

**A35**

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### **Impact of Congestive Heart Failure on Postoperative Outcomes of Spinal Fusion (4+ levels) on Adults with Spinal Deformity**

**Introduction:** The aim of this study was to compare outcomes and complication rates of among adult patients with spinal deformity with and without CHF who underwent spinal fusion (4+ levels) surgery.

**Methods:** Using New York State's Statewide Planning and Research Cooperation System (SPARCS), adult patients with spinal deformity and a diagnosis of CHF who were admitted from 2009 to 2011 and underwent spinal fusion (4+ levels) surgery were identified. Univariate analyses evaluated demographics, complications, and subsequent revision. Multivariate logistic regression analyses were utilized to identify associations between CHF and postoperative outcomes while controlling for sex, age, and obesity status.

**Results:** A total of 768 propensity score-matched patients with adult spinal deformity were identified (CHF: n=384; non-CHF: n=384). Both cohorts were nearly identical in age (CHF: 68.7 years, non-CHF: 68.8 years,  $p=0.967$ ), sex (CHF: 52.3% female, non-CHF: 52.3% female,  $p=1.000$ ), and obesity status (CHF: 22.4%, non-CHF: 22.1%,  $p = 0.931$ ). The CHF cohort, compared to the non-CHF cohort, had higher surgical charges (\$107,660 vs. \$64,685,  $p < 0.001$ ), Deyo score (CHF: 2.6, non-CHF: 1.0,  $p < 0.001$ ) and length of stay (CHF: 9.0 days, non-CHF: 4.3 days,  $p < 0.001$ ). Rates of surgical and medical complications were increased in the CHF cohort (all,  $p < 0.05$ ) (Table 1). With a 1:1 PSM, patients with CHF, compared to non-CHF patients, had higher independent risk for surgical complications (OR: 1.8 [1.3 – 2.6],  $p=0.001$ ), wound complications (OR: 3.2 [1.1 – 8.9],  $p = 0.030$ ), medical complications (OR: 3.4 [2.1 – 5.5],  $p < 0.001$ ), acute myocardial infarction (OR: 10.4 [3.9 – 27.8],  $p < 0.001$ ), and acute renal failure (OR: 2.9 [1.4 – 6.0],  $p = 0.003$ ).

**Conclusion:** Adults with spinal deformity who have underlying CHF and underwent (4+ level) fusion had higher surgical costs, lengths of stay, Deyo score, surgical complications, and medical complication rates compared to those without underlying CHF.