

ORIGINAL ARTICLE

Teriparatide or Alendronate in Glucocorticoid-Induced Osteoporosis

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ABSTRACT

BACKGROUND

Bisphosphonate therapy is the current standard of care for the prevention and treatment of glucocorticoid-induced osteoporosis. Studies of anabolic therapy in patients who are receiving long-term glucocorticoids and are at high risk for fracture are lacking.

METHODS

In an 18-month randomized, double-blind, controlled trial, we compared teriparatide with alendronate in 428 women and men with osteoporosis (ages, 22 to 89 years) who had received glucocorticoids for at least 3 months (prednisone equivalent, 5 mg daily or more). A total of 214 patients received 20 μ g of teriparatide once daily, and 214 received 10 mg of alendronate once daily. The primary outcome was the change in bone mineral density at the lumbar spine. Secondary outcomes included changes in bone mineral density at the total hip and in markers of bone turnover, the time to changes in bone mineral density, the incidence of fractures, and safety.

RESULTS

At the last measurement, the mean (\pm SE) bone mineral density at the lumbar spine had increased more in the teriparatide group than in the alendronate group ($7.2\pm 0.7\%$ vs. $3.4\pm 0.7\%$, $P<0.001$). A significant difference between the groups was reached by 6 months ($P<0.001$). At 12 months, bone mineral density at the total hip had increased more in the teriparatide group. Fewer new vertebral fractures occurred in the teriparatide group than in the alendronate group (0.6% vs. 6.1%, $P=0.004$); the incidence of nonvertebral fractures was similar in the two groups (5.6% vs. 3.7%, $P=0.36$). Significantly more patients in the teriparatide group had at least one elevated measure of serum calcium.

CONCLUSIONS

Among patients with osteoporosis who were at high risk for fracture, bone mineral density increased more in patients receiving teriparatide than in those receiving alendronate. (ClinicalTrials.gov number, NCT00051558.)

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