



Risk Factors for Complications and Extended Length of Stay for Patients Undergoing Anterior Fixation for Odontoid Fractures

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Introduction

Despite odontoid fractures being the most common fractures of the atlantoaxial cervical spine, they are still quite rare. Currently, the literature does not provide clear guidelines as to which approach provides superior outcomes. The purpose of this study was to assess outcomes when patients undergo anterior fixation.

Methods

Patients were identified by CPT (Current Procedural Terminology) code in the American College of Surgeon's National Surgical Quality Improvement Program (ACS-NSQIP) database. CPT codes 22318 and 22319 were used to extract all patients that underwent anterior fixation for odontoid fractures. Patients were divided into two cohorts: any complication and without complications. Univariate analysis was performed on demographics, comorbidities and operative variables. Multivariate logistic regression was done to determine independent risk factors increasing Length of Stay (LOS) >5 days in patients undergoing anterior fixation for odontoid fractures. Level of significance was set at $p=0.05$.

Results

There were 103 patients that underwent anterior fixation for odontoid fractures from 2007-2012. Older patients (65 = years) were observed at a greater rate in the cohort with any complication than those without complications (93.94% vs. 72.86%, $p=0.013$). Female patients were more likely to have a complication than men (75.76% vs. 24.24%, $p=0.037$). With regard to comorbidities, peripheral vascular disease was increased in the complication cohort (9.09% vs. 0.00%, $p=0.015$) as well as bleeding disorders (27.27% vs. 7.14%, $p=0.005$). Non-complication cohort utilized graft at a rate of 4.29% while in the complication cohort it was implemented at a rate of 3.03%; however, these differences were not statistically significant. Death was seen in 6.80% of all patients undergoing anterior fixation. Postoperative blood transfusion (22.33%) and LOS > 5 days (45.63%) were the most common complications observed. Multivariate logistic regression for LOS >5 days in these patients showed that ASA = 3 independently increased the odds of prolonged LOS (Odds Ratio=5.84, $p=0.011$).

Learning Objectives

"By the conclusion of this session, participants should be able to assess outcomes of anterior fixation in odontoid fracture.

Conclusions

Patients undergoing anterior fixation for odontoid fractures with ASA = 3 have increased odds for prolonged LOS.