

[2008] [OP-0129] ASSOCIATION BETWEEN CHANGES IN BONE MINERAL DENSITY AND VERTEBRAL FRACTURE INCIDENCE IN UNTREATED POSTMENOPAUSAL WOMEN: A 3-YEAR PROSPECTIVE STUDY

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Background: Several epidemiologic studies have shown that, in untreated patients, low bone mineral density (BMD) is consistently correlated with increased fracture risk. However, very few prospective studies have assessed the relationship between bone loss over time and fracture risk.

Methods: Patients from the placebo group of the SOTI and TROPOS trials were included in this study. SOTI and TROPOS were two recent studies having assessed the anti-fracture efficacy of strontium ranelate in osteoporosis. BMD was assessed at baseline and after a follow-up of 3 years at the lumbar spine, the femoral neck and the total proximal femur. Vertebral fractures were assessed on spinal radiographs using a semiquantitative method. All patients received calcium and vitamin D.

Results: 1952 patients aged mean (SD) 73 (0.6) years were included in the present analysis. The logistic regression analysis, including age, body mass index, prevalent vertebral fracture and baseline BMD as covariates, showed that 3-year change in lumbar BMD changes was not statistically associated with the new vertebral fractures after 3 years. However, femoral neck and total proximal femur BMD changes was statistically associated with the incidence of new vertebral fractures ($p < 0.001$). For each decrease of 1% in femoral neck or total proximal femur BMD, the risk to experience a new vertebral fracture after 3 years increased by 6 and 5%, respectively (95%CI 4%-8% for femoral neck BMD and 3%-7% for total proximal femur BMD). The incidence of vertebral fracture in each quartile of total proximal femur BMD changes was 26.0% (Q1), 20.3% (Q2), 15.4% (Q3) and 15.7% (Q4) ($p < 0.0001$). The risk to experience new vertebral fractures in patients in the lowest quartile of total proximal femur BMD change ($< -5.27\%$) is increased by 66% (95%CI 28%-114%, $p < 0.001$) compared to patients in the highest quartiles ($> +0.66\%$).

Conclusion: In this elderly osteoporotic untreated population followed for 3 years, a decrease in femoral neck or total proximal femur BMD is associated with an increased risk of vertebral fracture incidence. However, spine BMD changes do not seem to be associated with vertebral fracture incidence.

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The osteoporotic spine

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