



Central Sensitization Inventory as a Predictor of Worse Quality of Life Measures Following Cervical and Lumbar Spinal Fusion

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Introduction

Central sensitization (CS) is an abnormal and intense enhancement of pain mechanism by the central nervous system. Patients with CS may be at higher risk of poor outcomes following spinal fusion. The Central Sensitivity Inventory or Index (CSI) was developed to identify and quantify key symptoms related to central sensitization. The goal of this study is to evaluate pretreatment CSI as a predictor of post-operative quality of life (QOL) measures in patients who underwent spinal fusion.

Methods

Retrospective cohort study evaluating all patients who underwent cervical or lumbar spinal fusion at the Cleveland Clinic between 2010 and 2014. Data was obtained from a prospective maintained database. Inclusion criteria included: CSI completion pre-operatively, age 18 or greater, and QOL values pre- and post-operatively. Linear regression modeling was used to evaluate pre-operative CSI as a predictor of post-operative QOL outcomes.

Results

There were no significant differences in demographic or clinical characteristics including preoperative CSI value between those included and excluded in the analysis ($p > 0.05$ for all). Of the included patients, 576 scored 40 or higher on the CSI and 449 scored less than 40. Patients who scored 40 or higher on the CSI were, on average, more likely to be female, less likely to be married, more likely to be a current smoker, lived in zip codes with lower median household income, had worse pre-operative scores for the PDQ, EQ-5D, and PHQ-9, and were more likely to not be working due to medical reasons and receiving worker’s compensation. Pre-operative CSI score was significantly associated with worse post-operative scores for the PDQ total ($P = 0.0254$), PHQ-9 score ($P = 0.0014$), and EQ-5D index ($P < 0.0001$).

Conclusions

CSI may be an additional measure to use in evaluating patients pre-operatively to better predict successful outcomes following cervical and lumbar fusion.

Learning Objectives

- 1) Describe central sensitization.
- 2) Understand Central Sensitivity Inventory as a way for identifying patients with central sensitization.
- 3) Discuss the Central Sensitivity Inventory as a predictor of quality of life measures following spinal fusion.

References

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