Time to Surgery Is Not a Predictor of 30-Day Postoperative Outcomes in Patients Undergoing Hip Fracture Surgery

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Purpose: There currently exists significant debate in the orthopaedic literature regarding the optimal timing of surgery for hip fractures. The goal of the present study is to evaluate the association between timing of surgery with outcomes and postoperative complications in patients with hip fractures.

Methods: 17,459 patients with surgically managed hip fractures between 2006-2013 were selected from the National Surgical Quality Improvement Program (NSQIP) database. Time to surgery was categorized based on the following criteria: surgery within 24 hours of admission, between 24-48 hours of admission, and >48 hours after admission. Univariate and multivariate analysis were used to examine the effect of time to surgery on 30-day outcomes including length of stay, readmission rates, reoperation rates, mortality rates, and complications. Complications were classified into major (acute renal failure, cardiac arrest, coma of duration >24 hours, deep wound infection, myocardial infarction, pulmonary embolism, peripheral nerve injury, prolonged intubation, reintubation, septic shock, sepsis, stroke) and minor (deep vein thrombosis, hardware failure, pneumonia, superficial surgical site infection, transfusion of blood products, urinary tract infection, wound disruption).

Results: Of the 17,459 patients, 4107 (23.5%) underwent surgery within 24 hours, 8740 (50.1%) within 24-48 hours, and 4,612 (26.4%) greater than 48 hours after hospital admission. Mean age of patients in these groups was 82.9, 83.3, and 83.4, respectively. Increased time to surgery was associated with longer lengths of hospital stays with a difference of 4.5 days between the less than 24-hour group and greater than 48-hour group ($P < 0.001$). Multivariate analysis did not identify time to surgery as an independent predictor of postoperative outcomes other than increased length of stay. Preoperative functional status and patient comorbidity burden were identified as important independent predictors of postoperative outcomes ($P < 0.001$).

Conclusion: While a delay in the management of hip fractures is associated with a significant increase in hospital length of stay, 30-day postoperative outcomes including reoperation, readmission, complication, and mortality were not adversely affected in patients undergoing surgery for a hip fracture. Maximally optimizing patients with significant comorbidities prior to surgery should not be neglected in order to decrease time to surgery.

See pages 401 - 442 for financial disclosure information.