



Independent Predictors for Hospital Acquired Conditions (HAC) and Associated Complications in Adults  
Undergoing Elective Posterior Cervical Fusion

Nathan John Lee BS; Dante Leven DO; Parth Kothari BS; Jeremy Steinberger MD; Branko Skovrlj MD; Javier Z Guzman BS;  
John I Shin BS; Samuel K Cho MD  
Icahn School of Medicine at Mount Sinai



Introduction

Reducing preventable hospital acquired infections is an important goal because it characterizes a healthcare system that is more effective, safe, and patient-centered. The three most common HACs are surgical site infection (SSI), deep vein thromboembolism (VTE), and urinary tract infection (UTI). The risk factors for HAC for this study population have not been well quantified.

Methods

ACS NSQIP was queried using Current Procedural Terminology (CPT) codes of patients 18 years and older undergoing posterior cervical fusion. Patient baseline factors, perioperative data, and post-operative course were recorded. Patients were separated into cohorts of those with and without HACs. Univariate and multivariate logistic regression were used to determine the risk factors for HACs, with significance defined as  $p < 0.05$ . Odds ratio (OR) was calculated with a 95% confidence interval.

Results

In total, 524 patients were included and the overall rate of HAC was 5.15% (27/524). Independent predictors for HAC were dyspnea (OR 3.85, 1.25-11.85) and operative time greater than 4 hours (OR 2.99, 1.21-7.41). Patients with a HAC had a higher rate of pulmonary complication (11.11% vs. 2.21%,  $p = 0.005$ ), sepsis (7.41% vs. 0.20%,  $p < 0.0001$ ), unplanned reoperation (22.22% vs. 3.25%,  $p = 0.004$ ), unplanned readmission (44.44% vs. 3.61%,  $p < 0.0001$ ), and length of stay greater than 5 days (51.85% vs. 23.54%,  $p = 0.0009$ ).

Learning Objectives

Our objective was to determine the prevalence, impact, and risk factors for HAC within 30 days following posterior cervical fusion

Conclusions

Risk factors for developing HAC following posterior cervical fusion were dyspnea and extended operative time. Developing a HAC was associated with higher unplanned reoperation, unplanned readmission, and prolonged length of stay. These data should provide a step toward developing strategies to reduce HAC in high risk adults.