Zoledronic Acid Prevents Poststroke Bone Loss

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HARROGATE, ENGLAND — A single injection of zoledronic acid can help counteract the loss of bone mass associated with acute stroke and reduce the likelihood of osteoporotic fractures if given soon after the event, a study has shown.

Patients injected with the long-acting, highly potent bisphosphonate within 35 days after suffering a stroke lost significantly less hip bone mineral density than matched control patients who received a placebo, reported Kenneth Poole, B.M., in a presentation at the annual conference of the National Osteoporosis Society.

The findings suggest that taking measures to prevent bone loss as a routine part of stroke management could significantly reduce the high rate of hip fractures among stroke survivors, Dr. Poole said.

"We know that osteoporosis is a significant complication of stroke, particularly when patients become fully or partly immobilized," said Dr. Poole. "When someone is put to bed and has an immobilized limb, the cells that break down bone are overactive." The risks are exacerbated by stroke-related lower-limb and vision problems, which lead to more falls and fractures.

Previous studies have shown that stroke survivors are more than four times as likely to suffer hip fractures than individuals in an age-matched reference population.

Most victims of stroke are already at risk for osteoporosis because of their age—more than half of all strokes occur in people older than 70—thus "they can ill afford to lose further bone, said Dr. Poole, who conducted the study with colleagues from the University of Cambridge, England.

The investigators randomly assigned 16 patients to receive 4 mg of zoledronic acid (Zometa) or placebo by intravenous injection within 35 days of acute stroke. All patients also received daily oral calcium and vitamin D supplementation. Bone mineral density (BMD) measurements were obtained in the hemiplegic and unaffected total hip region of all participants at baseline and at months 6 and 12.

At 1 year, patients in the placebo group had a significantly greater reduction of BMD in both hips, compared with those in the zoledronic acid group. The mean percentage decrease in BMD at the hemiplegic and unaffected hips, respectively, of the control patients was 10.2% and 6.0%. By contrast, the patients treated with zoledronic acid group had no decrease in BMD at either site. Zoledronic acid was well tolerated and associated with no serious adverse events. Dr. Poole reported no financial interests relating to zoledronic acid or its manufacturer, Novartis. ■

Methotrexate Cuts Bone Loss Effects, Lowers sRANKL

In patients with rheumatoid arthritis, methotrexate significantly reduces abnormally elevated levels of plasmatic sRANKL, the main cytokine involved in inducing osteoporosis and bone erosions, Doina Baltaru, M.D., reported at the 4th International Congress on Autoimmunity.

Soluble RANKL (receptor activator of nuclear factor-kappa B ligand) is a member of the tumor necrosis factor cytokines and plays a major role in the regulation of bone remodeling, specifically in the stimulation of osteoclast formation, said Dr. Baltaru, of the Emergency Military Hospital in Cluj-Napoca, Romania.

Dr. Baltaru and her colleagues evaluated plasma sRANKL levels of 15 patients with rheumatoid arthritis, who had never received corticosteroids or disease-modifying antirheumatic drugs.

The study participants were assessed before and after 3 months of methotrexate therapy (15 mg/week). sRANKL levels were also evaluated in 7 healthy controls and 10 patients with type I osteoporosis.

Plasma sRANKL values were determined by quantitative enzyme-linked immunosorbent assay. At baseline, the median sRANKL value for RA patients was 467 pg/mL, though there was a wide variation (70-1,500 pg/mL). Levels ranged between 10-30 pg/mL for normal subjects and 20-200 pg/mL in patients with osteoporosis.

Methotrexate therapy significantly reduced plasma sRANKL levels in the rheumatoid arthritis patients, to a median value of 185 pg/mL.

—Kerri Wachter

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Important NSAID risk information: Patients should be informed about the signs and/or symptoms of serious GI toxicity and the steps to take if they occur. It has been demonstrated that upper GI ulcers, gross bleeding or perforation, caused by NSAIDs, appear to occur in approximately 1% of the patients treated for 3-6 months, and in about 2-4% of patients treated for one year. Serious GI bleeding can occur without warning.

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References: 1. Yocum D, Fleischmann R, Dalgin P, et al. Safety and efficacy of meloxicam in the treatment of osteoarthritis: a 12-week, double-blind, multiple-dose, placebo-controlled trial. *Arch Intern Med.* 2000;160:2947-2954. 2. Singh G, Lanes S, Triadafilopoulos G. Risk of serious upper gastrointestinal and cardiovascular thromboembolic complications with meloxicam. *Am J Med.* 2004;117:100-106. 3. Data on file, Boehringer Ingelheim Pharmaceuticals, Inc.