What Are the Risk Factors for a Delay of 48 Hours or More in the Surgical Management of Geriatric Hip Fractures?

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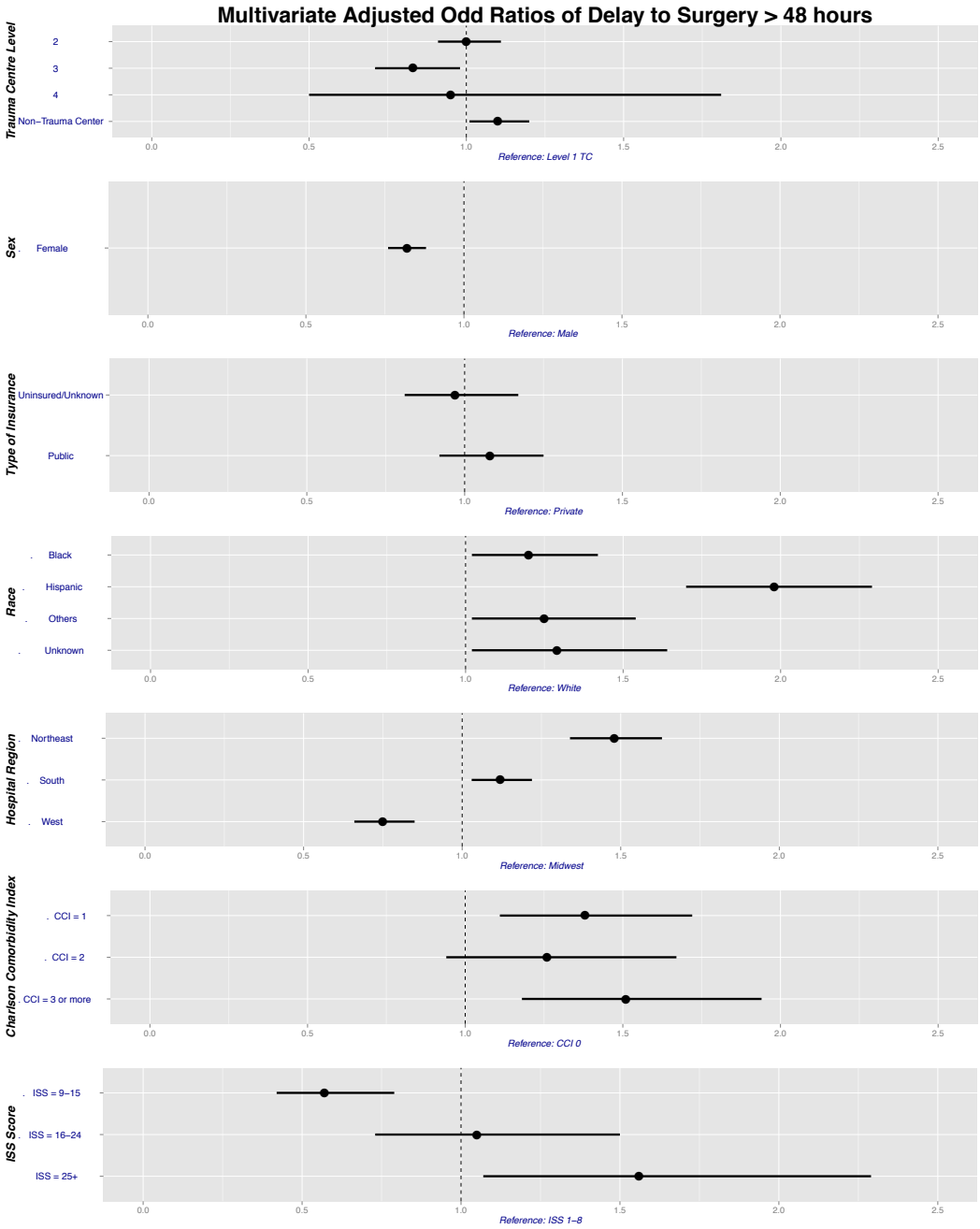
Background/Purpose: Multiple studies have demonstrated a benefit to early surgical intervention in the treatment of geriatric hip fractures. The American Academy of Orthopaedic Surgeons recently published guidelines for the treatment of hip fractures in the elderly that included a recommendation for surgery within 48 hours. Despite these data and recommendations, there are little published data on the timing of hip fracture surgery in the United States. The primary purpose of this study is to evaluate how frequently US hospitals meet the goal of performing hip fracture surgery within 48 hours of patient admission. Secondary goals are to establish if there is a correlation between patient demographic characteristics, level of care (trauma designation), or hospital region in the timing of hip fracture surgery.

Methods: The National Trauma Database (NTDB) 2012 was queried for patients over the age of 65 years who had ICD-9 procedure codes encompassing the surgical management for proximal femur fractures (78.55, 79.15, 79.35, 81.51, and 81.52). Patient characteristics including age, sex, race, insurance status, ISS, and Charlson Comorbidity Index (CCI) were obtained. Hospital characteristics including trauma designation and geographic region were collected. Outcome variables were time from admission to surgery and inpatient mortality.

Results: The overall median time from admission to surgery was 18 hours (interquartile range 5-34 hours), while 16.3% of patients had a delay to surgery of at least 48 hours from admission. Using a multivariate logistic regression analysis, independent patient factors that were associated with a significantly higher odds of a delay to treatment included: male sex, race (Black, Hispanic, other, unknown), higher CCI, and patients with a higher ISS (Table 1). Insurance status was not a risk factor for a delay in surgery. Hospitals located in the Northeast and South had higher rates of delays in surgery compared to hospitals in the Midwest and West. While there were differences in mean time to surgery, in the multivariate analysis there were only slight differences in the rate of delay in surgery based on hospital trauma designation. Patients who died during their admission were 2.3 times more likely to have had a delay in surgery compared to those who did not, controlling for all other known risk factors ($P < 0.001$).

Conclusion: Surgical management within 48 hours of admission has been associated with improved mortality in geriatric hip fracture patients. In this large cohort from the NTDB this benchmark was met 84% of the time. Independent patient risk factors for a delay of greater than 48 hours included: male sex, race, increased CCI, and increased ISS. The timing of surgery was not correlated with hospital trauma designation. This study highlights potential areas of disparity in the timing of the surgical management of hip fractures and can serve as a benchmark to assess how individual hospitals compare to national standards.

See pages 47 - 108 for financial disclosure information.



The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice.