

C6

Nicholas Stratigakis

Advisor(s): Jad Bou Monsef

**The Impact of Atrial Septal Defect on Outcomes and Complications Following Spinal Fusion in Adults: A Propensity Score Matched Analysis**

There is limited literature evaluating the impact of atrial septal defect (ASD) on long-term outcomes after spinal fusion surgery. The goal of this study was to compare postoperative outcomes and complications of patients with ASD to those without. Using the National Inpatient Sample (NIS), patients admitted from 2005 to 2012 with an ICD-9 code for ASD (7455) who underwent spinal fusion were retrospectively reviewed. Patients under the age of 18 years old were excluded. A 1:1 propensity score-match (PSM) by age, gender, and obesity status was performed before analyzing data. Univariate analyses evaluated demographics, complications, and mortality. Multivariate binary logistic regression models were also conducted to identify associations between ASD and postoperative spinal fusion outcomes, controlling for age, sex, and obesity status. A total of 716 propensity score-matched patients were identified. Both cohorts were nearly identical in gender, obesity status, and age. The ASD cohort, compared to the non-ASD cohort, had greater length of stay (7.4 days vs. 3.7 days,  $p < 0.001$ ), and total hospital charge (\$132,381 vs. \$79,806,  $p < 0.001$ ). The average incidence rate between 2005 and 2012 for patients with ASD undergoing spinal fusion is 1.5 per 1,000,000 person-years. This incidence rate increased by 23.3% during this period. With a 1:1 PSM, patients with ASD had higher rates for a surgical complication, blood transfusion, medical complication, altered mental status, pneumonia, acute renal failure, sepsis, deep venous thrombosis, and cerebrovascular event (all,  $p < 0.05$ ). ASD was an independent risk factor of a surgical complication ( $p=0.001$ ), blood transfusion, medical complication ( $p < 0.001$ ), pneumonia ( $p=0.035$ ), acute renal failure ( $p=0.001$ ), deep venous thrombosis ( $p=0.019$ ), and cerebrovascular event ( $p < 0.001$ ). In the general adult population undergoing spinal fusion, patients with ASD, had greater length of stay, Deyo scores, and total surgical charge.