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Same-Day Surgery For Central Cord Syndrome Is Associated With Fewer Complications

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Keywords

Central cord syndrome, surgery, early, outcomes, complications, morbidity

Abstract

Introduction

Central cord syndrome (CCS) is a devastating incomplete spinal cord injury resulting in weakness affecting the upper extremities more than the lower. Surgery yields greater neurologic recovery than non-operative management. During the past decade, strong scientific evidence for earlier surgery has emerged, showing improved outcomes and fewer complications. The goal of this study was to correlate timing of surgery to medical complications and whether rates of early surgery have been increasing in line with recent evidence.

Methods

This was a retrospective cross-sectional review of patients diagnosed with CCS using the National Surgery Quality Improvement Program (NSQIP) database, containing de-identified data from 2010-2020 between patient admission and 30-days post-operatively. Univariate chi-squared analysis and multivariate logistic regression was used to analyze the impact of predictor variables, including age, gender, ASA score, time to surgery from admission, operation length, and surgical approach on complication rates. Time to surgery subgroups included same-day surgery, within-next-day surgery, and late-surgery group who received surgery after the next day. The percentage of patients receiving surgery within the specified time frame was trended to see if early surgery was gaining popularity.

Results

Multivariate analysis of 798 CCS patients revealed that only the same-day surgery group was associated with significantly fewer complications ($p=0.010$). Among all three groups, younger age, lower ASA scores (1-3), and shorter operation length were associated with fewer post-operative complications ($p<0.001$). Approximately one quarter of patients received same-day surgery over the span of 10 years, with a slight increase between 2018-2020.

Conclusion

Early surgery benefits are maximized during same-day surgery, particularly for younger patients, those with ASA scores 1-3, and shorter operative length. Despite increasing evidence for early surgery, the NSQIP database demonstrates minimally increased early surgery rates for patients with CCS, more so due to an increase in patients receiving next-day surgery versus same-day surgery.