



Tailored Perioperative and Anesthetic Management to Prevent POUR in a Patient with BPH Undergoing Total Knee Arthroplasty

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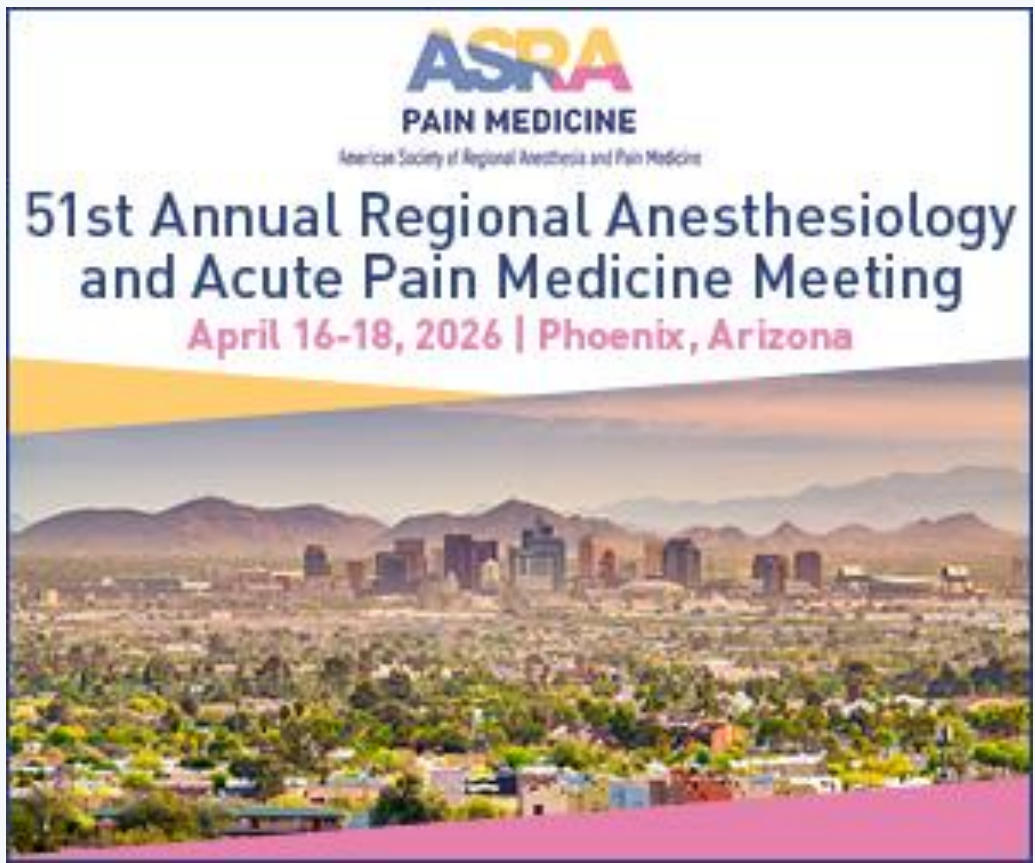
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INTRODUCTION

- **Postoperative urinary retention (POUR)** is a common complication following lower-extremity arthroplasty.
- Patients with **benign prostatic hyperplasia (BPH)** have increased risk due to baseline bladder outlet obstruction.
- **Prior episodes of POUR significantly increase recurrence risk.**
- Additional contributors include, **neuraxial anesthesia, opioid administration, perioperative fluid loading.**
- This case describes a **high-risk patient with prior severe POUR** in whom a **targeted perioperative anesthetic strategy prevented recurrence during total knee arthroplasty (TKA).**

CASE DESCRIPTION

- **Patient:** 73-year-old male with BPH, osteoarthritis, bradycardia, and remote cutaneous T-cell lymphoma with a **history of severe POUR following total hip arthroplasty requiring Foley catheterization for 5 days.**
- **Procedure:** Elective **left TKA**
- **Tailored Perioperative Anesthetic Strategy:**
 - **Short-acting spinal anesthesia:** 1.5% mepivacaine to limit prolonged sacral autonomic blockade
 - **Peripheral nerve blocks:** femoral + IPACK blocks with 0.25% bupivacaine
 - **Opioid-sparing multimodal analgesia:** ketamine, acetaminophen, ketorolac
 - **Fluid restriction:** net +900 mL intraoperatively
 - **Continuation of BPH medications:** tamsulosin and finasteride
 - **Early mobilization and postoperative voiding protocol**
- **Outcome:** Uncomplicated intraoperative and postoperative course with **spontaneous voiding on postoperative day 1 and no recurrence of urinary retention**, allowing discharge home without catheterization.

Figure 1. Postoperative Urinary Retention Risk

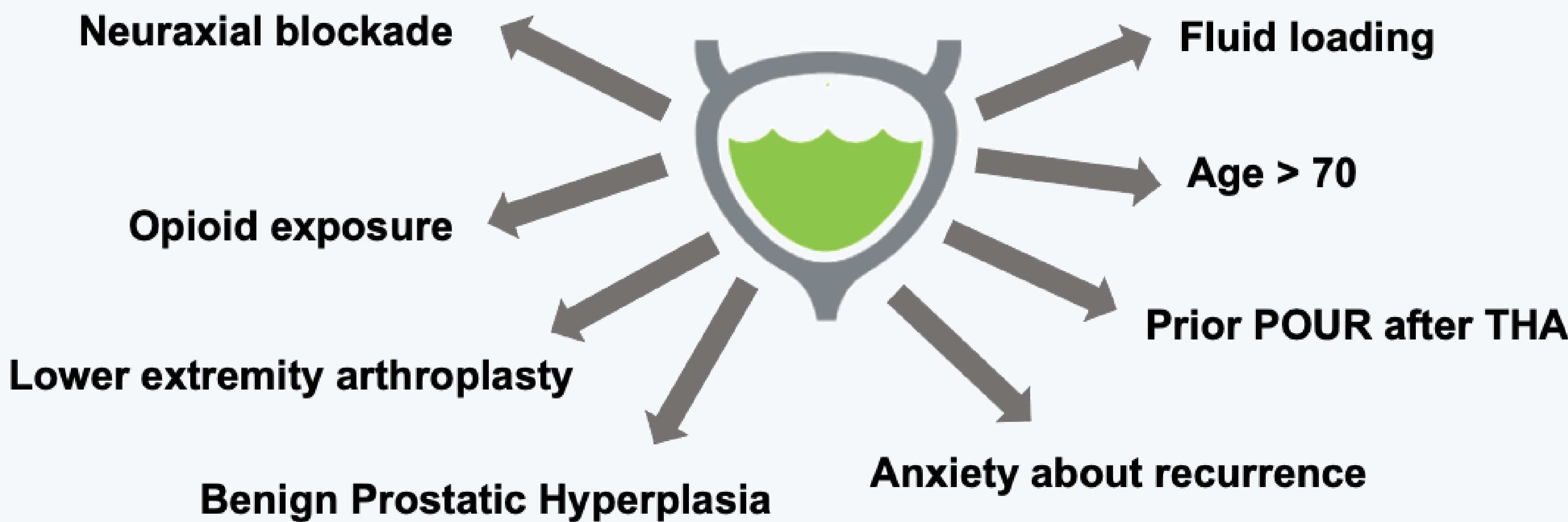


Figure 2. Mechanism of POUR After Neuraxial Anesthesia

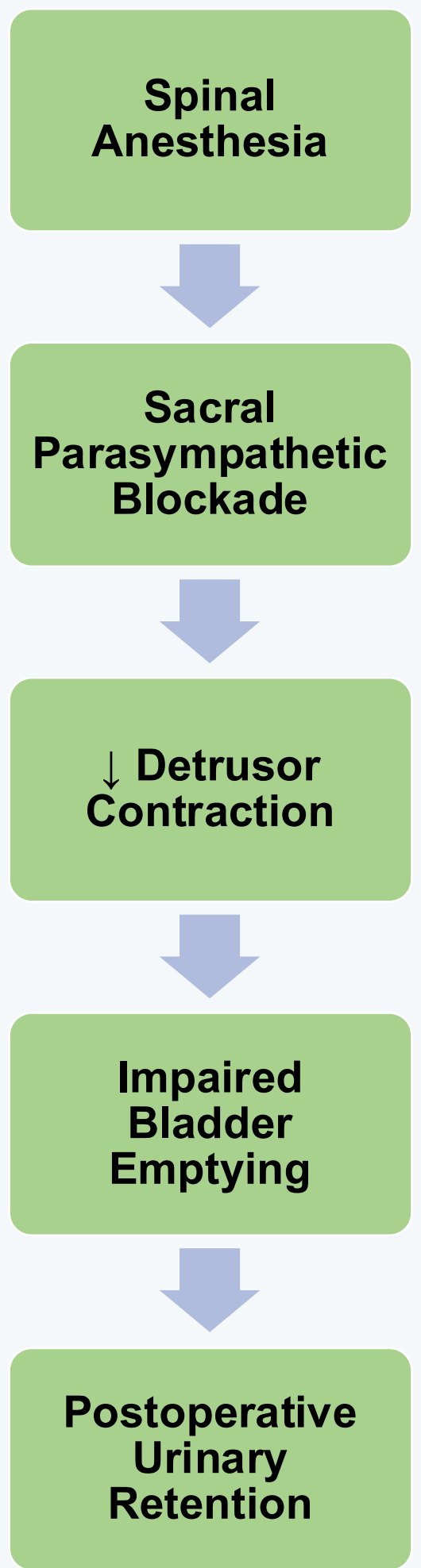


Figure 3. Prior THA vs Current TKA

2022 THA	2025 TKA
• Neuraxial Anesthesia – Spinal with Mepivacaine 1.5% - 4mL • NO Peripheral Nerve Block intraoperatively • Failure of TOV and straight catheterization x 3 times • Postoperative tamsulosin + bethanechol • POD-2 Bladder Scan > 500cc • Foley Catheter insertion x 5 days	• Neuraxial Anesthesia – Spinal with Mepivacaine 1.5% - 3mL • Peripheral Blocks – Femoral Nerve Block 0.25% - 20mL + IPACK Block with Bupivacaine 0.25% - 15mL intraoperatively • Passed TOV POD-0
Outcome: Discharged POD#3 with Foley Catheter due to POUR.	Outcome: Discharged POD#1 with successful TOV/no POUR.

DISCUSSION

- **Advanced age, BPH, and prior POUR** are major predictors of postoperative urinary retention.
- **Neuraxial anesthesia** contributes to POUR through **temporary inhibition of sacral autonomic pathways controlling bladder function.**
- **Short-acting spinal anesthetics (e.g., mepivacaine)** may reduce duration of bladder dysfunction compared with long-acting agents.
- **ERAS protocols** support:
 - **Opioid-sparing multimodal analgesia**
 - **Early mobilization**
 - These measures help reduce urinary and other postoperative complications.
- Evidence for **perioperative α -blockers** remains mixed but may provide benefit in selected high-risk patients.
- **Individualized perioperative planning** may reduce recurrence of POUR in high-risk arthroplasty patients.

CLINICAL IMPLICATIONS

- Identify patients with **prior POUR early in preoperative evaluation**
- Consider **short-acting neuraxial anesthetics**
- Use **opioid-sparing multimodal analgesia**
- Avoid **excessive fluid administration**
- Implement **early voiding protocols**

References →

