

Urinary Incontinence: Accurate and Efficient Diagnosis

David D. Rahn, MD

Effective treatments are available for stress and urge urinary incontinence. Accurate diagnosis is essential for your patients who have this common bothersome condition.

Urinary incontinence (UI) is the complaint of any involuntary leakage of urine and is a bothersome symptom for 15.7% or more of US women, although prevalence estimates vary greatly; 30% to 60% of middle-aged and older women experience some degree of urinary leakage.¹⁻³ Its 2 major subtypes are stress and urge UI; many patients experience both. UI may carry a large personal and societal burden, with major impacts on health-related quality of life, productivity, health care utilization, and costs.

Over the past several years, minimally invasive surgical and office-based interventions effective for the treatment of UI have become increasingly available. Taken together, a common bothersome condition with available effective treatments underscores the need for accurate and efficient diagnosis.

HISTORY

The diagnosis of UI begins with a brief and targeted history to identify the type of incontinence, severity, duration, and burden of incontinence, in addition to any

potentially modifiable contributing factors. Patients presenting for an annual examination or an unrelated complaint often are reluctant to discuss bothersome UI unless asked directly. Only a few questions may be needed to discern whether a patient may have stress, urge, or mixed incontinence.

Questions to Ask Your Patient

Stress UI is suggested by an affirmative response to the question, “Do you leak urine when you cough, sneeze, laugh, or exercise vigorously?”

Patients with urge UI are considered to have overactive bladder, which is associated with urinary urgency and increased daytime frequency and nocturia. Questions targeting these symptoms should include: “Do you ever have such an uncomfortably strong need to urinate that if you don’t reach the toilet you will leak? How many times do you urinate during the day/during the night after going to bed?”

Voiding more often than every 2 hours during the waking hours and voiding 2 or more times overnight are consistent with urinary frequency and nocturia, respectively.

To discern the severity of the leakage, the patient is asked about how often she leaks and, if she is wearing pads to protect her clothing, the number and type of pads she is using in a typical day.

The patient should also be screened for urinary tract infection and neoplasia, with questions regarding history of infection, dysuria, or hematuria. Finally, since UI commonly coincides with other pelvic floor disorders, the patient should be queried regarding symptoms of pelvic organ

FOCUSPOINT

The UI patient should be queried regarding symptoms of pelvic organ prolapse, voiding dysfunction, and anal incontinence.

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The clinician should ask about symptoms of pelvic pressure or bulging, difficulty beginning the urine stream, straining or splinting/pushing in a bulge to urinate or defecate, sensation of incomplete bladder emptying, or having to wait for a postvoid dribble. There are several useful validated questionnaires that may be self-administered by the patient to help identify and quantify these symptoms of UI and prolapse and to measure symptom impact on the patient's quality of life.^{4,5}

Using a subspecialist evaluation as the criterion standard, one short 3-question tool used in conjunction with a standard urinalysis has been shown to have a sensitivity of 75% and 86%—and a specificity of 77% and 60%—for classifying urge and stress incontinence, respectively.⁶

In-Depth History

After these urologic questions, the patient's complete medical, surgical, gynecologic, and neurologic histories are obtained. Conditions such as diabetes, stroke, and lumbar disk disease may all contribute to UI. Severe constipation and impaction have been associated with voiding difficulties, urgency, and stress incontinence. A pulmonary history significant for chronic cough may markedly worsen stress UI. Any prior history of pelvic radiation or surgery, including hysterectomy or prior anti-incontinence procedures, may have resulted in trauma to the lower urinary tract.

Finally, medication history is important, as there are numerous drugs that impact bladder or urethral function and may worsen UI or voiding dysfunction (Table). Lowering the dose or changing the offending drug may substantially improve urinary symptoms in some patients.

Early in the history-taking portion of the evaluation of UI and throughout the physical examination to follow, one must be mindful of reversible conditions that may be contributing to or causing a patient's UI. A convenient mnemonic that highlights these potentially reversible or transient contributors to UI is “**DIAPPERS**”:

- **D**ementia/delirium
- **I**nfection
- **A**trophic vaginitis

- **P**sychologic
- **P**harmacologic
- **E**ndocrine (hyperglycemia with diabetes or hypercalcemia)
- **R**estricted mobility
- **S**tool impaction.

Continence requires the cognitive ability to recognize and react appropriately to the sensation of a full bladder, motivation to maintain dryness, sufficient mobility and manual dexterity, and ready access to toilet facilities. Patients with dementia or significant psychologic impairments often do not have this necessary cognitive ability or motivation for maintenance of continence, while women with severe physical handicaps or restricted mobility may simply not have time to reach the toilet, especially in the setting of urinary urgency/overactive bladder.

Urinary tract infections cause inflammation of the bladder mucosa. Sensory afferent activity increases with this inflammation, which contributes to an overactive bladder. Similarly, estrogen deficiency may lead to atrophic vaginitis and urethritis with increased local irritation and a greater risk for urinary tract infection and overactive bladder. Topical estrogen may ameliorate symptoms, and infections should be treated before other incontinence interventions are considered.⁷

VOIDING DIARY

Patients with UI are asked to complete a 3- to 7-day diary, tabulating volume and frequency of fluid intake and of voiding. They also note episodes of UI and the precipitating cause. The diary helps to quantify true voiding frequency and pad use, which is often unreliable by history alone. The maximum voided volume is usually an accurate estimate of bladder capacity. Use of the voiding diary can be therapeutic, as well as diagnostic.

PHYSICAL EXAMINATION

The physical examination is generally less useful than the history for this initial assessment of UI, but it does afford the opportunity to teach patients the correct technique for pelvic floor muscle exercises. The exam should begin by collecting a void and a mid-stream catch for dipstick urinalysis. The simple urinalysis is important for detection

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TABLE. Medications That May Contribute to Urinary Incontinence or Voiding Dysfunction

| Type of Medication | Mechanism | Effect on Lower Urinary Tract |
|--|--|--|
| Alcohol (eg, beer, wine) | Diuretic effect, sedation, immobility | Polyuria, frequency |
| Alpha-agonists (eg, decongestants, diet pills) | Internal urethral sphincter contraction | Urinary retention, voiding difficulty |
| Alpha-blockers (eg, prazosin) | Internal urethral sphincter relaxation | Urinary leakage, stress UI |
| Anticholinergic agents (includes antihistamines, antipsychotics, skeletal muscle relaxants, tricyclic antidepressants) | Inhibit bladder contraction, sedation, fecal impaction | Urinary retention and/or functional incontinence |
| ACE inhibitors (eg, lisinopril) | Chronic cough | Worsen stress UI |
| Calcium channel blockers (eg, nifedipine) | Relaxes bladder, fluid retention | Urinary retention, voiding difficulty |
| Diuretics (eg, caffeine, HCTZ, furosemide) | Increase urinary frequency, urgency | Polyuria |
| Narcotic analgesics | Relaxes bladder, fecal impaction, sedation | Urinary retention and/or functional incontinence |

Abbreviations: ACE, angiotensin-converting enzyme; HCTZ, hydrochlorothiazide; UI, urinary incontinence.

of pyuria (leukocyte esterase), hematuria, bacteriuria (nitrite), and glucosuria. Any suspicion of infection should prompt formal urinalysis with microscopy, urine culture, and, generally, empiric treatment.

If the patient has an underlying neurologic disorder, has overt pelvic organ prolapse beyond the hymen, or gives a history of recurrent urinary tract infections, measurement of the postvoid residual volume (PVR) via bladder scanner or by catheterization is helpful to assess for retention. Otherwise, the PVR is seldom elevated and arguably need not be part of this initial evaluation of UI. The exact value for what constitutes a normal PVR is under some

debate, but generally a PVR below 50 cc is considered normal, and above 200 cc, elevated. Clinical judgment is required to interpret the significance of an intermediate PVR.

The gynecologic examination is performed in the dorsal lithotomy position but with particular attention to the vaginal walls, looking for evidence of prolapse and loss of support to the bladder base or urethra during a Valsalva maneuver. Stress urinary leakage is sometimes observed with harsh cough.

Signs of atrophic epithelium may prompt a trial of local estrogen replacement. Of note, there is some controversy here, as a

recent Cochrane review of estrogen replacement in women with UI concluded that *systemic* estrogen therapy may result in worsening incontinence (relative risk [RR], 1.32; 95% CI, 1.17-1.48) while *local* vaginal estrogen application may improve continence (RR, 0.74; 95% CI, 0.64-0.86).⁸

Palpation of the anterior vaginal wall with pressure against the urethra may elicit pain or discharge that suggests a urethral diverticulum, tumor, or inflammatory condition.

A neurologic exam is also important. This begins with an evaluation of mental status and then proceeds to motor and sensory function of the lower extremities and a directed lumbosacral exam. This includes assessment of pelvic muscle strength (asking the patient to contract as if holding back urine or gas while the examiner's fingers are in the vagina); perineal and vulvar sensation (light and sharp touch with a broken cotton swab); pudendal nerve/sacral reflex activity (symmetric bulbocavernosus and anal "winks"); and anal exam to assess resting tone and voluntary contraction. The rectal examina-

tion is also helpful to evaluate for stool impaction, which may affect voiding function.

Measuring urethral hypermobility may impact treatment decisions for stress UI (bladder neck suspension vs periurethral bulking agents), although arguably, it may be of less value if selecting a midurethral sling for treatment of UI. The "Q-tip test" places a lubricated cotton swab in the urethra to the level of the vesical neck and measures axis of change with straining; greater than 30 degrees of movement with strain is considered hypermobile. While incontinent women tend to have greater Q-tip angle changes than continent women, there is a large overlap in angle measurements.⁹

Other studies have shown that almost all women with stage II to IV prolapse have a Q-tip angle greater than 30 degrees, so the measurement is perhaps more useful in a woman with stage 0 or I prolapse or in those with prior surgical interventions.¹⁰ Other means to assess urethral mobility include lateral cystourethrography (resting and straining views) and ultrasound

Coding for Urinary Incontinence

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This complaint may come up during a well woman examination or as the primary issue of an office visit. If it arises during the well woman examination, the physician should provide the patient with her voiding diary and schedule another office visit to address this problem in depth.

Since this is often a multisystem problem, the clinician should take a comprehensive history and perform a comprehensive physical examination. The medical decision making for this complaint would fall in the high-complexity category, making this a Level 5 Evaluation and Management code with appropriate documentation.

The ICD-9 codes for the diagnoses mentioned in this article are:

| | |
|---|---|
| 788.30 Urinary incontinence, unspecified | 788.41 Urinary frequency |
| 788.31 Urge incontinence | 788.42 Polyuria |
| 788.33 Mixed incontinence, urge and stress | 788.43 Nocturia |
| 625.6 Stress incontinence, female | 599.70 Hematuria, unspecified |
| 788.1 Dysuria, painful urination | 599.71 Gross hematuria |
| | 599.72 Microscopic hematuria |
| | 787.6 Incontinence of feces, incontinence of sphincter ani |
| | 618.2 Uterovaginal prolapse, incomplete |
| | 618.3 Uterovaginal prolapse, complete |
| | 618.4 Uterovaginal prolapse, unspecified |
| | 595.0 Acute cystitis |
| | 627.3 Postmenopausal atrophic vaginitis |
| | 597.80 Urethritis, unspecified |
| | 596.51 Hypertonicity of bladder, overactive bladder |

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(either transperineal or vaginal), the latter of which holds promise as a noninvasive test to evaluate urethral/bladder neck anatomy.

“SIMPLE” CYSTOMETRICS

This is a simple and inexpensive process to assess voiding, detrusor function during filling, and competency of the urethral sphincter. After the patient has voided, a sterile catheter is inserted to obtain the PVR. A 60-cc catheter-tip syringe (with the plunger removed) is then attached, and the bladder is filled in 50-cc increments, noting volume of first sensation and total capacity the patient will tolerate. A rise in the meniscus during filling may be indicative of an involuntary detrusor contraction.

The catheter is removed, and the patient stands and coughs forcefully. spurts of urine simultaneous with the cough strongly suggest stress UI, whereas a prolonged loss of urine, especially occurring several seconds after the cough, is more suggestive of detrusor overactivity and urge UI.

URODYNAMIC TESTING AND REFERRAL

Consultation and more formal urodynamic testing may be indicated when the diagnosis is uncertain based on the history, physical examination, and simple cystometric testing. They are also often needed when the patient has tried and is unsatisfied with medication or conservative/behavioral treatment approaches.

Another indication for further consultation is when there are comorbid conditions in a patient considering surgery. These conditions include UI with recurrent infection, poor bladder emptying with persistently elevated PVR, symptomatic prolapse (especially beyond the hymen), prior anti-incontinence surgery, or a complicating neurologic condition. Professional societies are not in agreement regarding the value of preoperative urodynamics testing for a clinical diagnosis of pure stress UI.¹¹

SUMMARY

After a careful thorough history, a urine analysis, and a directed physical examination, most patients can be diagnosed with stress, urge, or mixed UI. Because behavioral therapies (eg, avoiding bladder irri-

tants, timed voiding) and physical therapies (ie, strengthening the pelvic floor muscles for more forceful contractions before stress maneuvers and for urge suppression techniques) carry very low risk, these interventions may be employed early.

For those patients with symptoms other than primary pure stress or urge UI, further assessment of bladder emptying and storage with simple cystometrics is appropriate. Finally, in patients with complex neurologic histories, other concomitant pelvic floor disorders, or for whom surgical intervention is considered, proceeding with consultation and/or complex urodynamic testing may be of value.

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