

The Safety and Efficacy of Early Surgery for Traumatic Central Cord Syndrome

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Introduction

The role of early surgical decompression in traumatic central cord syndrome (TCCS) is controversial. With the aging population, the identification of treatment strategies that mitigate disability and improve functional status in this vulnerable population is a public health priority. To that end, we sought to evaluate the impact of time to surgery on clinical outcomes in patients with TCCS.

Methods

Patients with TCCS, defined by LEMS–UEMS>=10, were identified from a prospective, multi-center registry of acute traumatic spinal cord injury. Baseline characteristics and outcomes were compared in patients who underwent early (<24 hrs.) versus delayed (>=24 hrs.) surgery. Multiple linear regression was performed for change in ASIA motor score (AMS) at 6 months with age, initial AMS, initial AIS, time to surgery, and instability (fracture/dislocation) as predictors. Interaction terms were included for time to surgery, initial AIS, and instability based on an a priori hypothesis that the impact of time to surgery on motor recovery would be more pronounced in patients without instability and those with AIS C injuries.

Results

Seventy-three patients met criteria, with 28 (38.4%) undergoing early surgery. Mean improvement in AMS at 6 months was greater in the early (30.4 points) than delayed (20.9 points) surgery group (P=0.045). Early surgery was also associated with greater improvement in FIM motor subscore (38.2 vs. 20.3 points, P=0.006). There was no difference in complications. Initial AMS (P<0.001) and time to surgery (P<0.001) were significant negative predictors of change in AMS at 6 months. Interactions revealed the beneficial effect of earlier surgery on motor recovery was most pronounced in patients with AIS C injuries (P=0.001) without instability (P=0.06) (Fig. 1).

Conclusions

Early surgical decompression is safe and effective in patients with TCCS. Shorter time to surgery positively impacts motor recovery; this effect is most pronounced in patients with AIS C injuries without instability.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) understand the landscape of the literature surrounding traumatic central cord syndrome (TCCS); 2) describe the rationale for undertaking early surgical decompression for TCCS; 3) understand the data supporting the safety and efficacy of early surgical decompression for TCCS

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