Paper #1

Causes and Temporal Distributions of Readmissions after Total Knee Arthroplasty: A Large Database Study

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Notes

Introduction: Recent guidelines by Centers for Medicare and Medicaid Services (CMS) stipulate a ninety-day global period for hospitals for unplanned readmissions after primary total knee arthroplasty (TKA). However, not all readmissions are directly attributable to index surgery and reasons for readmissions vary during this time period. This study identifies causes and temporal relations of these readmissions using large state inpatient databases.

Methods: State inpatient databases of New York and California were queried for all primary TKA (ICD-9-CM 81.54) performed from 2005–2011 and frequencies of all causes of unplanned readmission were identified from 0-90 days after index surgery using ICD-9 diagnosis and procedure codes. Only readmissions directly related to prosthesis or postoperative state were deemed procedure-related. Demographic (age, race, gender, insurance status), facility (hospital location, teaching status) and clinical characteristics (discharge status, blood transfusion) were identified. Temporal differences in proportions of readmission diagnoses were tested for using Pearson's chi-square test.

Results: The query identified 419,805 cases of primary TKA during the study period. (Table 1) There were 26,924 readmissions during the 90-day recovery period, with 15,547 (57.7%) at 0-30 days, 6,593 (24.5%) at 31-60 days, and 4,784 (17.8%) at 61-90 days. Throughout the 90-day period, the majority of primary diagnoses at readmission were not directly related to index surgery. (Figure 1) The proportion of procedure-related readmissions varied significantly over the 90-day period. (Table 2)

Conclusions: Causes of unplanned readmission after TKA are numerous and demonstrate varying temporal trends over the recovery period. From this analysis of two large state inpatient databases, the majority of all primary diagnoses at readmission may not be directly attributable to index surgery and postoperative state up to 90 days. These findings suggest that the current ninety-day global period policy for this procedure should be reformed to better reflect the profile of unplanned readmissions after TKA.