

Hip Fracture with Elevated Troponin: Harbinger of Mortality or Need for Accelerated Surgery?

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Purpose: Current guidelines recommend hip fracture patients receive surgery within 48 hours of injury to reduce mortality and complications; however, the optimal management of hip fracture patients who present with a concomitant acute heart injury (diagnosed by elevated troponin) is unclear. Current practice typically involves prolonged preoperative medical management until the troponin levels improve. The purpose of this study is to describe the clinical outcomes of this hip fracture population.

Methods: We performed a single-center retrospective cohort study of all hip fracture patients aged 60 years who received surgical fixation between 2015 and 2020. At least one preoperative troponin measurement was required to be included. The decision to measure preoperative troponin was at the treating physician's discretion or part of the routine preoperative risk stratification. Baseline demographic and cardiac injury information was collected, as well as the time to surgery in hours. Elevated troponin was defined as cardiac troponin I ≥ 0.06 ng/mL. The primary outcome was mortality at 90 days. The secondary outcome was a composite of mortality and major cardiovascular complications.

Results: From a larger cohort of 452 hip fracture patients, we included the 299 patients (66%) who had a preoperative troponin measurement. 43 patients (14%) had troponin elevation, with a median level of 0.13 ng/mL (interquartile range, 0.08-0.34 ng/mL). Three patients underwent preoperative percutaneous coronary intervention. Patients with elevated troponin waited longer for surgery compared to patients without elevated troponin (median 43 vs 22 hours; median difference 21 hours, 95% confidence interval [CI] 13-29 hours, $P < 0.01$). Elevated troponin was also associated with a 14% 90-day mortality risk increase (29% vs 14%; 95% CI, 0% to 29%, $P = 0.05$) and a 14% increase in the 90-day risk of a major complication (38% vs 24%; 95% CI: -0.01 to 30%, $P = 0.07$).

Conclusion: Hip fracture patients with concomitant acute heart injury had a longer time to surgery and an increased risk of mortality and major complications. Data from the HIP ATTACK trial suggest that accelerated surgical care (<6 hours) for patients with elevated troponin is safe and may have a mortality benefit (90-day mortality 10% vs 24%; hazard ratio 0.38; 95% CI 0.21-0.66). Our study confirms the association between elevated preoperative troponin and increased risk for surgical delay, mortality, and major complications. These results highlight the urgent need to determine if accelerated hip fracture care can reduce mortality in patients with acute heart injury.