

Differences in Response to Conventional Vitamin D Therapy among Obese and Normal Weight Children and Adolescents in Qazvin, Iran

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Abstract

Background

Vitamin D (Vit D) deficiency is one of the major nutritional deficiencies in children. Obesity has inverse association with vitamin D levels. The aim of this study was to determine the differences in response to conventional treatment for Vit D deficiency and insufficiency in obese and normal weight children and adolescents.

Materials and Methods: This nested case control study was conducted in 69 obese children and 133 normal weight matched control suffering from Vit D insufficiency or deficiency. Vit D deficiency was defined as serum 25(OH) D₃ <10 ng/mL and Vit D insufficiency was defined as 11 < 25(OH) D₃ <30 ng/mL. Conventional treatment with 300,000-600,000 IU of vitamin D₃ was administered intramuscularly over one day for both groups. The participants were followed up after three month. 25 (OH) D₃ was measured at baseline and after the follow up period. Data were analyzed using SPSS version 22.0.

Results: At baseline, mean Vit D level was 13.5 ng/mL in obese and 14.5 ng/mL in normal weight children (P>0.05). After follow up, mean Vit D level became 29.6 ng/mL in obese and 33 ng/mL in normal weight children (P<0.05). 39.8% of normal weight group still had Vit D insufficiency, while 50.7% of obese group had Vit D insufficiency or deficiency and the difference was borderline significant (P= 0.064).

Conclusion

Therapeutic response in obese children was less than normal weight children. It seems that treatment with higher doses of Vit D or longer period is necessary in obese children of the present study.

Key Words: Adolescents, Children, Obesity, Vitamin D deficiency.

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