Randomized controlled trial of percutaneous vertebroplasty versus optimal medical management for the relief of pain and disability in acute osteoporotic vertebral compression fractures

Clinical article

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Abstract

Object. Osteoporotic vertebral compression fractures (VCFs) are a major cause of increased morbidity in older patients. This randomized controlled trial compared the efficacy of percutaneous vertebroplasty (PV) versus optimal medical therapy (OMT) in controlling pain and improving the quality of life (QOL) in patients with VCFs. Efficacy was measured as the incidence of new vertebral fractures after PV, restoration of vertebral body height (VBH), and correction of deformity.

Methods. Of 105 patients with acute osteoporotic VCFs, 82 were eligible for participation: 40 patients underwent PV and 42 received OMT. Primary outcomes were control of pain and improvement in QOL before treatment, and these were measured at 1 week and at 2, 6, 12, 24, and 36 months after the beginning of the treatment. Radiological evaluation to measure VBH and sagittal index was performed before and after treatment in both groups and after 36 months of follow-up.

Results. The authors found a statistically significant improvement in pain in the PV group compared with the OMT group at 1 week (difference -3.1, 95% CI -3.72 to -2.28; p < 0.001). The QOL improved significantly in the PV group (difference -14, 95% CI -15 to -12.82; p < 0.028). One week after PV, the average VBH restoration was 8 mm and the correction of deformity was 8°. The incidence of new fractures in the OMT group (13.3%) was higher than in the PV group (2.2%; p < 0.01).

Conclusions. The PV group had statistically significant improvements in visual analog scale and QOL scores maintained over 24 months, improved VBH maintained over 36 months, and fewer adjacent-level fractures compared with the OMT group.

Key Words • osteoporosis • vertebroplasty • vertebral compression fracture • spine • pain