

Multivariate Analysis of Factors Affecting Functional Outcomes and Disposition After Atlantoaxial Fusion

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Introduction

Atlantoaxial fusion is a highly effective procedure for treating degenerative, traumatic, and congenital abnormalities that result in upper cervical instability; however, data on which factors affect patient outcome measures and length of stay are limited.

Methods

We utilized a clinical database to identify outcomes in patients who underwent isolated posterior atlantoaxial fusion at a single institution from 2010 to 2015. Patients were excluded if additional surgical procedures were performed at time of posterior cervical fusion. Primary outcomes included length of stay, neck visual analog scale (VAS) scores, neck disability index (NDI) scores, and EuroQol scores as measured by the time tradeoff method. Additional demographic variables, as well as clinical and surgical variables were recorded. T-test and Chi-square testing as well as univariate and multivariate analysis were performed with $p < 0.05$ considered significant.

Results

We identified 59 patients who met inclusion and exclusion criteria. Patients demonstrated significant improvements in VAS, NDI, and EuroQol scores at 3 months and 6 months postoperatively. On multivariate analysis preoperative opioid use was shown to be significantly associated with NDI change at 6 months follow-up, and discharge location (i.e., home, skilled nursing facility, or inpatient rehabilitation) was shown to be significantly associated with length of stay.

Conclusions

Posterior atlantoaxial fusion is a highly successful procedure resulting in significant improvements in multiple patient-reported outcomes. While various pre-, intra-, and postoperative factors may affect an individual patient's response to and recovery from surgery, only preoperative opioid use was shown to significantly impact patient reported outcomes and only inability to discharge home was associated with a significant increase in length of stay.

Learning Objectives

By the conclusion of this session, participants should be able to

- 1) Describe the importance of different pre-operative, intra-operative and post-operative variables on length of stay and outcome following atlantoaxial fusion
- 2) Discuss, in small groups, what patients may benefit from atlantoaxial fusion
- 3) Identify what patients may be at risk for less dramatic improvement in functional status after atlantoaxial fusion

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