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Predictors of Length of Stay in Patients Undergoing Total Knee Replacement Surgery

Vishal Sehgal, MD; Pardeep Bansal, MD; Praveen Reddy, MD; Vishal Sharma, MD;
Rajendra Palepu, MD; Linda Thomas, MD; and Jeremiah Eagan, MD
Mercy Hospital, Scranton, PA

Background and Purpose: Very few studies have focused on patient characteristics that influence length of stay (LOS) after total knee arthroplasty (TKR). The primary goal of this retrospective study was to identify patient characteristics associated with LOS. A secondary goal was to look at the incidence of acute kidney injury (AKI) and to identify patient characteristics associated with AKI after TKR, which was defined as an abrupt (within 48 hours) absolute increase in the serum creatinine concentration of ≥ 0.3 mg/dL (26.4 micromol/L) from baseline, a percentage increase in the serum creatinine concentration of $\geq 50\%$, or oliguria of less than 0.5 mL/kg/hr for more than 6 hours.

Methods: Between January 2009 and December 2009, 359 patients (247 female) with a mean age of 67 (39–88) years underwent knee replacement surgery at Mercy Hospital's Knee and Hip Institute. Retrospective chart review was done to identify patient characteristics associated with LOS and AKI after TKR. Chi-square analyses were performed to identify significant parameters influencing LOS, postoperative blood loss, and AKI. The significance level was set at $P < 0.05$.

Results: Mean LOS after TKR was 3.2 days. Age greater than 75 and male sex were the only predictors associated with longer LOS. Premorbid conditions like coronary artery disease, hypertension, and diabetes were not associated with longer LOS. Mean postoperative hemoglobin loss was 2.6%. Age greater than 65 was associated with more postoperative blood loss. Fifty-seven patients developed AKI. AKI was not associated with longer LOS. Diabetics were more likely to develop AKI. Preoperative ACE inhibitor use was not associated with AKI.

Conclusion: Among different patient characteristics, advanced age tends to be associated with greater LOS and more postoperative blood loss. Diabetics tend to develop more AKI. Hence during preoperative evaluations of diabetic patients, a careful evaluation should be done to prevent postoperative AKI, which may include holding diuretics, holding NSAIDs, and careful evaluation of hydration status.