Paper - International

Paper Session: Geriatric

Factors Associated With Mortality Following Surgical Management of Hip Fractures

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Purpose: Hip fractures are a devastating injury impacting older adults because of complications that follow, which include chronic pain, diminished physical health, diminished quality of life, and premature death. Morbidity and mortality rates remain high post-surgery with mortality rates ranging from 14 to 58% within 1 year of fracture. The primary objective of this pre-planned analysis was to identify factors associated with increased risk of mortality within 24 months of a femoral neck fracture in patients aged ≥50 years enrolled in 2 large trials.

Methods: A multivariable Cox proportional hazards regression with 23 potential prognostic factors (26 parameters) of mortality was used to investigate these associations in the combined trial cohorts. Briefly, 1 trial enrolled patients aged 50 years or older with a low-energy hip fracture requiring fracture fixation and compared 2 internal fixation methods (sliding hip screw vs cancellous screws). The second trial assigned patients who were 50 years of age or older and had a displaced femoral neck fracture to undergo either total hip arthroplasty or hemiarthroplasty. Results were reported as hazard ratios (HRs), 95% confidence intervals (CIs), and associated P values. All tests were 2-tailed with alpha = 0.05.

Results: A total of 2247 participants enrolled in the trials had complete prognostic and follow-up data for the independent variables included in the mortality models. The majority of participants were female (57.2%) and the mean age was 75.3 years (standard deviation [SD] 10.8). 304 participants (13.5%) experienced the event of mortality within 24 months of femoral neck fracture. Older age (HR 1.42 for every 10-year increase, 95% CI 1.22-1.65; P <0.001), lower body mass index (BMI) (HR 1.23 for every 5-point decrease, 95% CI 1.08-1.39; P = 0.002), American Society of Anesthesiologists (ASA) class III/IV/V (HR 1.53 vs class I/II, 95% CI 1.14-2.04; P = 0.004), use of an ambulatory aid prior to femoral neck fracture (HR 2.10 vs ambulating independently, 95% CI 1.63-2.71; P <0.001), and kidney disease (HR 2.14, 95% CI 1.60-2.86; P <0.001) were associated with a higher risk of mortality within 24 months of femoral neck fracture for participants of the 2 trials. Internal fixation versus arthroplasty was not found to be significantly associated with mortality (P = 0.36).

Conclusion: Our analysis found that factors that are indicative of a poorer health status, such as older age, lower BMI, worse ASA class, use of an ambulatory aid, and kidney disease were associated with a higher risk of mortality. We did not find a difference in hip fracture treatment methods (internal fixation vs joint arthroplasty) on the risk of mortality.