Unplanned hospital readmission after cervical spine fusion surgery

Hospital readmission rates are an increasingly important focus. Identifying patients at-risk for readmission can help decrease those rates and thus decrease the overall cost of care.

Schafer et al. sought to report the rates and the risk factors associated with 90-day hospital readmission after degenerative cervical spine surgery via either an anterior or posterior approach.

A retrospective review of prospectively collected database PATIENT SAMPLE: Michigan Spine Surgery Improvement Collaborative (MSSIC) registry OUTCOME MEASURES: Hospital readmission at 90 days The MSSIC registry prospectively enrolls patients undergoing surgery for degenerative cervical spine disease. The registry was queried over a four-year period to determine patient characteristics and risk factors associated with unplanned readmission at 90 days following degenerative cervical spine fusion surgery through either an anterior or posterior approach. Univariate and multivariate regression modeling was used to compare patient characteristics and odds of readmission.

Of 3762 patients who underwent an anterior approach, 202 (5.4%) were readmitted within 90 days. Of 693 patients who underwent a posterior approach, 85 (12.3%) were readmitted within 90 days. Risk factors associated with increased likelihood of readmission after the anterior approach were male sex (OR 1.56, CI 1.10-2.20), American Society of Anesthesiologists (ASA) class >2 (OR 1.70, CI 1.26-2.30), and increased length of stay (OR 1.10, CI 1.03-1.19). Factors associated with decreased likelihood of readmission after the anterior approach were being independently ambulatory pre-operatively (OR 0.59, CI 0.46-0.76) and holding private insurance (OR 0.67, CI 0.50-0.90). A history of previous spine surgery was associated with increased risk of readmission after the posterior approach (OR 1.76, CI 1.37-2.25). Pain was the most common single reason cited for readmission after either approach (9% anterior, 13% posterior). After an anterior approach, common surgical reasons for readmission include new radicular findings (8%), dysphagia (6%), and surgical site hematoma (5%) while common medical reasons include pneumonia (7%), infection outside the surgical site (6%), and an electrolyte issue. After a posterior approach, common surgical reasons for readmission after 90 days include surgical site infection (8%) and new radicular findings (6%) while common medical reasons include infection outside the surgical site (9%), urinary tract infection (8%), and an abdominal issue (8%).

Analysis of a large multi-centered, spine-specific database for elective cervical spine fusion surgery demonstrated an unplanned 90-day readmission rate of 5.4% for the anterior approach and 12.3% for the posterior approach. Factors associated with readmission for the anterior approach include male sex, ASA class > 2, increased length of stay, holding private insurance, and being ambulatory pre-operatively. A history of previous spine surgery was associated with increased odds of readmission after the posterior approach [1)].

Insurance status, comorbidities, and length of stay (LOS) consistently predicted an unplanned hospital visit at 30 and 90 days. Although nondegenerative surgical indications and in-hospital complications did not predict emergency department (ED) visits, these factors increased the risk for readmission [2)].

The majority of readmissions occur due to medical complications and systemic infection [3].

1)

Schafer E, Bazydlo M, Schultz L, Park P, Chang V, Easton RW, Schwalb J, Khalil J, Perez-Cruet M, Abdulhak M, Aleem I; MSSIC Investigators. Rates and Risk Factors Associated with 90-day Readmission Following Cervical Spine Fusion Surgery: Analysis of the Michigan Spine Surgery Improvement Collaborative (MSSIC) Registry. Spine J. 2020 Jan 17. pii: S1529-9430(20)30004-8. doi: 10.1016/j.spinee.2020.01.003. [Epub ahead of print] PubMed PMID: 31958576.

2)

Sheha ED, Salzmann SN, Khormaee S, Yang J, Girardi FP, Cammisa FP, Sama AA, Lyman S, Hughes AP. Patient Factors Affecting Emergency Department Utilization and Hospital Readmission Rates After Primary Anterior Cervical Discectomy and Fusion: A Review of 41,813 cases. Spine (Phila Pa 1976). 2019 Aug 1;44(15):1078-1086. doi: 10.1097/BRS.0000000000003058. PubMed PMID: 30973509.

3)

Zaki O, Jain N, Yu EM, Khan SN. 30- and 90-Day Unplanned Readmission Rates, Causes, and Risk Factors After Cervical Fusion: A Single-Institution Analysis. Spine (Phila Pa 1976). 2019 Jun 1;44(11):762-769. doi: 10.1097/BRS.0000000000002937. PubMed PMID: 30475339.