

Prophylactic adjacent-segment vertebroplasty following kyphoplasty for a single osteoporotic vertebral fracture and the risk of adjacent fractures: a retrospective study and clinical experience

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Abstract

OBJECTIVE This study investigated the benefit of prophylactic vertebroplasty of the adjacent vertebrae in single-segment osteoporotic vertebral body fractures treated with kyphoplasty. **METHODS** All patients treated with kyphoplasty for osteoporotic single-segment fractures between January 2007 and August 2012 were included in this retrospective study. The patients received either kyphoplasty alone (kyphoplasty group) or kyphoplasty with additional vertebroplasty of the adjacent segment (vertebroplasty group). The segmental kyphosis with the rate of adjacent-segment fractures (ASFs) and remote fractures were studied on plain lateral radiographs preoperatively, postoperatively, at 3 months, and at final follow-up. **RESULTS** Thirty-seven (82%) of a possible 45 patients were included for the analysis, with a mean follow-up of 16 months (range 3-54 months). The study population included 31 women, and the mean age of the total patient population was 72 years old (range 53-86 years). In 21 patients (57%), the fracture was in the thoracolumbar junction. Eighteen patients were treated with additional vertebroplasty and 19 with kyphoplasty only. The segmental kyphosis increased in both groups at final follow-up. A fracture through the primary treated vertebra (kyphoplasty) was found in 4 (22%) of the vertebroplasty group and in 3 (16%) of the kyphoplasty group ($p = 0.6$). An ASF was found in 50% ($n = 9$) of the vertebroplasty group and in 16% ($n = 3$) of the kyphoplasty group ($p = 0.03$). Remote fractures occurred in 1 patient in each group ($p = 1.0$). **CONCLUSIONS** Prophylactic vertebroplasty of the adjacent vertebra in patients with single-segment osteoporotic fractures as performed in this study did not decrease the rate of adjacent fractures. Based on these retrospective data, the possible benefits of prophylactic vertebroplasty do not compensate for the possible risks of an additional cement augmentation.

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