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From Medscape Medical News Potassium Citrate Boosts Bone Density in the Elderly



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November 29, 2010 (Denver, Colorado) — Daily supplementation with potassium citrate significantly increases bone mineral density (BMD) in the elderly and might even be an effective treatment for age-related bone loss, according to a 2-year placebo-controlled study presented here at Renal Week 2010: American Society of Nephrology 43rd Annual Meeting.

The Swiss study showed that after 2 years of daily supplementation with 60 mmol potassium citrate, the BMD of 201 healthy elderly subjects significantly increased, compared with those who received a placebo, and bone architecture improved.

"The results show that long-term neutralization of diet-induced acid loads by [potassium] citrate can significantly increase bone density in an elderly population with normal baseline BMD," said Sigrid Jehle, MD, from the University of Basel, Bruderholz/Basel, Switzerland.

The study participants were 61% female and 39% male, had an average age of 69.1 ± 3.3 years, and had normal baseline BMD; there were no differences between the treatment and placebo groups in any of their baseline BMD parameters (t score at L2 to L4 = -0.6).

Significant and sustained increases in BMD were observed in the potassium citrate group, as measured by dual-energy x-ray absorptiometry scans and quantitative computed tomography at baseline and at 24 months.

Lumbar BMD at month 24 in the potassium citrate group increased 1.8%, compared with a decrease of 0.04% in the placebo group ($P < .001$), and hip BMD increased 0.7% in the potassium citrate group, compared with a decrease of 1.3% in the placebo group.

Total body BMD increased 0.6% at month 24 in the potassium citrate group and decreased 0.8% in the placebo group.

The Western diet is widely regarded as playing a big role in bone loss because of its high acid content. Dr. Jehle and colleagues looked into the potential benefits of neutralization of dietary acid loads, Dr. Jehle said.

"The modern Western diet imposes, for the first time in human evolution, a chronic acid load on the human bone. Shorter-term studies on the neutralization of a dietary-induced acid load in humans have shown promising results in providing calcium retention and inhibiting bone resorption."

"In this [longer-term] study, we addressed the question of whether the neutralization of endogenous acid reduction can prevent bone loss in individuals with normal bone mass," she said.

"The results provide strong evidence of the important role of this neutralization in preventing and even treating age-associated decreases in bone mass."

The study is significant in helping to shed some light on the relationship between bone health and kidney disease, said Daniel Levy, MD, PhD, comoderator of the session and assistant professor of nephrology at the University of Chicago, Illinois.

"Nephrologists are aware of the adverse effects of acidosis on bone health in patients with renal disease," Dr. Levy said. "But it has not been clear whether alkali therapy would offer any benefit to elderly patients with normal kidney function and no evidence of acidosis. So the results are impressive."

Dr. Jehle and Dr. Levy have disclosed no relevant financial relationships.

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