

Is Vitamin D Deficiency associated with Non Specific Musculoskeletal Pain?

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Received: October 17, 2012 Accepted: November 1, 2012 Online Published: November 11, 2012

doi:10.5539/gjhs.v5n1p107 URL: <http://dx.doi.org/10.5539/gjhs.v5n1p107>

Conflict of Interest: Nothing to declare

Abstract

Backgrounds: Vitamin D deficiency is common worldwide, including Iran. It has been suggested that vitamin D deficiency is associated with non-specific musculoskeletal pain. The aim of this study is evaluation of the association of musculoskeletal pain with vitamin D deficiency and the response of the patients to vitamin D supplementation.

Materials and Methods: sixty two adult patients with chief complaint of musculoskeletal pain were enrolled in the study. Serum concentrations of 25(OH)D, Calcium, Phosphate, Alkaline Phosphatase and PTH were determined. If there was vitamin D deficiency, oral vitamin D supplementation was given. Assessment of pain and its response to therapy was carried out using Visual Assessment Score (VAS). SPSS software version 15.0 was used for statistical analyses.

Findings: Most of the patients (95.4%) had vitamin D deficiency. Pain in 53 patients (85.5%) with responded to the proposed treatment. In responder group post treatment vitamin D concentration was significantly higher than non responder group (60.6 ± 27.6 and 39.2 ± 9.6 nmol/l respectively, $p < 0.01$) pretreatment vitamin D and minerals concentrations and pain characteristics did not have significant differences in responder and non responder group.

Conclusion: Treatment with vitamin D can relieve the pain in majority of the patients with vitamin D deficiency. Lack of response can be due to insufficient increase in serum vitamin D concentration. Physiologic differences of gastrointestinal vitamin D absorption, differences of body mass indexes, and noncompliance could be potential causes for this issue. Reassessment of serum 25(OH)D concentration is recommended in nonresponsive patients.

Keywords: Vitamin D deficiency, musculoskeletal pain, Vitamin D supplementation, Iran

1. Introduction

Vitamin D deficiency is common worldwide especially in Asian countries. Recent studies have revealed that it is even prevalent in countries with good sunshine (Alagöl et al., 2000; Sedrani, 1984; Gowami et al., 2000). According to the recent studies prevalence of vitamin D deficiency is 66-83 percent in Iran (Hashemipour et al., 2004; Azizi, Rais-Zadeh & Mir Said Ghazi, 2000).

Calcium absorption from GI is reduced in vitamin D deficiency. It results in increased secretion of parathyroid hormone and increased activity of osteoclasts. Osteopenia, osteoporosis, and osteomalacia are the end results (Holick, 2003).

Prolonged chronic vitamin D deficiency can result in osteomalacia; moreover mild vitamin D deficiency may produce a variety of musculoskeletal pains such as fibromyalgia-like pain, low back pain, and arthralgia (de Torrenté de la Jara, Péroud, & Favrat, 2006).

In USA, 9-20% of adults complaint from chronic pains and 89% of them suffer from short or long term disabilities and altered quality of life. Direct and indirect cost of the condition is up to 50 million dollars yearly