

**Impact of CHF on Antegrade and Retrograde Intramedullary Nailing for Femoral Shaft Fractures: An ACS NSQIP Analysis 2008-2016**

**Introduction:** Congestive heart failure (CHF) has been shown to affect patient outcomes in several orthopedic procedures. However, the impact of CHF in intramedullary nailing procedures for femoral shaft fractures is understudied. Intramedullary nailing is currently the most preferred method for treating femoral shaft fractures. Therefore, it is vital to study the clinical outcomes of patients with CHF who have undergone intramedullary nailing to treat femoral shaft fractures.

**Methods:** ACS NSQIP database was queried via CPT codes between 2008 and 2016 for antegrade and retrograde intramedullary nailing. Patients were categorized as with or without CHF. Patient demographics, comorbidities, and 30-day post-operative outcomes were collected. A binary logistic regression model was used to analyze CHF and risk factors for postoperative complications.

**Results:** 2875 patients were identified who had undergone intramedullary nailing for femoral shaft (2699 without CHF, 86 with CHF). 1085 (39.0%) of patients experienced postoperative complications, with wound complications being the most abundant (899, 32.3%), most commonly bleeding requiring transfusion (883 31.7%). 144 (5.2%) patients experienced readmission and 55 (2.0%) underwent reoperation.

Using 1:1 propensity score matching, 112 patients, were isolated. CHF patients were more likely to have an open wound with or without infection (17.9% vs. 5.4%;  $p=0.039$ ). Patients without CHF were more likely to have disseminated cancer (21.4% vs. 3.6%;  $p=0.004$ ) and use steroids (16.1% vs. 3.6%;  $p=0.0026$ ). There were no significant differences in rates of postoperative complications between CHF and non-CHF patients.

**Conclusion:** CHF patients were seen to have a greater likelihood of developing an open wound with or without infection. CHF was not an independent risk factor for postoperative outcomes.

More research is needed to understand these differences and to investigate the effects of CHF on postoperative outcomes.