

## **Mortality Rate of Geriatric Acetabular Fractures Is High Compared to Hip Fractures: A Matched Cohort Study**

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**Purpose:** Using the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) registry we compared the 30-day complication and mortality rates of geriatric patients with acetabular fractures (AF) matched to hip fractures (HF).

**Methods:** The NSQIP registry was used to identify patients (>60 years old) from 2011-2016 treated for AF (wall or column[s] fractures requiring open reduction and internal fixation [ORIF]) and HF (femoral neck, inter/subtrochanteric) using CPT codes. Elective patients or those with disseminated cancer/infection were excluded. Patient characteristics, comorbidities, functional status, and complications (surgical site infection, pulmonary embolism [PE], death, and readmission) were recorded. Patients were matched 1:5 (AF:HF) based on age, sex, body mass index (BMI), functional status, and American Society of Anesthesiologists (ASA) class. Chi-square, Fisher exact, and Mann-Whitney U tests were used to compare groups and multivariable logistic regression to compare the risk of complications or death while adjusting for relevant covariates.

**Results:** A total of 303 AF patients (age:  $78.2 \pm 9.2$  years, 59.7% females, BMI:  $25.3 \pm 6.8$  kg/m<sup>2</sup>, ASA III-IV: 75.3%, 27.1% wall, 28.4% 1-column and 45.2% 2 columns) were matched to 1511 HF patients (age:  $78.3 \pm 9.1$  years, 60.2% females, BMI:  $25.3 \pm 6.6$  kg/m<sup>2</sup>, ASA III-IV: 76.2%, 37.2% hemi-arthroplasty, 16.3% ORIF, and 47.4% cephalomedullary nail). Patient demographics were not significantly different. Average length of stay (LOS) of  $8.4 \pm 7.1$  vs  $6.4 \pm 5.9$  days and time to surgery (TS) of  $2.3 \pm 1.8$  vs  $1.2 \pm 1.4$  days were both significantly longer in the AF group ( $P < 0.01$ ). PE rates were higher in the AF group (2.0% vs 0.5%,  $P = 0.01$ ). Complications or mortality rates were not significantly different within the AF types and within the HF types. Mortality rates were higher in AF versus HF patients (6.6% vs 4.6%,  $P = 0.14$ ). The risk of mortality after adjustment for comorbidities, LOS, and TS was significantly higher for AF versus HF patients (odds ratio: 1.92, 95% confidence interval: 1.08-3.43).

**Conclusion:** This is the first study comparing acute complication and mortality rates of geriatric AF to HF patients. The high mortality of HF has been well reported and the importance of expedited care emphasized. Geriatric patients with AF pose a significantly higher mortality risk when compared to HF patients. Future studies on strategies to mitigate risk factors in this vulnerable population are warranted.