Bladder Management

Theresa Clifford, MSN, RN, CPAN, CAPA, FASPAN

QUESTION: What are best practice guidelines for perioperative bladder management? Are there recommended criteria for the use of a bladder scan?

Response: There are several reasons to be concerned about implementing a standard bladder management protocol for the perioperative patient. In addition to the overall patient experience, patient satisfaction, and patient comfort, strategies to prevent unnecessary use of indwelling catheters will help reduce the overall incidence of catheter-associated urinary tract infections (CAUTIs).[1,2] Recognition of patients at risk for postoperative urinary retention (POUR) and determination of appropriate indications for indwelling catheters are two strategies for best practice in terms of bladder management.

CAUTI

Urinary tract infections related to indwelling bladder catheters are among the most common health care– acquired infections. The Centers for Medicare and Medicaid Services considers the development of CAUTIs a "never event," or at least preventable with proper interventions.[1] As a result of this ruling, the care and treatment of patients admitted with a hospital-acquired CAUTI is no longer reimbursed by Centers for Medicare and Medicaid Services. In addition to the financial consequences, CAUTIs are associated with several untoward findings. These include increased length of stay and increased costs of care, both associated with lower quality of care. Finally, CAUTIs are a source of pain, anxiety, and discomfort for patients.

POUR

Urinary retention after surgery occurs between 4% and 6% of all general surgical patients, between 10.7% and 84% in total joint replacement patients, and between 0% and 69% after spinal anesthesia.[3] POUR is commonly defined as the inability to void when the bladder is full or the presence of impaired voiding after surgery. Other criteria for defining POUR include urine volumes ranging between 360 and 600 mL or a palpable bladder.[4,5] Unrecognized POUR can result in bladder dysfunction associated with persistent overdistention. Prolonged overdistention can potentially damage the detrusor muscle.[5,6]

The rate of POUR does vary widely based on surgical procedure (total joint arthroplasty, herniorrhaphy, anorectal, neurospine) and anesthesia type. Spinal anesthesia can impact the S2 to S4 nerve roots and can lead to decreased bladder and sphincter tone, total relaxation of the detrusor smooth muscle function, and inhibited voiding reflex. There are a number of additional risk factors associated with POUR, which include the following:[3-9]

- Male gender.
- Older adult (more than 50 years).
- Concurrent neurologic conditions (eg, stroke, multiple sclerosis, myelopathy, atonic bladder, spinal lesions).
- Certain medications (eg, anticholinergics, meperidine, sympathomimetics, beta blockers, select anesthetics).
- Volume of intraoperative fluids (eg, more than 1,000 to 2,000 mL).
- Pre-existing medical conditions (eg, diabetes mellitus, depression, benign prostatic hypertrophy, bladder abnormalities, acute urinary tract infection).
- Previous surgeries (eg, prostatectomy, proctocolectomy, low anterior resection, pelvic procedures).
- Previous history of POUR.

Theresa Clifford, MSN, RN, CPAN, CAPA, FASPAN, Perioperative Services, Mercy Hospital, Portland, ME and Former President of American Society of Perianesthesia Nurses from 2009 to 2010.

Conflict of interest: None to report.

Address correspondence to Theresa Clifford, 144 State Street, Portland, ME 04101; e-mail address: practicecorner@aspan.org.

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Bladder Management Strategies

In 2009, the Center for Disease Control published a guideline for the prevention of CAUTIs.[10] This guideline provides examples of appropriate indications for the use of indwelling catheters. These include, but are not limited to, the patient with acute urinary retention, the need for accurate urinary measurements (eg, the critically ill patient), specific surgical procedures (eg, urologic or genitourinary), prolonged anesthesia, to assist with healing perineal wounds.[1,10] In addition to urinary infections, indwelling catheters can lead to urethral trauma, prostatitis, and restricted patient mobility, which can precipitate emboli, pressure injuries, and general patient discomfort.[2] One of the most important strategies for infection prevention is the restrictive use of indwelling catheters. Other interventions include early removal, education for improved insertion techniques, and best practice for the meticulous care of indwelling catheters.[1,2,11]

Nurse-driven protocols reduce the unnecessary use of indwelling catheters.[4] These protocols are criteria driven and often include the following:[1,3-6,8,9,11,12]

- If the patient expresses a desire to void but is unable, surgery and anesthesia time is greater than 2 hours, the patient has received more than 2 L of fluid, or the patient has known risk factors for POUR, initiate a bladder scan to assess for bladder volume.
- If the scan indicates that there is more than 400 to 500 mL of urine, encourage the patient to void.
- If the patient is unable to void, straight catheterization is indicated; reassess every 4 hours.

Education

Perianesthesia nurses play a key role in the prevention of unwanted CAUTI. Careful assessment of patient risk factors as well as thorough patient assessments and clinical observations can decrease the indiscriminate use of catheters and consequently reduce the rate of CAUTI. Orientation and ongoing annual competencies should include a review of the indications for catheters, best practices for use of the bladder ultrasound, practice for aseptic and sterile techniques for inserting urinary catheters, and a competency for the general care of an indwelling catheter when required.

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