

The Impact of Chronic Kidney Disease on Short-Term Outcomes in Geriatric Patients Undergoing Surgical Thoracic Fracture Repair

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Learning Objectives

To determine whether CKD as a comorbidity is associated with a higher rate of peri-operative complications in geriatric patients undergoing surgical thoracic fracture repair.

Introduction

Chronic kidney disease (CKD) is a worldwide public health problem, with a rising incidence and prevalence of kidney failure. CKD's clinical progression is correlated with many major complications, including an increased risk of anemia, hyperlipidemia, metabolic bone disease, and cardiovascular disease. CKD patients have poorer quality of life, greater overall health care services utilization, and higher rates of morbidity and mortality. Vertebral fractures are the most common osteoporotic fractures among elderly patients, at a rate of 2 in 1000 of males and 7 of 1000 in females, and the number of thoracic fractures seen in older adults is expected to increase over the next 15 years. This study seeks to compare complication rates and mortality for thoracic fracture surgical patients with and without renal dysfunction.

Methods

Data were obtained from the 2007–2015 ACS-NSQIP database for patients over the age of 65 who underwent open reduction and fixation for thoracic vertebral fracture. Patients were placed into cohorts based on preoperative creatinine values and glomerular filtration rates (GFR) to estimate kidney function as calculated with the CKD Epidemiology Collaboration equation. Patients were then placed into groups so that increasing creatinine and decreasing GFR could be analyzed as a continuous variable indicative of decreasing renal function. The primary outcome measure was the development of at least one peri-operative complication in the first 30 days following surgery.

Results

A total of 152 patients were identified, with 65 male and 87 female. The median age of patients was 74 years. Patients with low GFR and high creatinine levels did not have significantly higher odds of developing any one complication. The only significant association found was between American Society of Anesthesiologists (ASA) score and 30-day mortality (OR: 7.38, 95% CI: 2.08-26.2, p-value 0.002).

Conclusions

Renal dysfunction is not associated with 30-day postoperative complications among thoracic fracture patients undergoing surgical repair. ASA score is a subjective assessment of a surgical patient's preoperative health. Thus, it is expected that this score is correlated with the mortality rate of patients who undergo thoracic fracture surgical repair.