Effect of weekly high-dose vitamin D3 supplementation on the association between circulatory FGF-23 and A1c levels in people with vitamin D deficiency: A randomized controlled 10-week follow-up trial

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Abstract

Objectives

Determining the effect of a high dose of vitamin D3 (50,000 IU/week) for 8 weeks, commonly used in the Jordanian community and internationally, on the relationship between the levels of fibroblast growth factor-23 (FGF-23) and osteocalcin factor (OSC) with glycated hemoglobin (A1c) values in the blood in a sample of Jordanian males and female adults with vitamin D deficiency.

Methodology

This randomized controlled clinical trial was designed to randomly spilt (127) eligible participants into two groups: interventional and experimental. The physical and clinical factors of individuals in both groups were measured and analyzed. The comparisons between the two groups and the differences in each group before and after taking vitamin D doses were studied through statistical analysis (SPSS). Possible factors that have a role in the differences shown by multivariate stepwise regression were identified. The follow-up period lasted 10 weeks.

Results

The results showed that an increase in levels of serum 25-hydroxyvitamin D (25 OH D) as a result of taking high doses of vitamin D3 (50,000 IU/week) for 8 weeks is associated with significant differences in levels of 25 OH D; significantly increased levels of 25-hydroxyvitamin D, fibroblast growth factor-23 and glycated hemoglobin.

Conclusion

High doses of vitamin D3 (50,000 IU/week) may have potential negative effects on glycemic control, and fibroblast growth factor-23 may be related to this.

Trial registration: This trial was registered at clinicaltrials.gov as NCT04682626

Keywords: Vitamin D deficiency, vitamin D3, fibroblast growth factor-23, A1c, OSC.