

Whole body vibration versus magnetic therapy on bone mineral density in elderly osteoporotic individuals.

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Abstract

BACKGROUND: Osteoporosis usually develops gradually and progresses without significant signs and symptoms. It is one of the most common musculoskeletal conditions associated with aging.

OBJECTIVES: To evaluate the effects of whole body vibration (WBV) or magnetic therapy in addition to standard pharmacological treatment on bone mineral density (BMD) in elderly individuals being treated for osteoporosis.

METHODS: Eighty-five participants, 60-75 years of age, were randomly divided into three groups. All three groups received the same standard pharmacological treatment comprised of vitamin D, calcium, and alendronate sodium. In Group I, thirty participants were also exposed to WBV for 25 minutes in each session with two sessions per week for 4 months. In Group II, thirty participants were exposed to magnetic therapy for 50 minutes in each session with two sessions per week for 4 months. In Group III, twenty-five participants received only pharmacological treatment. Dual-energy X-ray absorptiometry was used to measure BMD of the lumbar spine and femoral heads before and after interventions. Venus blood sample was drawn for analysis of calcium and vitamin D.

RESULTS: An ANOVA test detected significant ($p < 0.05$) differences in BMD after treatment among the three groups with no significant difference was detected between patients receiving WBV and magnetic therapy. Statistical t-tests detected significant ($p < 0.05$) increases in BMD after application of WBV or magnetic therapy in combination with pharmacological treatment, but no significant increase after pharmacological treatment alone.

CONCLUSIONS: Addition of either WBV or magnetic therapy to standard pharmacological treatment for osteoporosis significantly increased BMD in elderly subjects. No significant difference in effectiveness was detected between these two alternative therapy modalities. Consequently, either WBV or magnetic therapy could be effectively applied in conjunction with pharmacological treatment to increase BMD in elderly osteoporotic patients.

KEYWORDS: Vibration; elderly individuals; magnetic therapy; osteoporosis

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