Central Cord Syndrome: Review of Treatment at a Level one Trauma Center

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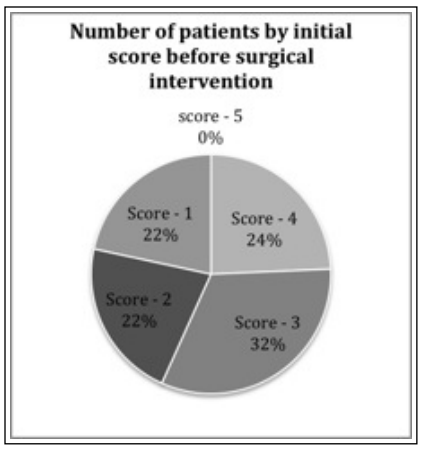
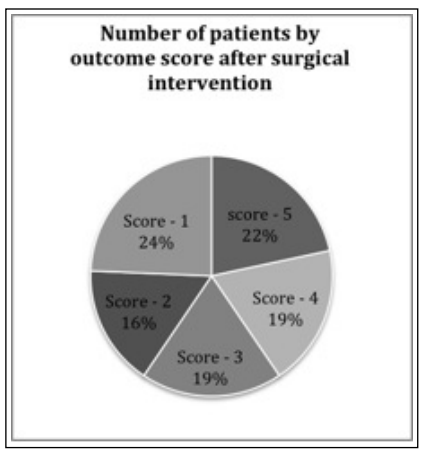
Introduction

Acute traumatic central cord syndrome, is one of the leading causes of incomplete spinal cord injury, it can have devastating social, occupational, and economic consequences that can range from relatively transient to permanent. The need to understand interventional outcome modifiers, in order to maximize functional neurological recovery is paramount. Specific treatment protocols, however, remain controversial. Time of surgery and patient age are variables that have repeatedly surfaced in the literature as possible predictors of outcome, but their importance remains incompletely understood.



Methods

The University of Arizona Trauma database was used to retrospectively review patients from 2006 to 2011. Fifty patients in this database met clinical criteria for a diagnosis of central cord syndrome. Patients were evaluated on type of intervention (medical vs. surgical), timing of surgical intervention, age, and functional outcome using a modified Frankel Classification. We also analyzed outcome differences between the elderly (>65 years) and younger patients (<65). A one-way ANOVA analysis with Mann-Whitney posttest was used to search for statistically significant differences between surgically treated patients that underwent intervention within 24h from presentation vs. after 24h from presentation. T-test was used to compare singular variables on interval data.



Results

The combined median age was 46 years with males and females being 49.5 and 35.5 years old respectively. Seventy four percent underwent surgery while 26% were treated non-operatively (medical). The median age for the surgical intervention group was 46 years and 44 in the medical group. Forty-three percent, of the surgery group, presented with a score of one or two (quadriplegia or paraplegia) and upon follow up that was reduced to 40%. The remaining 57% had a score of three or four (impairment or weakness), which was reduced to 38%, with 22% returning to normal function. In the medically treated group, only 8% returned to normal function with almost no improvement in patients who presented with a score of two or three (paraplegia or impairment). There was no significant differences found between the early (<24h) surgery and late surgery groups. The mean improvement in Frankel score was 0.31 in the early surgery group and 0.57 in the late group (p=0.29). Patients under the median age of 46 had significantly better (p=0.0485) improvements in their Frankel Scores (0.75 vs. 0.35).

Learning Objectives

Central cord can be quite a debilitating pathology and much wider study is needed for improved recommendations on type of treatment and timing.

Conclusions

In this retrospective review of 50 cases of acute traumatic central cord syndrome treated at our level one trauma center over a five year period, our data appears consistent with previously reported series in relation to demographics, outcomes, and superiority of surgical to medical management. Our data shows a trend towards greater improvement in functional outcomes with late (>24h) surgical management. This small retrospective study may be underpowered, but in light of modern and historical literature still failing to demonstrate a clearly superior management strategy, we posit that the “early” category may often contain data points confounded by variable delays in patient presentation and that even a cutoff of 24h from patient presentation to surgery may be too generous. We intend to prospectively study ultra-early intervention (<24h after symptom onset) in attempt to more definitively answer this question.

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