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Incidence and Predictive Risk Factors of Postoperative Urinary Retention After Primary TKA

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Introduction: Postoperative urinary retention (POUR) after total knee arthroplasty (TKA) may cause urologic injury and delay patient discharge. It is difficult to predict patients at risk for POUR. This study measures the incidence of POUR and identifies predictive risk factors.

Methods: 271 consecutive patients <80 years old undergoing primary unilateral TKA without intraoperative Foley catheterization were prospectively enrolled. Bladder scans were performed in the PACU and every four hours thereafter. POUR was defined as >400cc with inability to spontaneously void and was treated with straight catheterization. Patient demographics, urologic history, operative data, perioperative medications, bladder scanner volumes and IV fluids were investigated. Potentially predictive variables identified by univariate analysis were analyzed by multivariate logistic regression.

Results: Of 271 patients, 55 (20%) developed POUR. Compared to non-catheterized patients, PACU bladder scan volumes were greater in patients who developed POUR (344cc vs. 120cc, p<0.001). POUR patients had lower BMI (27.8 vs. 29.4, p=0.03), longer operative duration (83.9 vs. 76.0 minutes, p=0.002), and lower ASA scores (2.2 vs. 2.4, p=0.01). POUR and non-catheterized patients did not differ in age, gender, or past urologic history. Total IV fluid was equivalent between groups (1134cc vs. 1185cc, p=0.41). POUR patients received less narcotics measured by morphine milligram equivalents (16.1 vs. 23.9, p<0.001). Eleven variables including propofol dosage, spinal type (bupivacaine, ropivacaine) and use of paralytics were not predictive of POUR. Variables potentially predictive of POUR included anesthetic types administered (spinal, general, regional, combination) and perioperative administration of NSAIDs, glycopyrrolate, and muscle relaxants. Multivariate analysis showed that NSAIDs (p=0.04) and glycopyrrolate (p=0.04) were significant predictors of POUR.

Conclusions: A significant percentage of patients develop POUR after TKA. Select patient demographics and PACU bladder scanning may identify those at risk. Appropriate pain control and judicious use of perioperative NSAIDs and glycopyrrolate may help minimize the risk of POUR.

Notes
