Vertebroplasty: analysis of clinical outcomes and predictors of prognoses

Szu-Kai Hsu¹  Ming-Yuan Chang¹  Ying Kao¹  Cheng-Ta Hsieh¹  Chih-Ta Huang¹  Jing-Shan Huang¹  Chih-Ju Chang¹,*

Background and purpose: A retrospective study was carried out to detect risk factors for less improvement in symptoms after vertebroplasty and the efficiency of vertebroplasty for patients with a compression fracture of spine. Methods: We retrospectively reviewed 103 patients with compression fractures from January 2005 to November 2009. Patients received percutaneous vertebroplasty (PV) with bone cement augmentation by a single neurosurgeon. Comparisons between preoperative and postoperative visual analogue scale (VAS; 0–10) scores were made in order to identify the degree of improvement. The statistical analysis indicated the efficiency and risk factors. Results: Among our 103 patients, postoperative infection was noted in 1 patient. There were no other major complications. In general, dramatic improvements in initial clinical symptoms were noted using VAS scores. However, patients with risk factors made less improvement than those without. The risk factors were (1) old age (p<0.05), (2) multiple-level compression fractures (p<0.05), and (3) other underlying diseases associated with the compression fracture such as metastasis and osteomyelitis (p<0.05). Furthermore, we also found that if there was less improvement in VAS scores after PV, there was a higher chance that 1 or more subsequent operations would be needed. Conclusions: PV is a good method for pain relief in the acute stage of a compression fracture. However, since osteoporosis is a systemic disease, further medical treatment is needed in addition to surgical intervention. Our analysis identified some risk factors that are predictors of limited improvement of symptoms in our case series. In addition, there was a trend between patients with lower VAS score improvement and the occurrence of fracture at an adjacent level.

Key words: percutaneous vertebroplasty, osteoporotic compression fracture, outcome