Romosozumab Lowers the Risk of Fractures in Postmenopausal Women With Osteoporosis

Postmenopausal women with osteoporosis who receive romosozumab followed by alendronate have a lower risk of fractures compared with women who receive only alendronate.

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February 8, 2021 – Postmenopausal women with osteoporosis who received romosozumab followed by alendronate had a 48% lower risk of new vertebral fractures compared with women who received only alendronate, according to a new study.

Kenneth Saag, MD, MSc, with the Department of Medicine, University of Alabama at Birmingham, and colleagues reported their findings in the October 12, 2017, issue of the *New England Journal of Medicine*.

Alendronate, an antiresorptive agent, is typically used as a first-line agent for osteoporosis, while romosozumab, a bone-forming monoclonal antibody, is a novel agent with promising data for preventing fractures in postmenopausal women with osteoporosis. Through a unique mechanism of action, romosozumab stimulates bone formation and decreases bone resorption. Although romosozumab has been shown to reduce fractures at a higher rate than placebo, head-to-head trials of romosozumab compared with alendronate were lacking until this study.

The study enrolled 4093 postmenopausal women with osteoporosis who had current or recent vertebral fractures. They received either subcutaneous romosozumab 210 mg once monthly or oral alendronate 70 mg once weekly. After 12 months of therapy, all participants were started on oral alendronate 70 mg once weekly until the end of the study. The investigators measured the incidence of new vertebral fractures and the incidence of other clinical fractures after 24 months of treatment.

Women receiving romosozumab followed by alendronate had a 48% lower risk of new vertebral fractures compared with women receiving only alendronate for 24 months (risk ratio, 0.52; 95% confidence interval [CI], 0.40 to 0.66; $P < .001$). Similarly, romosozumab followed by alendronate led to a 27% lower risk of other clinical fractures (hazard ratio [HR], 0.73; 95% CI, 0.61 to 0.88; $P < .001$), a 19% lower risk of nonvertebral fractures (HR, 0.81; 95% CI, 0.66 to 0.99; $P = .04$), and a 38% lower risk of hip fractures (HR, 0.62; 95% CI, 0.42 to 0.92; $P = .02$) compared with alendronate alone.

Overall, adverse events were similar between romosozumab-to-alendronate and alendronate alone treatments, except for serious cardiovascular adverse events occurring more frequently with romosozumab during the first year (2.5% vs 1.9%).

“Rapid gains in bone mineral density from bone-forming therapy with romosozumab were associated with a lower risk of fracture than with alendronate within 1 year and over the course of romosozumab followed by alendronate,” concluded Dr Saag and colleagues.

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