

The Impact of Congestive Heart Failure on Outcomes and Complications following Total Hip Arthroplasty with Minimum 2-Year Surveillance

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INTRODUCTION:

There is limited literature evaluating the impact of congestive heart failure (CHF) on long-term outcomes after total hip arthroplasty (THA) surgery.

METHODS:

Using New York State's Statewide Planning and Research Cooperation System, patients admitted from 2009 to 2011 with diagnoses of CHF who underwent THA with a minimum 2-year follow-up surveillance were retrospectively reviewed. A 1:1 propensity score-match (PSM) by age, sex, and obesity status was performed before analyzing data. Univariate analyses evaluated demographics, complications, and subsequent revision. Multivariate binary logistic regression models were also conducted to identify associations between CHF and postoperative outcomes, controlling for sex, age, and obesity status.

RESULTS:

A total of 3,068 propensity score-matched patients were identified (CHF: n=1,534; non-CHF: n=1,534). Both cohorts were nearly identical in age (CHF: 74.5 years, non-CHF: 74.5 years, $p = 0.994$), sex (CHF: 55.5% female, non-CHF: 55.5% female, $p=0.971$), and obesity status (CHF: 17.8%, non-CHF: 17.7%, $p=0.962$). The CHF cohort, compared to the non-CHF cohort, had fewer white patients (82.5% vs. 90.4%, $p<0.001$), higher Deyo score (2.47 vs. 0.86, $p<0.001$), longer length of stay (6.56 days vs. 4.06 days, $p<0.001$), and higher surgical charges (\$61,696 vs. \$39,147, $p<0.001$). Rates of surgical and medical complications, and readmission were increased in the CHF group (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: 1.4 [1.1 – 1.6], $p<0.001$), wound complications (OR: 1.5 [1.1 – 2.0], $p=0.024$), and blood transfusions (OR: 1.3 [1.1 – 1.6], $p=0.003$) 2 years postoperatively. Furthermore, CHF patients had higher independent risk for medical complications (OR: 1.3 [1.1 – 1.6], $p=0.002$), acute myocardial infarction (OR: 4.1 [2.6 – 6.4], $p<0.001$), pulmonary complications (OR: 3.3 [1.6 – 6.9], $p=0.001$), pneumonia (OR: 1.4 [1.1 – 1.8], $p=0.006$), urinary tract infection (OR: 2.0 [1.1 – 3.5], $p=0.019$), and acute renal failure (OR: 1.5 [1.2– 1.9], $p<0.001$) 2 years postoperatively. Postoperative readmission was also greater among CHF patients compared to non-CHF patients (OR: 1.2 [1.0– 1.5], $p=0.016$).

DISCUSSION AND CONCLUSION:

Patients with CHF had higher surgical charges, greater length of stay, Deyo score, surgical and medical complications, and readmission rates than a propensity score matched patient cohort without CHF from the general population undergoing total hip arthroplasty. These results can support management of postoperative expectations and concerns in this patient cohort.