrome and 1 with Prader-Willi syndrome. Median follow-up time was 5.24 years, with no statistical difference between males and females. Treatment with rhGH was initiated at a mean age of 8.23 years and completed at 13.47 years on average. The vast majority of our patients (95.75%) responded to the treatment demonstrating elevated IGF-1 levels (by 3.5 times on average).

RHGH replacement therapy. Patients' characteristics and treatment results.

Total patients	160
Males/ Females	99 (62%)/ 61 (38%)
Follow-up time (median)	5.24 years
rhGH treatment initiation age (mean)	8.23 years
rhGH treatment completion age (mean)	13.47 years
Treatment response rate	95.75%

During the replacement therapy, thyroid dysfunction was recorded in 105 of 160 children(65.5%). A decrease in T4 levels of about 1.12mg/dl and in TSH levels of about 0.4U/ml was observed. Fourteen of the study patients (8.8%) required replacement therapy with L-T4, whereas the remaining children presented a transient borderline disorder which was restored following completion of therapy with rhGH.





A total of 111 children (69.3%) presented a slight elevation in HbA1c level (0.34% on average), while 13 patients did not present any changes and 36 presented a decrease in HbA1c.

CONCLUSION

Concluding, thyroid function as well as glucose metabolism may be significantly deranged during replacement therapy with rhGH. Thyroid function disorders should be closely monitored due to the potential negative effects on growth rate. Latent central thyroid dysfunction disclosed by administration of rhGH remains a challenging research area.

References

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