Fracture Risk Reduction on Teriparatide Is Robust

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SAN FRANCISCO — Osteoporotic women treated with teriparatide often gain lumbar spine bone mineral density and lower their risk of vertebral fracture, even if they lose hip bone mineral density, Dr. Nelson B. Watts reported in a poster presentation at the annual meeting of the International Society for Clinical Densitometry.

Previous studies have shown that increased areal lumbar spine bone mineral density (BMD) accounts for 30%-41% of the reduction in vertebral fracture risk from teriparatide treatment. In clinical practice, loss of BMD in other areas, such as the femoral neck, has been viewed by some as a lack of response to therapy.

The current post hoc analysis of data on 1,216 women found that vertebral fracture risk was independent of gains or losses in femoral neck BMD in women taking teriparatide, compared with women on placebo, reported Dr. Watts, program director of the bone health and osteoporosis center at the University of Cincinnati, and his associates.

Vertebral fracture risk was independent of gains and losses in femoral neck BMD.

DR. WATTS

The investigators analyzed data on women with a history of vertebral fractures who were randomized to take 20 or 40 mcg/day of teriparatide or placebo in the double-blind Fracture Prevention Trial. The women self-administered the treatments subcutaneously and also received daily supplements of 1,000 mg of calcium and 400-1,200 IU of vitamin D.

The current analysis focused on a subset of 1,216 women who had femoral neck BMD measured both at baseline and after 12 months of therapy by dual-energy x-ray absorptiometry (DXA) and who had lateral thoracic and lumbar spine radiographs taken both at baseline and at the study end point, a median of 19 months from baseline.

The risk of vertebral fracture was calculated for women on placebo and for women in four subgroups of teriparatide therapy based on changes in femoral neck BMD 1 year from baseline. The women on teriparatide were divided as follows: those who lost more than 4% of femoral neck BMD, those who lost up to 4% in density, those who gained up to 4% in density, and those who gained more than 4% in femoral neck BMD.

In the combined teriparatide groups, a significantly greater proportion (35%) gained more than 4% in femoral neck BMD, compared with those on placebo (17%). This finding supports previous studies that showed that teriparatide can improve bone geometric strength at the femoral neck, compared with placebo.

Women in the current study showed significant reductions in vertebral fracture risk on teriparatide therapy, compared with placebo, regardless of changes in femoral neck BMD at 1 year, Dr. Watts reported.

Among women with greater than a 4% loss in femoral neck density, 2 (2%) of 82 women on teriparatide developed vertebral fractures, compared with 14 (23%) of 61 women on placebo. Among women with up to a 4% loss in femoral neck density, 5 (3%) of 182 women on teriparatide and 15 (10%) of 149 women on placebo developed vertebral fractures.

Among women with up to a 4% gain in femoral neck BMD, vertebral fractures were seen in 5 (3%) of 182 women on teriparatide and 19 (15%) of 124 women on placebo. Among women with greater than a 4% gain in femoral neck density, 14 (5%) of 282 on teriparatide and 9 (14%) of 66 on placebo developed vertebral fractures.

Lumbar spine BMD increased significantly more in women on teriparatide, compared with placebo, regardless of changes in femoral neck density. Lumbar spine density increased by 3% or greater in 78%-92% of women on teriparatide in the four femoral neck subgroups.

The study was funded by the company that makes teriparatide, Eli Lilly & Co., which also provided the layout for the poster. Dr. Watts is a consultant for the company. His report was rated one of the top posters at the meeting. ■