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

Fatemeh Saffari[1], Parisa Shahroodi[2], Sonia Oveisi[3], Neda Esmailzadehha[4], Fatemeh Hajmanoochehri[5], *Shabnam Jalilolghadr[6], Ali Homaei[7]

[1]Associate Professor of Pediatric Endocrinology, Children Growth Research Center, Qazvin University of Medical Sciences, Qazvin, Iran. [2] Pediatrician, Children Growth Research Center, Qazvin University of Medical Sciences, Qazvin, Iran. [3]Associate Professor of Maternal and Child Health, Metabolic Diseases Research Center, Qazvin University of Medical Sciences, Qazvin, Iran. [4]General Practitioner, Metabolic Diseases Research Center, Qazvin University of Medical Sciences, Qazvin, Iran. [5]Associate Professor of Pathology, Metabolic Diseases Research Center, Qazvin University of Medical Sciences, Qazvin, Iran. [6]Associate Professor of Pediatrics, Children Growth Research Center, Qazvin University of Medical Sciences, Qazvin, Iran. [7]Medical Student, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

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 D_3 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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***Corresponding Author*:**

Shabnam Jalilolghadr, Associate Professor of Pediatrics, Children Growth Research Center, Qazvin Children Hospital, Shahid Beheshti Blvd., Qazvin, Iran, Fax: +98 28 33344088

E-mail: shabnam_jalilolgadr@yahoo.com

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