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The Impact of Ventricular Septal Defect on Outcomes and Complications Following Adult Spinal Fusion: A Propensity Scored-Match Analysis

There is limited literature evaluating the impact of ventricular septal defect (VSD) on long-term outcomes after spinal fusion surgery. Using the National Inpatient Sample (NIS), patients admitted from 2005 to 2012 with an ICD9 code of VSD who underwent spinal fusion were retrospectively reviewed. Patients under the age of 18 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 correlations between VSD and postoperative spinal fusion outcomes, controlling for age, sex, and obesity status.

104 propensity score-matched patients were identified (VSD: n=52; non-VSD: n=52). Both cohorts were nearly identical in gender (VSD: 65.4% female, non-VSD: 73.1% female; p=0.395), obesity status (VSD: 11.5%, non-VSD: 21.2%; p=0.185), and age (VSD: 45.6 years, non-VSD: 46.9 years; p=0.612). The VSD cohort, compared to the non-VSD cohort, had comparable length of stay (3.9 days vs. 3.3 days; p=0.426), Deyo score (0.7 vs. 0.4; p=0.323), and total hospital charge (\$86,205 vs. \$74,931; p=0.393). The average incidence rate between 2005 and 2012 for patients with VSD undergoing spinal fusion is 0.2 [0.2– 0.3] per 1,000,000 person-years. This incidence rate increased by 0.7% during this time period. With a 1:1 PSM, patients with VSD, compared to non-VSD patients, had comparable rates for all postoperative complications. VSD was not an independent risk factor of any postoperative complications.

In the general adult population undergoing spinal fusion, patients with VSD, compared to non-VSD patients, had comparable length of stay, Deyo scores, and total surgical charge. Patients with VSD had comparable risk for all postoperative complications compared to non-VSD patients. These results can support management of postoperative expectations and concerns in this patient cohort.