Paper #21

Analysis of Post-Discharge Timing and Risk Factors for Complications in Home-Discharged Primary Total Knee Arthroplasty Patients

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Introduction: Post-discharge services including transfer to a skilled nursing facility or inpatient rehabilitation facility have been identified as a primary driver of 90-day episode-of-care costs for total knee arthroplasty (TKA). Given that the proportion of TKA patients discharged home is rising, effective post-acute management will be critical for achieving better value. The purpose of this study was to assess risk factors and timing of complications in home-discharged TKA patients, and to propose a risk-stratification system based on this information to optimize post-acute care delivery for these patients.

Methods: Home-discharged primary TKA patients from 2011-2014 were identified in the American College of Surgeon's National Surgical Quality Improvement Program database. Perioperative variables were used to perform bivariate and multivariate analyses.

Results: Of 71,293 home-discharged TKA patients included for analysis, 2,490 (3.5%) patients suffered a post-discharge severe complication or unplanned readmission. Bivariate analysis revealed that patients who suffered post-discharge complications were older, smokers, morbidly obese, functionally dependent, and more likely to have diabetes and congestive heart failure (Table 1, $p<0.001$ for all). Severe adverse event (SAE) pre-discharge, age, male gender, smoking, pulmonary disease, hypertension, steroids for chronic conditions, bleeding-causing disorders, and ASA class 3-4 were identified as independent risk factors for post-discharge SAE or unplanned readmission ($OR \geq 1.31$, $p<0.05$ for all). Across risk levels (i.e., 1, 2, 3, or ≥ 4 independent risk factors) TKA patients had 1.43-4.36 times odds of complications within 14 days post-discharge, and 1.75-3.61 times odds beyond 14 days compared to those with 0 risk factors (Table 2, $p \leq 0.01$ for all).

Conclusions: Orthopaedic surgeons and post-acute providers can use modifiable (smoking, hypertension) and non-modifiable risk factors (pre-discharge SAE, bleeding-causing disorders) to assess risk of post-discharge complication or unplanned readmission in home-discharged TKA patients. This information can be used to develop risk-stratification protocols to inform hospital and home-health provider care surveillance strategies.

Notes