Δ Decreased Core Muscle Size Is Associated with Increased 1-Year All-Cause Mortality in Elderly Orthopaedic Trauma Patients

***Basel Touban, MD**; Sonja Pavlesen, MD MS; Jason Smoak, MD; Michael Sayegh, BS; Benjamin Khechen, BS; Christine Robertson, BS; Xi Shen, BS MS; Jiwei Zhao, PhD; Mark J. Anders, MD*
Erie County Medical Center. Buffalo, New York, USA

Purpose: Sarcopenia has been identified as a predictor of worse outcomes and mortality in elective surgery and oncology patients; however, there is limited knowledge on the role of sarcopenia in elderly trauma patients. The study aim was to investigate the association between psoas cross-sectional area (CSA) and 1-year all-cause mortality in elderly trauma patients. We hypothesized that sarcopenia is associated with a higher risk of 1-year all-cause mortality in patients suffering from traumatic pelvic and long bone injuries.

Methods: We retrospectively reviewed the demographic data, ISS, injury mechanism, soft-tissue injuries, fracture type, admission laboratory data, and complications based on the National Surgical Quality Improvement Program guidelines and mortality in 558 patients ≥65 years old admitted to our Level I institution from 2007-2014 for sustained long bone and/or pelvic fractures. Fractures were classified according to the AO/OTA Fracture Classification. Patients underwent an abdomen/pelvis CT scan at admission as part of routine evaluation and axial images were used to assess sarcopenia by measuring psoas CSA at the L3-L4 intervertebral disk space. Patients' psoas CSAs were grouped into quartiles (Q1-Q4). Logistic regression was used to estimate the odds ratios (ORs), 95% confidence intervals (CIs), and P values for 1-year all-cause mortality by quartiles of psoas CSA. Models were adjusted for age, ISS, body mass index (BMI), and albumin.

Results: A total of 706 fractures were identified. The acetabulum/pelvis was most commonly fractured (37.81%) followed by the radius/ulna (22.58%) and femur (22.04%). The majority of fractures were closed (76.34%). A statistically significant association was observed between CSA and 1-year all-cause mortality (10.1% vs 28.8% respectively, P = 0.0010). Non-sarcopenic (Q4) patients had lower odds of all-cause 1-year mortality versus sarcopenic patients (Q1); 0.38 (95% CI = 0.16-0.88), P = 0.024.

Conclusion: In this cohort of elderly orthopaedic trauma patients, sarcopenia was associated with increased prevalence of 1-year all-cause mortality. Further investigation of the ability of sarcopenia to predict mortality and worse outcomes in the elderly is warranted.

Δ OTA Grant

See pages 401 - 442 for financial disclosure information.