

Effect of isolated vitamin D supplementation on the rate of falls and postural balance in postmenopausal women fallers: a randomized, double-blind, placebo-controlled trial.

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Abstract

OBJECTIVE:

To evaluate the effect of isolated vitamin D supplementation (VITD) on the rate of falls and postural balance in postmenopausal women fallers.

METHODS:

In this double-blind, placebo-controlled trial, 160 Brazilian younger postmenopausal women were randomized into two groups: VITD group, vitamin D3 supplementation 1,000 IU/day/orally (n = 80) and placebo group (n=80). Women with amenorrhea at least 12 months, age 50 to 65 years, and a history of falls (previous 12 months) were included. Those with neurological or musculoskeletal disorders, vestibulopathies, drugs use that could affect balance and osteoporosis were excluded. The intervention time was 9 months. Postural balance was assessed by stabilometry (computerized force platform) and investigation on the occurrence/recurrence of falls was performed by interviews. The plasma concentration of 25-hydroxyvitamin D [25(OH)D] was measured by high-performance liquid chromatography. Statistical analysis was achieved by intention-to-treat, using analysis of variance, Student's t test, Tukey test, chi-square, and logistic regression.

RESULTS:

After 9 months, mean values of 25(OH)D increased from 15.0 ± 7.5 ng/mL to 27.5 ± 10.4 ng/mL (+45.4%) in the VITD group, and decreased from 16.9 ± 6.7 ng/mL to 13.8 ± 6.0 ng/mL (-18.5%) in the placebo group ($P < 0.001$). The occurrence of falls was higher in the placebo group (+46.3%) with an adjusted risk of 1.95 (95% confidence interval [CI] 1.23-3.08) times more likely to fall and 2.80 (95% CI 1.43-5.50) times higher for recurrent falls compared to the VITD group ($P < 0.001$). There was reduction in body sway by stabilometry, with lower amplitude of antero-posterior (-35.5%) and latero-lateral (-37.0%) oscillation, only in the VITD group ($P < 0.001$).

CONCLUSIONS:

In Brazilian postmenopausal women fallers, isolated vitamin D supplementation for 9 months resulted in a lower incidence of falls and improvement in postural balance.