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Postoperative Urinary Retention (POUR): What Are The Risk Factors?

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INTRODUCTION

Total hip arthroplasty (THA) is a successful procedure alleviating pain in patients with debilitating arthritis. Postoperative urinary retention (POUR) is a common complication following surgery and is managed with intermittent or continued urinary catheterization. POUR has been estimated in retrospective literature to be on the order of 5% – 70% of surgical cases with early catheter removal or without a catheter. At our institution, and based on a Level 1 study here, urinary catheter is not used routinely in patients undergoing THA under regional anesthesia. The purpose of this study was to evaluate the incidence of POUR and risk factors leading to urinary retention in patients undergoing THA using regional anesthesia who did not receive urinary catheterization.

MATERIALS AND METHODS

A retrospective analysis was conducted to determine specific risk factors for POUR following THA. Between June 2010 and June 2012, 422 consecutive THA patients were identified, all of whom were operated on by a single surgeon, received uniform spinal anesthesia, and did not receive an intraoperative indwelling catheter. POUR was defined as the need for either straight catheterization or placement of indwelling catheter following surgical intervention. A multivariate logistic regression was used to determine the risk factors that were associated with POUR.

RESULTS

Patients had a significantly higher incidence of POUR if a history of benign prostatic hyperplasia (BPH) ($p = 0.008$), previous urinary complications ($p = 0.0003$), and use of tobacco ($p = 0.06$) was reported. The amount of intravenous fluid administered to patients during the intraoperative period and bilateral surgery both approached significance with respective p-values of 0.1.

TABLES 1 & 2

Demographics	Mean	Range
Age (years)	62	24 - 89
Gender	211 Females 214 Males	
BMI (kg/m ²)	27.8	16.1 - 43.4
(ASA)	2.3	2-3

Table 1. Comparison of demographics between cases and matched patients. BMI=Body mass index; kg= Kilogram; m²= square meter; ASA=American society of anesthesiologists.

Risk Factor	Odds ratio (95% CI)	p-value
Bilateral Procedure	3.10 (0.78-12.33)	0.10
Tobacco Use	2.38 (0.94-6.02)	0.06
Benign Prostate Hypertrophy	4.69 (1.48-14.90)	0.008
Urinary Complication History	13.78 (3.31-57.52)	0.003
Intraoperative IV Fluid	1.54 (0.91-2.63)	0.10

Table 2: Risk Factors Found Significant for POUR in Multivariate Analysis. Significance = p-value <0.05 CI=Confidence interval; I V= Intravenous.

DISCUSSION

It has been consistently documented that spinal opioids influence bladder functions and have the potential to cause urinary retention¹; hence in our cohort, all patients received spinal anesthesia without opioid use. Kuipers et al. determined that intrathecal administration of opioids (morphine and sufentanil) decrease bladder function by causing suppression of detrusor contractility and decreased sensation of urge^{1,2}.

Additionally, these same patients did not receive an intraoperative foley catheter. Urinary catheters are often placed unnecessarily, and are not always removed promptly when no longer needed. Miller et al. reported no statistical difference in POUR rates following THA among a cohort of patients that were prospectively randomized to potentially receive an intraoperative foley catheter³.

A variety of other factors have also been noted to increase the risk of developing POUR. It was determined that a reported history of BPH and history or urinary complications had significant impacts on patients developing POUR. These risk factors are consistent with other studies. In our study, we noted that patients with history of BPH, urinary history, and use of tobacco have increased risk of POUR. In an environment where postoperative complications can negatively affect hospital and physician reimbursement, we recommend increased surveillance of these patients to appropriately manage expectations and decrease complication rates.

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