Surgical Outcome in Thoracolumbar Fractures Managed by Short-segment Pedicle Instrumentation
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Abstract

Introduction: This study aims to evaluate the efficiency of short-segment instrumentation in treating thoracolumbar fractures in our institute. Materials and Methods: Twenty-two patients underwent posterior short-segment instrumentation for thoracolumbar fractures in our institute from 2007 to 2010 were included in this retrospective study. Radiological evaluations were carried out by measuring regional kyphosis angle (RA), anterior vertebral body compression percentage (AVC), and sagittal index (SI) during preoperative, postoperative and final follow-up, with the aim to investigate the rate of correction loss and implantation failure in relation to the Arbeitsgemeinschaft für Osteosynthese (AO) classification of fracture system and the Load Sharing score system. CT scans were also used to determine the preoperative to postoperative canal compromise ratio. During the final follow-up, clinical outcomes were analysed based on scores from the Denis’ Pain’s and Work scales and neurological function was scored according to the Frankel classification. Results: At the final follow-up (average duration of 15 months), 21 patients (95%) who partially or fully recovered from thoracolumbar fractures were able to resume daily activities with no complaints of pain, or only slight pain. No deterioration in neurological function were recorded. Upon evaluation at each point of time, (preoperative, postoperative and final follow-up), the average RA improved from 21º to 3.5º to 5.6º, average AVC improved from 40.8% to 90.2% to 88.2%, and average SI changed from 19.1º to 3.1º to 4.1º, respectively. Average canal compromise ratio decreased from 45% to 6.7% after surgery. No correlation was found between loss of correction and AO classification of fracture system, and loss of correction and Load Sharing system scores. Also, no correlation was found between clinical outcomes and the correction loss limited to 10º. Conclusion: Posterior short-segment fixation in thoracolumbar fractures showed a satisfactory outcome in 95% of the patients based on a 15-month follow-up in our institute, even among patients with comminuted fractures injuries.

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Key words: Short-segment fixation, Spine, Kyphosis angle