



Supplementation of a Key Nutraceutical Complex on Postmenopausal Female Subject BMD: A Case Report

Manica Ayozy, Karen Ohanian

Department of Endocrinology and Metabolism, Ararat Hospital and Medical Center.

Abstract: A study was conducted to evaluate the effect of a balanced dose of nutrients on bone loss at the lumbar spine, femur, and forearm. The study was performed on 75 years old female subject. Duration of treatment was 8 weeks. Bone mineral density (BMD) was measured at the lumbar spine, femur and forearm. A dietary questionnaire was administered during the study and revealed a fairly good supplement intake. An increase in lumbar spine BMD from 0.707 to 0.750 (g/cm²) was observed. In addition, total femur BMD was increased from 0.758 to 0.780 (g/cm²) and forearm BMD was elevated from 0.529 to 0.543 (g/cm²). This study revealed a positive effect of a key nutraceutical complex on improving the BMD of a female postmenopausal subject.

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1. Case Report

Osteoporosis is a bone disease that occurs when the body loses too much bone, makes too little bone, or both. As a result, bones become weak and may break from a fall or, in serious cases, from sneezing or minor bumps. Osteoporosis also means porous bone. Research has been lacking of consensus regarding the role of dietary supplementation in the primary or secondary prevention of postmenopausal osteoporosis [1–3]. Several studies have found specific nutrients may help reducing the bone loss and fracture risk [4–6]. Although these supplementations may not be effective in the initial five years after menopause [5,7]. We present the case of a 75-year-old female patient who had been suffering from evaluate chronic thoracolumbar pain. After a physical examination it was decided to measure the BMD of the patient using dual-energy X-ray absorptiometry. BMD was measured at the lumbar spine, femur and forearm.

BMD of the lumbar spine was 0.707 g/cm² having a T-score of -3.1 SD. BMD was 0.758 with T-score of -1.5 SD in the total femur and 0.529 with T-score of -2.7 SD in the forearm. A dietary supplementation was started in February 2021 for the patient which included two daily capsules each composed of vitamin MK7 0.01% (w/w), green-lipped mussel (*Perna canaliculus*) 46% (w/w), eggshell membrane powder 42%(w/w), vitamin D3 0.8% (w/w), vitamin C (calcium ascorbate dihydrate) 10%(w/w) and Ginger roots extract 0.1%(w/w) all provided as TRU-MK7™ brand. A dietary questionnaire was administered during the course of study and revealed a fairly good supplement intake. After 8 weeks, BMD was measured at the lumbar

spine, femur and forearm again. BMD showed a significant improvement (P<0.05), with a T-score of -2.8 SD in the lumbar spine, -1.3 SD in the total femur and -2.5 SD in the forearm (see Fig. 1).

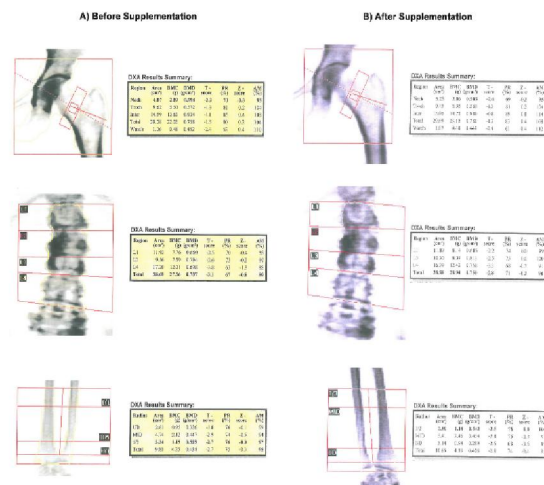


Fig. 1. Bone mineral densitometry of the patient at the lumbar spine, femur and forearm (A) Before starting the supplementation; (B) 8 weeks after supplementation.

This observation could possibly be justified by the relative insufficiency of essential nutrients in the patient's body that led to an increase in bone turnover. It is clear that the bone loss rate was reversed by proper supplementation of the essential nutrients needed for maintain healthy bones.

The subsequent reduction in bone turnover with a

decreased activation frequency leads to a filling of the remodeling space and an increase in bone mass as seen during the course of supplementation. Due to the higher metabolic activity of trabecular bone, the effect on BMD at sites with mainly trabecular bone might be more pronounced. Although our patient had advanced-stage disease and in spite of the reported general tendency, her BMD progressively increased. However, the patient will still sustain a 10-year fracture risk of 1.2% for major osteoporotic and 0.4% for hip fracture.

Given that treatment with the dietary supplement was well tolerated and found to improve BMD, this treatment could be useful in patients with ochronosis and osteoporosis. Its indication should be individualized until new scientific evidence is reported.

Correspondence to:

Dr. Karen Ohanian
Department of Endocrinology and Metabolism, Ararat Hospital and Medical Center.

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