Preoperative Post-Void Residual Bladder Scans Predict Postoperative Catheterization Following Total Knee Arthroplasty

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INTRODUCTION:

Postoperative urinary retention (POUR) affects upwards of 30% of patients undergoing total knee arthroplasty (TKA), negatively impacting the patient experience and delaying transition home. This study evaluates the predictive value of preoperative post-void residual bladder scanning (Pre-PVRS) and American Urologic Association (AUA) symptom scoring to identify patients at risk for catheterization.

METHODS:

267 TKA patients were prospectively evaluated between November 2020 and August 2021. Patients with pre-existing indwelling catheters, inability to urinate, or impaired bladder innervation were excluded. All patients had Pre-PVRS immediately prior to TKA, and had completed the AUA preoperatively. Chi square tests were used to analyze catheterization differences across important demographic characteristics, including KOOS PRO scores.

RESULTS:

37% of knee patients received intermittent straight catheterization. Catheterized patients had 25ml higher post-void residual urine on their Pre-PVRS (67.7ml v 42.7ml, p=.005). Age and Body Mass Index were statistically significantly different, with the catheterized groups trending younger (69.1yrs v 67.0yrs, p=.058) and thinner (32.7kg/m^2 v 31.0kg/m^2, p=.024).

No statistically significant differences in AUA scores (7.24 v 7.48, p=.734), gender (chi squared statistic 0.006, p=.937), 12 week KOOS scores (67.5 v 69.7 p=.164), surgical length (87mins v 85mins, p=.226), Morphine MilliEquivalent doses (72.7 v 71.7, p=.819), or Non-Steroidal Anti-Inflammatory doses (5233mg v 5465mg, p=.835) were observed. Two patients (0.7%) had continued retention after straight catheterization.

DISCUSSION AND CONCLUSION:

Pre-PVRS volumes are the primary variable that is predictive of postop TKA patient catheterization, whereas the AUA symptom score was not predictive. Screening for pre-existing bladder conditions selected out almost all patients who would require repeated catheterization. In addition to questions about bladder function, self-catheterization, and diseases of bladder innervation, we propose that all TKA patients receive a Pre-PVRS.