



Authors have nothing to disclose

Objectives and hypotheses

- ✓ The effects of GH-therapy on the concentration and conformation of carotenoids
- ✓ Compare these data with the state of the blood-antioxidant-system in growth hormone deficient (GHD) children.

Materials and Methods

- ✓ 11 prepubertal children (2 girls, 9 boys; aged 4-9 yr; median 7.6 yr) with GHD (peak GH in response to stimuli <10 ng/mL) were included in the study.
- ✓ Control: 11 prepubertal children (2 girls, 9 boys; aged 6-11 yr; median 9.3 yr)
- ✓ Raman spectroscopy: to examine the conformation of carotenoids in blood plasma
- ✓ Other parameters: parameters of the blood antioxidant system, complete blood count and insulin-like growth factor 1 (IGF-1)
- ✓ All parameters were measured before and after 12 months of GH treatment (0.05 mg/kg/day).

Results

The antioxidant status parameters of girls with GHD

Parameters	Control	Before treatment	After 6 months
Total antioxidant capacity of plasma, a.u.	0.26± 0.07	0.18±0.06	0.23±0.05
Non-Protein Thiols, μMol/ml	0.92±0.18	0.70±0.22	0.78±0.15
Superoxide Dismutase (SOD), a.u./g Hb	14.5±3.4	18.8±5.4	19.6±4.7
Catalase (Cat), a.u./g Hb	216±38	215±64	190±43
Ceruloplasmin, μkg/mL	518±70	581±106	190±43
100*SOD/Cat	6.8±1.7	10.2±4.7	10.4±2.4

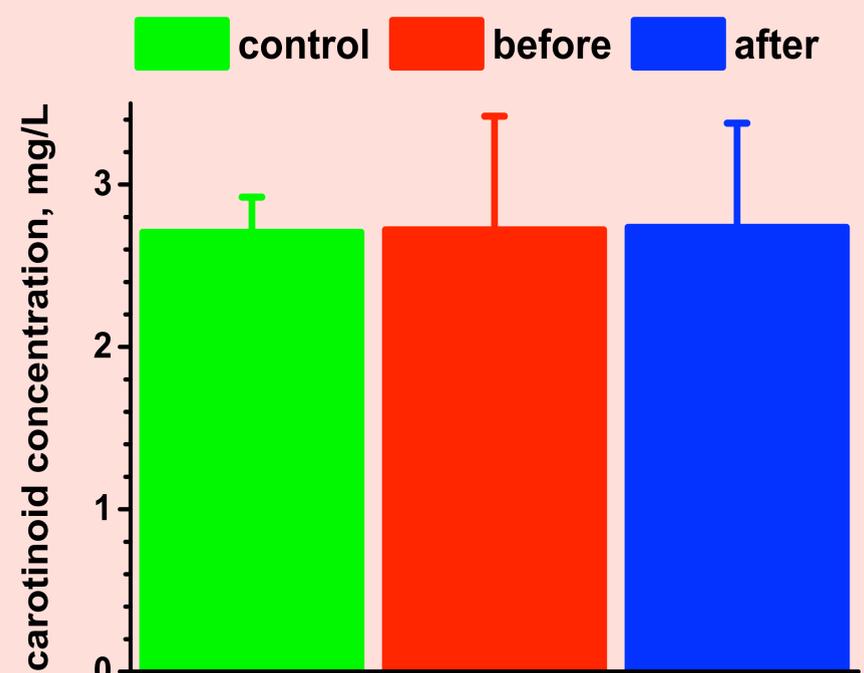
* - significant difference between parameters before treatment and after 12 months, evaluated using Wilcoxon test, p < 0.05

- significant difference between control and studied groups before treatment, evaluated using Mann-Whitney test, p < 0.05

Conclusions

1. No significant correlations between the parameters of the antioxidant system and the total concentration and conformation of the carotenoids.
2. During treatment the total concentration of carotenoids did not change significantly and did not differ from the control group.
3. The conformation of the C-CH₃ group in the carotenoid molecule in the treatment group was significantly different from that of the control group and did not change during the treatment.

The total concentration of carotenoids in children with GHD treated during 12 months



The band maximum of carotenoids spectra (conformation) in children with GHD treated during 12 months

