

Is there a link between lipid profile and thyroid function modification during somatropinum treatment for gh deficiency in children?

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OBJECTIVES

Previous studies suggested that treatment with somatropinum in children with growth hormone deficiency (GHD) may alter lipid profile and pituitary-thyroid axis function. However, results are divergent and data regarding a possible association between changes of thyroid function and of circulating lipids are scarce.

The aim of this study was to report the changes of the lipid profile in children with GHD treated with somatropinum and the relationship between thyroid function and circulating lipids modifications

METHODS

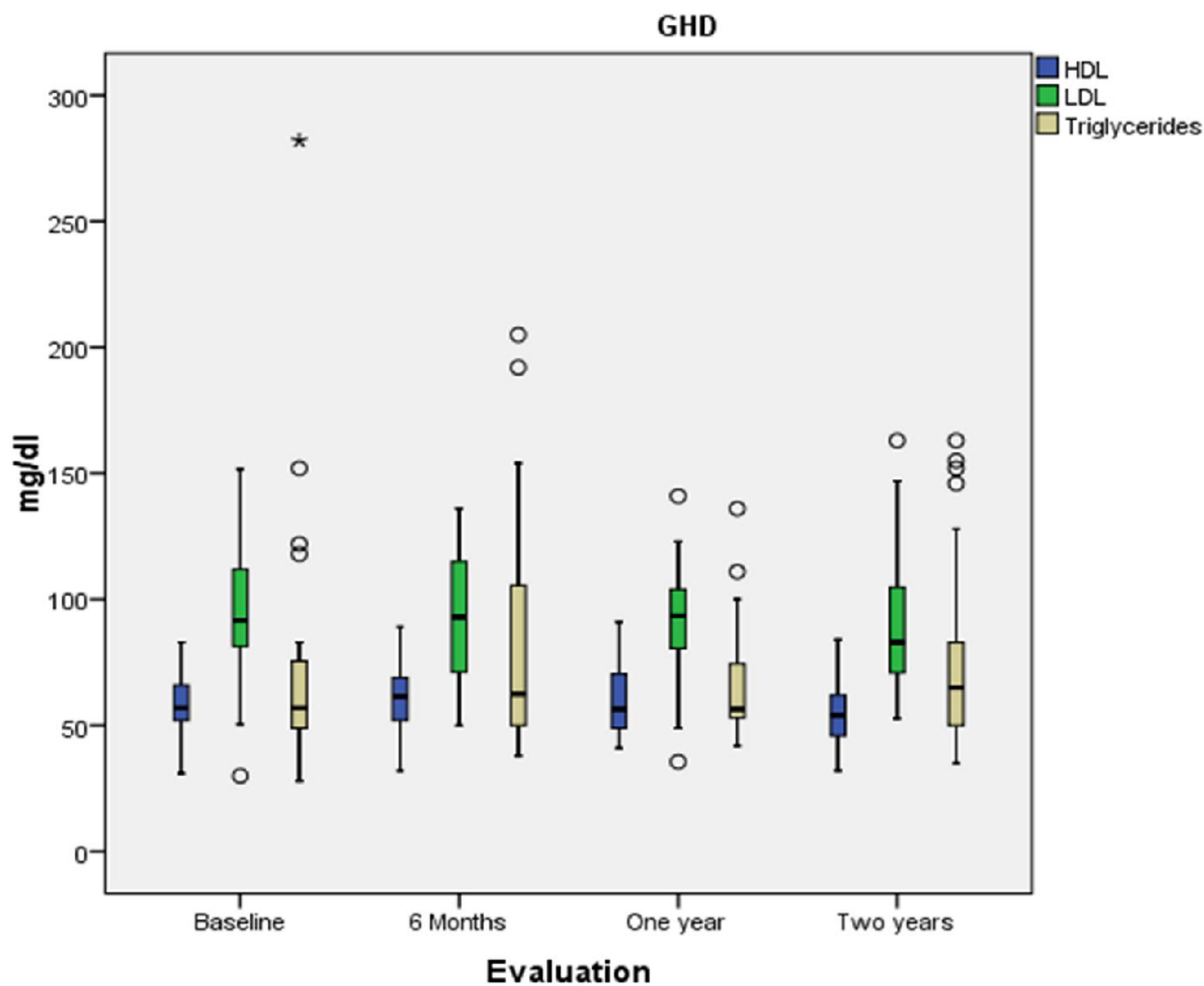
We performed a retrospective study in which we included children diagnosed with GHD (n=101, 68 males and 33 females with a mean age of 8.6 years) treated with somatropinum during January 2008 - January 2012.

We recorded from the medical files the following data: weight, height, total-, HDL-, LDL- cholesterol, triglycerides, TSH and free T4 at inclusion (start of the treatment) and every six month during the first years of treatment with somatropinum.

RESULTS

Patients with GHD had increased serum triglycerides levels at 6 months after initiation of treatment (from a mean of 60.41mg/dl at inclusion to 79.93mg/dl, p=0.025), increased HDL after one year (from a mean 55.35mg/dl at inclusion to 60.50mg/dl, p=0.05) and decreased LDL after one year (from a mean of 99.35mg/dl to 88.35mg/dl, p=0.05) Although TSH and free T4 decreased at 6 and 12 months in comparison with baseline, this modification was not statistically significant.

However, the changes in triglycerides and LDL levels were significantly correlated with the TSH levels modification from baseline. (r=0.549, p=0.015 for triglycerides and r=0.731, p=0.011 for LDL).



	Baseline		6 months Eval		One year Eval	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
TSH (U/ml)	2.48	1.46	2.37	1.09	2.09	1.47
freeT4 (ng/dl)	1.20	0.22	1.17	0.23	1.26	0.27

CONCLUSIONS

Our study showed that lipid profile significantly changes during treatment with somatropinum for GHD in children and this alteration could be partially due to a slight modification of thyroid function. However, further prospective studies are necessary to clarify this aspect.

References

- 1 Smyczynska J, Hilczer M, Stawerska R, Lewinski A. Thyroid function in children with growth hormone (GH) deficiency during the initial phase of GH replacement therapy - clinical implications. *Thyroid Res* 2010;3(1):2.
- 2 Agha A, Walker D, Perry L, et al. Unmasking of central hypothyroidism following growth hormone replacement in adult hypopituitary patients. *Clin Endocrinol (Oxf)* 2007;66(1):72-7.
- 3 Gleeson H, Barreto ES de A, Salvatori R, et al. Metabolic effects of growth hormone (GH) replacement in children and adolescents with severe isolated GH deficiency due to a GHRH receptor mutation. *Clin Endocrinol (Oxf)* 2007;66(4):466-74.
- 4 Murray RD, Wieringa GE, Lissett CA, Darzy KH, Smethurst LE, Shalet SM. Low-dose GH replacement improves the adverse lipid profile associated with the adult GH deficiency syndrome. *Clin Endocrinol (Oxf)* 2002;56(4):525-32.

