

Characteristics and clinical outcomes of transition from conservative therapy to surgery in older patients with cervical spinal cord injury without major bone injury: A nationwide retrospective study

Noriaki Yokogawa, Satoshi Kato, Takaki Shimizu, Yuji Ishino, Kazuhiro Nanpo, Megumu Kawai, Narimichi Takino, Satoru Demura

INTRODUCTION: Cervical spinal cord injury (CSCI) without major bone injury is increasing among older adults, particularly in aging societies. Although conservative management is often preferred for older patients, some ultimately require surgical intervention due to insufficient recovery or neurological deterioration. This study aimed to characterize older patients who transitioned from conservative therapy to surgery and to evaluate their clinical outcomes.

METHODS: This nationwide, retrospective study examined data from patients aged ≥ 65 years with CSCI without major bone injury. The patients were categorized into 3 groups: conservative treatment, planned surgery, and those who switched from conservative treatment to surgery. Risk factors for failure of conservative therapy were analyzed, and outcomes at 6 months post-injury were compared between patients who underwent planned surgery and those who required delayed surgery after failed conservative management.

RESULTS:

Among 615 patients, 422 (68.6%) received conservative treatment, 193 (31.4%) underwent planned surgery, and 116 (18.9%) transitioned from conservative to surgical treatment. The most common reasons for conversion were poor neurological improvement or progression of deficits. Significant risk factors for transition included younger age, presence of ossification of the posterior longitudinal ligament, and spinal cord signal changes on MRI. There were no significant differences in neurological outcomes or complication rates between the planned surgery group and the delayed surgery group.

DISCUSSION AND CONCLUSION:

A considerable proportion of older patients with CSCI without major bone injury initially managed conservatively eventually required surgery due to inadequate neurological improvement. However, their outcomes were comparable to those who underwent early surgery. Given the potential for spontaneous recovery and the increased surgical risks associated with comorbidities in older adults, an initial conservative approach with careful monitoring may be appropriate in many cases. Surgery should be considered if there is insufficient improvement, but early intervention may still be warranted depending on the severity of paralysis and individual clinical context. A case-by-case assessment is essential, and further research is needed to identify patients who are most likely to benefit from early surgical intervention and to establish clearer guidelines for treatment selection in this population.