

Evaluation of the effectiveness of 6-week vitamin D treatment in children aged 5 to 15 years with vitamin D insufficiency

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ABSTRACT

Background and Aim: Vitamin D insufficiency is a common disorder worldwide and children are involved in this disorder. In this study, we aimed to evaluate the effectiveness of vitamin D insufficiency treatment with vitamin D 50,000 IU in children who had vitamin D insufficiency.

Methods: Children's vitamin D levels were evaluated and if they had vitamin D insufficiency, one pearl of vitamin D 50,000 IU was prescribed weekly for 6 weeks, and after 6 weeks, vitamin D levels were checked again. Then all data were analyzed by SPSS software version 20.

Results: In this study, 97 children were evaluated and 61.9% were boys. The average age of children was 101.01 ± 19.27 months. The average BMI of these children was 15.46 ± 2.52 kg/m². The initial vitamin D level was 18.21 ± 6.42 ng / mL with a range of 4.2 to 29.8. After treatment, this level reached 41.08 ± 14.61 ng / mL ($12.2 - 98.4$ ng / mL) and this increase was statistically significant (P -value < 0.005). There was no correlation between age, gender, height, and BMI with the increased efficacy of vitamin D level with one pearl of vitamin D 50000 IU.

Conclusion: Using one pearl of vitamin D 50000 IU weekly for 6 weeks is a good method for vitamin D insufficiency treatment in children.

ARTICLE INFO

Date Submitted: 14 October, 2021

Date Accepted: 19 December, 2021

KEYWORDS


Vitamin D, Insufficiency, Children, vitamin D Effectiveness

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INTRODUCTION

Vitamin D deficiency is widespread throughout the world. Several studies show that the pediatric groups are at increased risk of vitamin D deficiency (1, 2). There is a disagreement about the definition of vitamin D deficiency and what levels should be characterized in the general population. Vitamin D serum level below 10 ng /mL has been considered as vitamin D deficiency, but during the recent years the widely acceptable trend is to consider serum levels less than 20 and between 20-29 ng /mL as deficiency and insufficient levels respectively (3-5). Vitamin D deficiency reduces the intestinal absorption of calcium and phosphorus, thus leading to an increase in parathyroid hormone (PTH) levels. It also causes muscle weakness, difficulty in walking, and falling episodes as a result of bone fractures. The role of vitamin D deficiency in chronic diseases such as type 1 diabetes, rheumatoid

arthritis, multiple sclerosis, hip fractures, allergies, and heart disorders in obese children has been established so far (6-9). It was observed that breastfed infants are at increased risk for vitamin D deficiency because the content of vitamin D in breast milk depends entirely on the amount of vitamin D that mothers receive (10). The amount of vitamin D in breast milk is usually not enough to meet the baby's daily needs and vitamin D insufficiency is common in children (11, 12). There are some different methods for the treatment of deficient or insufficient vitamin D levels but there is limited evidence about their efficacy in Iran (13-15). Therefore, it seems that a common guideline can be very helpful for the evaluation and treatment of its level in our country, Iran. Therefore, in this study, the efficacy of treatment of cases with vitamin D deficiency and insufficiency was evaluated by taking oral vitamin D supplementation in Iranian children aged 5 to 15 years.



Please Cite This Paper As:

Saneifard H, Karbasian F, Farsi Y, Rafiee Taghanaki S. Evaluation of the effectiveness of 6-week vitamin D treatment in children aged 5 to 15 years with vitamin D insufficiency. *Sch Med Stud J.* 2021;3(4):8-14.

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