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Acute Urinary Retention in Elderly Men

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ABSTRACT

Acute urinary retention is a urologic emergency that can affect elderly men. It requires prompt bladder decompression and identification of the underlying cause. Elderly patients with acute urinary retention often have associated fecal impaction, delirium, and constitutional symptoms. With increasing age, hospitalization for acute urinary retention may be necessary to treat precipitating events, whereas acute urinary retention itself might precipitate or exacerbate comorbid medical conditions, necessitating hospitalization. Multiple causative factors operate via 3 main mechanisms: obstructive, neurogenic, and detrusor underactivity. More than 1 mechanism might exist in a single patient. Definitive treatment must be individualized on the basis of the quality of life, life expectancy, caregiver support, and presence of other chronic medical conditions. Urology consultation may be needed for invasive diagnostic testing or management of refractory cases.
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Acute urinary retention is the sudden, painful inability to urinate spontaneously despite having a distended bladder.[1-3] It can lead to infection, renal failure, and chronic bladder dysfunction.[2-4] Elderly men are at highest risk (10%-30% 5-year)[1,3,5] because there is an age-associated increase in benign prostatic enlargement resulting from benign prostatic hyperplasia,[6] the most common cause of obstructive acute urinary retention.[3] Comorbidities and polypharmacy can alter the presentation, complicate the diagnosis and treatment, and increase the morbidity and mortality in acute urinary retention. No large comprehensive clinical trials have been published on this disorder; this discussion applies available evidence with generally accepted best practices for diagnosis and management.

PRESENTATION

Patients with acute urinary retention might have lower abdominal pain, complete or partial urine retention, overflow incontinence, and irritative voiding.[2] Depending on the cause, additional symptoms such as fever, hematuria, or neurologic abnormalities (including delirium) can be present. In elderly patients with dementia, symptoms might be vague because of the patients' inability to articulate. Delirium might be provoked by acute urinary retention (and resolved with bladder decompression).[4] Observed behavioral changes or constitutional symptoms should prompt investigation for acute urinary retention. Constipation or fecal impaction is the most common reversible cause of geriatric acute urinary retention and might be the focus of patient symptoms when present.[4]

Physical examination should include abdominal palpation and percussion to detect the distended bladder and abdominal masses. The penis should be examined for phimosis, paraphimosis, edema, urethral strictures, foreign bodies, discharge, and malfunctioning catheters. Rectal examination might detect fecal impaction, prostate enlargement or nodules, prostatitis, rectal masses, or abnormal sphincter tone.[3,7] Neurologic examination can identify central, peripheral, or spinal cord abnormalities. Fever or hypotension suggests infectious complications.

ETIOLOGY

The origins of acute urinary retention are numerous, and in elderly patients, they can be multiple.[7] Three pathophysio-

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Table 1 Acute Urinary Retention: Differential Diagnosis and Proposed Mechanisms[1,3,4,6,8]

Differential Diagnosis	O	N	DU
Abscess (diverticular, perianal, prostatic)	X		
Abscess (spinal cord)		X	
Autonomic neuropathy (diabetes, multiple sclerosis, Parkinson's)		X	
BPH	X		X
Catheter malfunction (indwelling or condom catheters)	X		
Central nervous system disease (stroke, subdural hematoma)		X	
Constipation with fecal impaction	X		X
Diabetes mellitus (autonomic effects and osmotic diuresis)		X	X
Dementia, advanced		X	X
Foreign body	X		
Gross hematuria (eg, from Foley trauma, bladder tumors)	X		
Guillain Barré		X	
Infection	X	X	X
Balanitis, parasitic infections, acute prostatitis, urethritis	X		
Cystitis, urinary tract infection	X		X
Genital herpes (local inflammation/sacral nerve involvement)	X	X	
Herpes zoster, Lyme disease, polio myelitis, tabes dorsalis		X	
Bladder malignancy	X	X	X
Brain tumor, cauda equina tumors		X	
Gastrointestinal and prostatic malignancy	X		
Pelvic and retroperitoneal malignancy	X	X	
Medications	X	X	X
Normal pressure hydrocephalus		X	
Overdistension (alcohol, diuresis, immobility, postponed voiding)			X
Penile edema (CHF, liver failure, bed-bound patients)	X		
Phimosis, paraphimosis	X		
Postoperative (urologic, pelvic, gastrointestinal)	X	X	X
Spinal cord disease (hematoma, abscess, stenosis, disc disease)		X	
Trauma (bladder, hip, pelvis, penis, urethra)	X	X	X
Urethral stricture (eg, from infection, indwelling catheter, trauma)	X		
Urolithiasis	X		

O = obstructive; N = neurogenic; DU = detrusor underactivity; BPH = benign prostatic hypertrophy; CHF = congestive heart failure.

logic mechanisms might occur: bladder outlet obstruction, neurogenic bladder, and detrusor underactivity.[1,2] Most causative disorders (ie, infectious, inflammatory, traumatic, neoplastic) result in retention through one of these mechanisms (Table 1).

Bladder outlet obstruction results from obstructed urinary flow at or distal to the bladder neck, such as extrinsic compression from fecal impaction or intrinsic obstruction from a urethral stricture.[3] Neurogenic acute urinary retention indicates interrupted sensory or motor innervation to the bladder, resulting in reduced detrusor contraction, impaired urinary sphincter relaxation, or both;[2,3] it is common in geriatric patients because of chronic diseases such as diabetes, Parkinson's disease, and stroke.[3] Finally, in detrusor underactivity, a weakened detrusor muscle predisposes to overdistention, as seen when acute urinary retention occurs after a large-volume diuresis.[2,4]

In the elderly, medications might precipitate acute urinary retention because of decreased clearance, drug interactions, altered drug sensitivity, and multiple comorbid medical conditions more common with advancing age. Anticholinergic and nonsteroidal anti-inflammatory drugs decrease bladder contractility; sympathomimetics increase smooth muscle tone in the prostate and bladder neck causing intrinsic obstruction.[3] Opiates impair autonomic function, and diuretics increase urine production leading to bladder overdistention.[6] Table 2 lists some pharmacologic causes of acute urinary retention.[3,6,11]

Table 2 Pharmacologic Causes of Acute Urinary Retention in the Elderly[3,6,11]

Antiarrhythmics	**Anxiolytics/hypnotics**
Disopyramide	Clonazepam
Procainamide	Diazepam
Quinidine	Zolpidem
Antidepressants	**Decongestants**
Amitriptyline	Phenylpropanolamine
Citalopram	Pseudoephedrine
Doxepin	**Dementia agents**
Imipramine	Memantine
Venlafaxine	Rivastigmine
Antiseizure drugs	**Gastrointestinal drugs**
Carbamazepine	Atropine/scopolamine/hyoscyamine
Gabapentin	Dicyclomine
Lamotrigine	Metoclopramide
Tiagabine	**Hormonal**
Antihistamines	Estrogens
Cetirizine	Progesterone
Chlorpheniramine	Testosterone
Cyproheptadine	**Muscle relaxers**
Diphenhydramine	Baclofen
Hydroxyzine	Cyclobenzaprine
Antihypertensives	Diazepam
Clonidine	**Pain relievers**
Hydralazine	Opioids
Nifedipine	Nonsteroidal anti-inflammatory drugs
Antiparkinsonian drugs	Tramadol
Benztropine mesylate	**Pulmonary drugs**
Carbidopa/levodopa	Ipratropium
Pramipexole	Tiotropium
Selegiline	**Urologic agents**
Antipsychotics	Darifenacin
Aripiprazole	Oxybutynin
Clozapine	Tolterodine
Haloperidol	