

Session/Poster#

Presenter

C23

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**The Impact of Congestive Heart Failure on Outcomes and Complications Following Adult Spinal Fusion: A Propensity Scored-Match Analysis**

Introduction: Congestive heart failure (CHF) is defined clinically as a cardiac pump dysfunction. There is limited literature evaluating the impact of CHF on outcomes and complications following adult spinal fusion. Therefore, the purpose of this study was to compare outcomes and complications between CHF and non-CHF patients undergoing spinal fusion surgery.

Methods: A retrospective query of the National Inpatient Sample (NIS) database was performed between 2005 to 2012. Adult CHF patients who underwent spinal fusion served as the study cohort. Adult non-CHF patients who underwent spinal fusion served as the comparison group. A 1:1 propensity score-match (PSM) by age, gender, and obesity status was performed. Univariate analyses evaluated demographics, complications, and mortality. Multivariate binary logistic regression models were used to identify associations between CHF and postoperative spinal fusion outcomes, controlling for age, sex, and obesity.

Results: A total of 11,211 PSM patients were identified (CHF: n=11,211; non-CHF: n=11,211). The CHF group had increased hospital length of stay (8.8-11.2 days vs. 4.3-4.7 days,  $p<0.001$ ), total hospital charges (\$130,791-126,223 vs. \$90,583-80,326,  $p<0.001$ ), and Deyo score (2.6-1.7 vs. 0.7-1.2,  $p<0.001$ ). Patients with CHF had higher rates of complications ( $p<0.001$ ) and mortality ( $p<0.001$ ). CHF was an independent risk factor for blood transfusion ( $p<0.001$ ), acute myocardial infarction ( $p<0.001$ ), pneumonia ( $p<0.001$ ), acute renal failure ( $p<0.001$ ), sepsis ( $p<0.001$ ), pulmonary embolism ( $p<0.001$ ), deep venous thrombosis ( $p<0.001$ ), and cerebrovascular event ( $p<0.001$ ).

Conclusion: In the general adult population undergoing spinal fusion, patients with CHF had greater hospital length of stay, surgical costs, and Deyo scores. CHF patients were also at increased risk for complications and overall mortality. These results should guide providers in optimizing patient outcomes prior to spinal fusion surgery.