Increased Procedural Volume is Associated with Decreased Rate of 30- and 90- Day Readmission after Acoustic Neuroma Surgery

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Introduction

Hospital readmissions are a major contributor to increased health care costs and are associated with worse patient outcomes after neurosurgery. In acoustic neuroma surgery, the association between patient, hospital and payer factors with rate of readmission is not known. The nationwide rates of readmission for acoustic neuroma surgery have not yet been reported.

Methods

All adult inpatients undergoing surgery for acoustic neuroma in the Nationwide Readmissions Database from 2013-2014 were included. We identified unplanned readmissions for any cause with a primary diagnosis of neurologic, surgical or systemic complication within 30- and 90-days after undergoing acoustic neuroma surgery. We used univariate and multivariate models to identify patient, hospital and administrative factors associated with readmission. Hospital volume was measured as number of cases/year.

Results

We included patients representing a weighted estimate of 4908 admissions for acoustic neuroma surgery in 2013-2014, with 378 30-day and 452 90-day readmissions. The median number of acoustic neuromas resected was 3/year, (IQR 1-6 cases/year). The 30-day all-cause nationwide readmission rate for patients undergoing acoustic neuroma surgery was 7.7% and the 90-day rate was 9.2%. After controlling for patient, hospital and payer factors,procedural volume was the only statistically significant predictor of 30-day readmission rate (OR 0.992, 95% CI 0.986-0.999), and 90-day readmission rate (OR 0.994, 95%CI 0.988-0.999). For each additional acoustic neuroma surgery performed at a given hospital, the rate of 30- and 90-day all cause readmissions decreased by 0.8%.

Conclusions

After controlling for patient, hospital and payer factors, increased procedural volume is associated with decreased 30- and 90- day readmission rate for acoustic neuroma surgery. This relationship should be considered when attempting to improve outcomes and reduce cost in acoustic neuroma surgery.

Learning Objectives

Volume-Outcome Relationship

Acoustic Neuroma Surgery

Quality of Care / Systems Based Practice

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