

Calcium and vitamin D improve bone density in patients taking antiepileptic drugs

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A recent prospective, randomized, placebo-controlled clinical trial reports that calcium and vitamin D supplementation improves bone density in a group of male veterans with epilepsy who were treated chronically with antiepileptic drugs (AEDs). The results published in *Epilepsia*, a journal of the International League Against Epilepsy (ILAE), suggest that risedronate, a bisphosphonate, may help to prevent new vertebral fractures when taken with calcium and vitamin D supplementation.

Many patients with epilepsy are required to take chronically an AED such as phenytoin, phenobarbital, carbamazepine, primidone, and valproate alone or in combination to control seizures. There is much medical evidence reporting that these AEDs may accelerate [bone loss](#), increasing the risk of [osteoporotic fractures](#). In fact, previous studies found that more than 50% of adults with epilepsy who use AEDs showed decreased bone mass in their hips or spine and the overall fracture risk of patients with epilepsy is considered to be larger than the normal population.

"Long-term use of AEDs is associated with loss of bone mass and increased risk of osteoporosis," explains Dr. Antonio Lazzari with the VA Boston Healthcare System in Massachusetts and lead author of the present study. "Our study is the first longitudinal trial of a [bisphosphonate](#) (risedronate), along with calcium and vitamin D supplementation, in preventing and treating bone loss in male veterans with epilepsy receiving AED therapy."

The antiepileptic drug and osteoporosis prevention trial (ADOPT) was a prospective two-year randomized, double-blind, placebo-controlled phase IV clinical trial of 80 male veterans with epilepsy who were treated with an AED for a minimum of two years. All participants received calcium and vitamin D supplements, and were randomized to risedronate or placebo. Subjects received total body, hip, and spine bone density assessments at baseline, one year and two years following their study enrollment.

Baseline characteristics of subjects were similar and 53 patients completed the two-year study. Significant improvement in bone density compared to baseline was observed in 69% and 70% of patients in the placebo and active drug groups, respectively. Patients taking risedronate displayed a significant increase in bone density at the lumbar spine, compared to subjects in the placebo group.

Dr. Lazzari concludes, "Our findings suggest [calcium](#) and vitamin D with or without risedronate improves [bone density](#) in [epilepsy patients](#) taking AEDs. However five new vertebral fractures were observed in the [placebo group](#) and none in the active medication group. Adding risedronate to the supplements appears to prevent new fractures in this group of veterans."

The authors caution that therapy with antiresorptive agents should be limited to five years to reduce side effects associated with long-term use of this group of drugs including osteonecrosis of the jaw and atypical femoral fractures. Researchers recommend future studies of efficacy and safety with the long-term use of bisphosphonates in patients with epilepsy.

More information: "Prevention of Bone Loss and Vertebral Fractures in Patients with Chronic Epilepsy—Antiepileptic Drug and Osteoporosis Prevention Trial." Antonio A. Lazzari, Philip M. Dussault, Manisha

Thakore-James, David Gagnon, Errol Baker, Samuel A. Davis and Antoun M. Houranieh. *Epilepsia*; Print Publication: November, 2013
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