

The Impact of Aging on Mortality Following Subtrochanteric Fractures

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Purpose: The aim of this study was to define the incidence and investigate the risk factors associated with mortality and medical complications, in patients presenting with subtrochanteric femoral fractures and subsequently treated with an intramedullary nail, with a special reference to advancement of age.

Methods: A retrospective review, covering an 8-year period, of all patients admitted to a Level I trauma center with the diagnosis of subtrochanteric fractures was conducted. Normality was assessed for the data variables to determine the further use of parametric or non-parametric tests. Logistic regression analysis was performed, to identify the most important risk factors for each event. A *P* value <0.05 was considered significant.

Results: A total of 545 patients (561 fractures) were included in our study. The average length of hospital stay was 22.5 days (median: 18 days; standard deviation [SD]: 18.6 days). Mortality was 6.0% and 20.8% for 30 days and 1 year, respectively. Pathological fracture was the most important risk factor (odds ratio [OR] 12.835) for mortality. Other risk factors included CCS (Charlson Comorbidity Score) >6 (OR 3.607), low albumin on admission (OR 3.664), dementia (OR 3.282), and presence of chest infection during hospital stay (OR 2.645). The incidence of venous thromboembolism (VTE) was 3.9% while the incidence of cardiac events/CVA (cerebrovascular accidents) was 4.1%. Increasing age and American Society of Anesthesiologists class (ASA) had a direct correlation to an increasing incidence of cardiac events/CVA; mortality within this group was also higher. The incidence of hospital-acquired pneumonia (HAP) was 16.6%, and the risk increased with increasing CCS (OR 4.190 to 6.309), presence of asthma/chronic obstructive pulmonary disease (COPD) (OR 2.355), ICU/HDU (high dependency unit) stay (OR 2.864), and a length of stay >21 days (OR 2.580). The incidence of postoperative delirium was 10.0%, with dementia (OR 3.969), chest infection (OR 1.983), urinary tract infection (UTI) (OR 3.587), history of asthma/COPD (OR 2.726), deteriorating renal function postoperatively (OR 2.565), and need for an increased level of care (OR 2.953) presenting as risk factors. Finally, there was no evidence of the so called «weekend effect» on mortality.

Conclusion: Our study has opened the field for the investigation of medical complications within the subtrochanteric fracture population. Identification and modification of the risk factors for complications and mortality will help decreasing the incidence and prevalence of a poor outcome.