

Anthropometric and Nutritional Parameters in Egyptian Children with Osteogenesis Imperfecta: Effect of a One-Year Treatment with Zoledronic Acid

Rasha T. Hamza¹, Tarek H. Abdelaziz², Magdy Elakkad³

Departments of ¹Pediatrics and ²Orthopedics, Faculty of Medicine, Ain Shams University, ³Nile Hospital, Egyptian Health Insurance, Cairo, Egypt

Authors declare no conflicts of interest

Background/Aims:

Children with osteogenesis imperfecta (OI) present with various degrees of short stature and nutritional disorders.

Thus, we aimed to evaluate anthropometric and nutritional parameters in OI children; and their variability among various types before and 1 year after zoledronic acid therapy.

Methods:

Eighty four OI cases (types I, III, IV) aged 7.5 ± 3.05 years were subjected to anthropometric assessment in the form of: standing height (Ht), sitting height (SH), body mass index (BMI) and relative arm span (RAS) standard deviation scores (SDSs). Triceps skinfold thickness (TSFT), subscapular skinfold thickness (SSFT), and mid upper arm circumference (MUAC) were also measured. All parameters were re-evaluated 1 year after zoledronic acid therapy (0.025-0.05 mg/kg).

Conclusions:

Results:

Ht SDS was lower in OI-III and OI-IV compared to OI-I ($p=0.01$, $p=0.02$ respectively); SHSDS was lower in OI-III compared to OI-I ($p=0.01$). BMI SDS correlated positively with TSFT, SSFT, and MUAC ($p<0.01$ in all). A higher growth velocity SDS was detected after zoledronic acid therapy in OI-I (-0.22 ± 0.55) than OI-III (-1.71 ± 0.11) and OI-IV [-1.11 ± 0.35 ($p=0.01$ and $p=0.021$ respectively)]. Other parameters did not differ between OI types.

Table 1. Anthropometric and nutritional data of OI cases (n=84) before and 1 year after zoledronic acid therapy

	Before	After	t	p
Ht SDS	-3.52 ± 0.55	-2.21 ± 0.34	9.11	0.001**
SHSDS	-3.19 ± 0.11	-2.41 ± 0.32	7.32	0.02*
RAS SDS	-1.04 ± 0.01	-0.55 ± 0.12	6.98	0.03*
BMISDS	-1.04 ± 0.23	-1.30 ± 0.54	0.23	0.09
TSFT percentile	65 ± 1.25	66.79 ± 1.13	0.11	0.81
SSFT percentile	68 ± 2.11	70.12 ± 1.10	1.23	0.22
MUAC percentile	56 ± 7.53	58 ± 6.33	2.21	0.56

Zoledronic acid therapy improved growth velocity in OI cases especially in OI-I while nutritional parameters did not differ.

