

Inverse relationship between vertebral fractures and spine osteoarthritis in postmenopausal women with osteoporosis

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**BACKGROUND:** Although the coexistence of osteoarthritis and osteoporosis is considered as uncommon, it has been suggested that, in postmenopausal women, disc space narrowing increases the risk of vertebral fracture. The aim of this study was to check this hypothesis in postmenopausal women with osteoporosis. **OBJECTIVE:** We analysed the relationship between vertebral fractures and spine osteoarthritis in 410 postmenopausal women with osteoporosis: in this population both disc space narrowing and osteophytes are inversely related to vertebral fractures. **PATIENTS AND METHODS:** This study is based on baseline data collected in a multicentre, prospective and 6-month longitudinal observational study. 410 postmenopausal women (74 $\pm$ 5 years) were enrolled who had consulted for back pain, and had osteoporosis (according to WHO definition). Spine x-rays were performed according to standardised procedures. Vertebral fractures were evaluated from T4 to L4 using the Genant's semiquantitative method; osteoarthritis was evaluated by scoring osteophytes and disc space narrowing at all levels of the thoracic and lumbar spine, and by a qualitative assessment of facet joint arthritis. **RESULTS:** The prevalence of vertebral fractures was 52.4%. At least one osteophyte, one disc space narrowing and one facet arthritis were present in 90.2, 64.6 and 77.8% of patients respectively. There was an inverse association between vertebral fractures and osteoarthritis: odds ratios adjusted for age and weight (95% CI) were 0.38 (0.17-0.86),  $p = 0.02$  and 0.27 (0.16-0.46),  $p < 10^{-4}$  for the presence of at least one osteophyte, and of at least three disc space narrowings respectively. In a cluster analysis, it was possible to identify a subgroup of patients without any disc space narrowing, and another subgroup with all patients having at least one disc space narrowing; the proportion of patients having more than three vertebral fractures was 25.2 and 15.9% in these two clusters respectively.

**CONCLUSIONS:** Disc space narrowing and osteophytes are associated with a decreased vertebral fracture prevalence in postmenopausal women with osteoporosis.

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