

# Incontinence

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## KEYWORDS

- Urinary incontinence • Urinary tract disorders
- Benign prostatic enlargement • Geriatric

## EPIDEMIOLOGY AND IMPACT OF URINARY INCONTINENCE

Urinary incontinence (UI), the complaint of any involuntary leakage of urine, is a common geriatric syndrome that affects between 30% and 60% of older women and between 10% and 35% of older men in the community, and up to 80% of nursing home residents.<sup>1,2</sup>

The most common types of UI are stress, urge or urgency, and mixed (stress and urgency) incontinence. Stress incontinence is the involuntary leakage of urine on effort or exertion, with activities that increase intra-abdominal pressure, such as coughing, sneezing, or lifting.<sup>3</sup> Urgency incontinence is the involuntary leakage of urine accompanied by or immediately preceded by a sensation of urgency, or the sudden compelling desire to pass urine which is difficult to defer.<sup>3</sup> In older women, mixed incontinence (stress and urgency incontinence) is the most common type, accounting for about half of all cases, with urgency incontinence alone less common, and stress incontinence alone the least common.<sup>4</sup> In older men, urgency incontinence is the most common type, followed by mixed incontinence, stress incontinence being the least common type.

Incontinence is not a normal part of aging, but age-related conditions and changes in bladder and pelvic floor function<sup>5,6</sup> contribute to the loss of bladder control in older adults. In addition to age, risk factors for men and women include cognitive

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The authors have the following disclosures: Patricia Goode: Pfizer (research grant). Kathryn Burgio: Astellas (advisory board), GlaxoSmithKline (consultant), Johnson & Johnson (consultant), Pfizer (consultant, research grants). Theodore Johnson II: Boehringer-Ingelheim (consultant), Ferring (consultant), Johnson & Johnson (consultant), Pfizer (consultant and research grants), Vantia (consultant and research grant). Camille Vaughan: Astellas Pharmaceuticals (grant support). Alayne Markland: Pfizer (nonpaid consultant).

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Med Clin N Am 95 (2011) 539–554

doi:[10.1016/j.mcna.2011.02.006](https://doi.org/10.1016/j.mcna.2011.02.006)

[medical.theclinics.com](http://medical.theclinics.com)

0025-7125/11/\$ – see front matter. Published by Elsevier Inc.

impairment, mobility impairment, diabetes, neurologic conditions, and other lower urinary tract symptoms. Factors increasing the risk for UI in woman include white race, increased parity, oral hormone therapy, higher body mass index, and menopause. In men, despite advances in surgical technique, radical prostatectomy remains strongly associated with transient or persistent incontinence.

Although UI is not a life-threatening condition, it can greatly diminish quality of life. In fact, its impact exceeds that of many comorbid diseases (such as diabetes mellitus, stroke, and arthritis in the hands and wrists).<sup>7,8</sup> Incontinence can contribute to social isolation, anxiety, and depression, and is associated with an increased risk of falls and fractures (urgency UI) and admission to long-term care facilities.<sup>9-14</sup>

## DETECTION AND EVALUATION OF URINARY INCONTINENCE

The first step in evaluation of older adults with incontinence is detection. However, community-based studies in the United States indicate that only 30% to 45% of older adults with incontinence seek care.<sup>15</sup> Because of the high prevalence of undiagnosed incontinence, it should be included in the *Review of Systems*. Older adults reporting infrequent incontinence should be alerted that occasional incontinence is a risk factor for more frequent incontinence.<sup>16</sup> Also, evidence exists that behavioral intervention is effective in preventing new incontinence or reducing the progression of infrequent incontinence.<sup>17</sup>

The basic evaluation for UI should include a focused history, paying close attention to the severity, duration, and burden of incontinence, clues to the type of UI, and any potentially modifiable contributing factors; a physical examination; and a urinalysis (**Tables 1 and 2**).

Urinalysis should be interpreted with caution to avoid overtreatment of asymptomatic bacteriuria, which is found in at least 20% of older women. Diagnosis of symptomatic urinary tract infection requires relevant symptoms (urgency, frequency, dysuria, suprapubic tenderness, or costovertebral angle pain or tenderness) and a positive urine culture of  $10^5$  CFU/mL or greater with no more than 2 species of microorganisms.<sup>18</sup> Having a positive leukocyte esterase or urinary nitrite in addition to pyuria or a positive Gram stain is contributory, but not sufficient for the diagnosis.

Postvoid residual volume (PVR) should be determined in patients with acute UI or suspected retention. There are no evidence-based criteria for an “abnormal” PVR; in general, PVR greater than 150 to 200 mL is considered clinically significant in men. Women may tolerate PVRs in this range without symptoms or morbidity; thus, PVR interpretation should be individualized.

A brief cognitive assessment should be considered for patients who give a history that is inconsistent or unclear, or who have no response to initial treatments (see section on special considerations for patients with cognitive impairment).

## URINARY INCONTINENCE TREATMENTS

### **Behavioral Treatments**

Behavioral treatments have been well studied and have been shown to be effective in older adults, reducing leakage by 50% to 80%, with 10% to 30% of patients achieving continence.<sup>19-23</sup> Behavioral treatments are recommended by most treatment guidelines as initial management for UI and related symptoms (**Fig. 1**).<sup>24</sup> These interventions improve incontinence by teaching skills and assisting the patient to change behavior. Behavioral treatment programs usually comprise multiple individualized components, which may include pelvic floor muscle training and exercise, bladder control strategies, self-monitoring (bladder diary), scheduled or prompted voiding, delayed voiding, caffeine reduction, fluid management, weight loss, and/or other lifestyle changes.

<b>Table 1</b>		
<b>Modifiable contributors to urinary incontinence</b>		
<b>Condition</b>	<b>Mechanism</b>	<b>Treatment</b>
<b>Medical Conditions</b>		
Urinary tract infection	Cystitis with resulting urgency and frequency may precipitate urgency incontinence	Consider treatment of bacteriuria when incontinence is of new onset, suddenly worsens, or with altered mental status Caveat: Asymptomatic bacteriuria is common in the elderly patient and does not need treatment
Constipation	Rectal distension may cause detrusor instability with mass effect	Manage with increased dietary fruit, fiber, and fluids, stool softeners, and laxatives as needed
Diabetes mellitus	Diuresis associated with glycosuria precipitates urgency incontinence Diabetic neuropathic bladder can result in a chronically full bladder with precipitation of frequency, urgency, and stress incontinence	Improve diabetic control or diagnose and treat undetected diabetes
Mobility impairment	Postponed voiding to avoid pain related to degenerative joint disease or other conditions can result in urgency incontinence Slowed mobility from any cause can precipitate urgency incontinence	Improve pain management (pharmacologic or nonpharmacologic) and education concerning regular toileting, which helps decrease stiffness and improves incontinence Improve mobility with physical therapy, assistive devices, or other interventions
Obesity	Pressure on the bladder from central obesity may worsen urgency incontinence and chronic stress on the pelvic floor muscles may lead to stress incontinence	Consider a weight loss program in younger obese geriatric patients. Caution with frail older patients
Obstructive sleep apnea	Nocturnal diuresis due to production of atrial natriuretic peptide may precipitate urgency incontinence or nocturia	Screen for sleep apnea (snoring, daytime sleepiness, witnessed apnea) and consider sleep study. Continuous positive airway pressure treatment decreases nocturnal diuresis and decreases nocturia
<b>Diet</b>		
Caffeine	Caffeine is a mild diuretic and a bladder irritant	Eliminating or reducing caffeine can improve incontinence
<b>Medications</b>		
Diuretics	Rapid increases in bladder volume may precipitate urgency incontinence	Consider discontinuing diuretic. Loop diuretics can be changed to mid to late afternoon to allow useful daytime hours without frequency with diuresis ending before bedtime

*(continued on next page)*

<b>Condition</b>	<b>Mechanism</b>	<b>Treatment</b>
Angiotensin-converting enzyme inhibitors	Cough, a common side effect in the elderly, precipitates stress incontinence	Change to other agents such as angiotensin II receptor blockers
Anticholinergics, sedatives, and hypnotics	Sedation may cause cognitive impairment that interferes with ability to sense and respond to the need to void, particularly at night, resulting in enuresis Anticholinergics may cause incomplete bladder emptying and constipation, and thus contribute to frequency, urgency, and urinary incontinence	Discontinue or reduce dose when possible

Adapted from Goode PS, Burgio KL, Richter HE, et al. Incontinence in older women. *JAMA* 2010;303(21):2172–81; with permission.

The purpose of pelvic floor muscle exercises (also known as Kegel exercises) is to strengthen the pelvic floor muscles so they can be used more effectively to prevent urine leakage. Multiple methods have been effectively used to help patients contract their pelvic floor muscles, including self-help books,<sup>25</sup> biofeedback,<sup>20,23</sup> verbal feedback based on vaginal or anal palpation,<sup>20</sup> and electrical stimulation.<sup>21</sup> Careful training with coaching through verbal feedback during physical examination (during the vaginal examination for women or during the rectal examination for men or women) can be as effective as biofeedback and electrical stimulation.<sup>20,23</sup> A reasonable initial approach in a busy primary care practice may be a verbal explanation of the technique reinforced with written materials available through the National Association For Continence ([www.nafc.org](http://www.nafc.org)) and the Simon Foundation ([http://www.simonfoundation.org/About\\_Incontinence\\_Treatment\\_Options\\_Pelvic\\_Floor\\_Exercises.html](http://www.simonfoundation.org/About_Incontinence_Treatment_Options_Pelvic_Floor_Exercises.html)). One of the most effective verbal explanations of a proper contraction of the pelvic floor muscles is to tell the patient to tighten up the muscles that they use to hold in gas (flatus). One of the benefits of pelvic floor muscle strengthening includes better control of flatus, the involuntary loss of which is common and embarrassing for many older adults.

A reasonable and effective exercise prescription for older adults is to contract and relax their pelvic floor muscles for 2 seconds with 15 repetitions 3 times a day.<sup>19–21,23</sup> Patients should gradually increase the duration of squeeze/relaxations by about 1 second each week, until they achieve 10-second contractions and relaxations. At this point they can begin a maintenance prescription of 10-second contractions and relaxations with 10 repetitions once a day. It is essential to continue the maintenance program to maintain strength and effectiveness.

The strategic use of the pelvic floor muscles to prevent leakage is an essential component of behavioral therapy. Effective strategies are shown in **Table 3**.<sup>25</sup> The urge suppression skills outlined in **Table 3** are also effective in reduction of urinary urgency, frequency, and nocturia.<sup>26,27</sup> These symptoms as well as fear of leakage can have a major impact on quality of life. Bladder training, incremental voiding schedules supplemented with techniques to resist the sensation of urgency such as relaxation, distraction, or pelvic floor muscle contraction, or simply delaying voiding for increasing intervals can be added to a behavioral treatment program to help reduce urgency and frequency.<sup>22</sup>

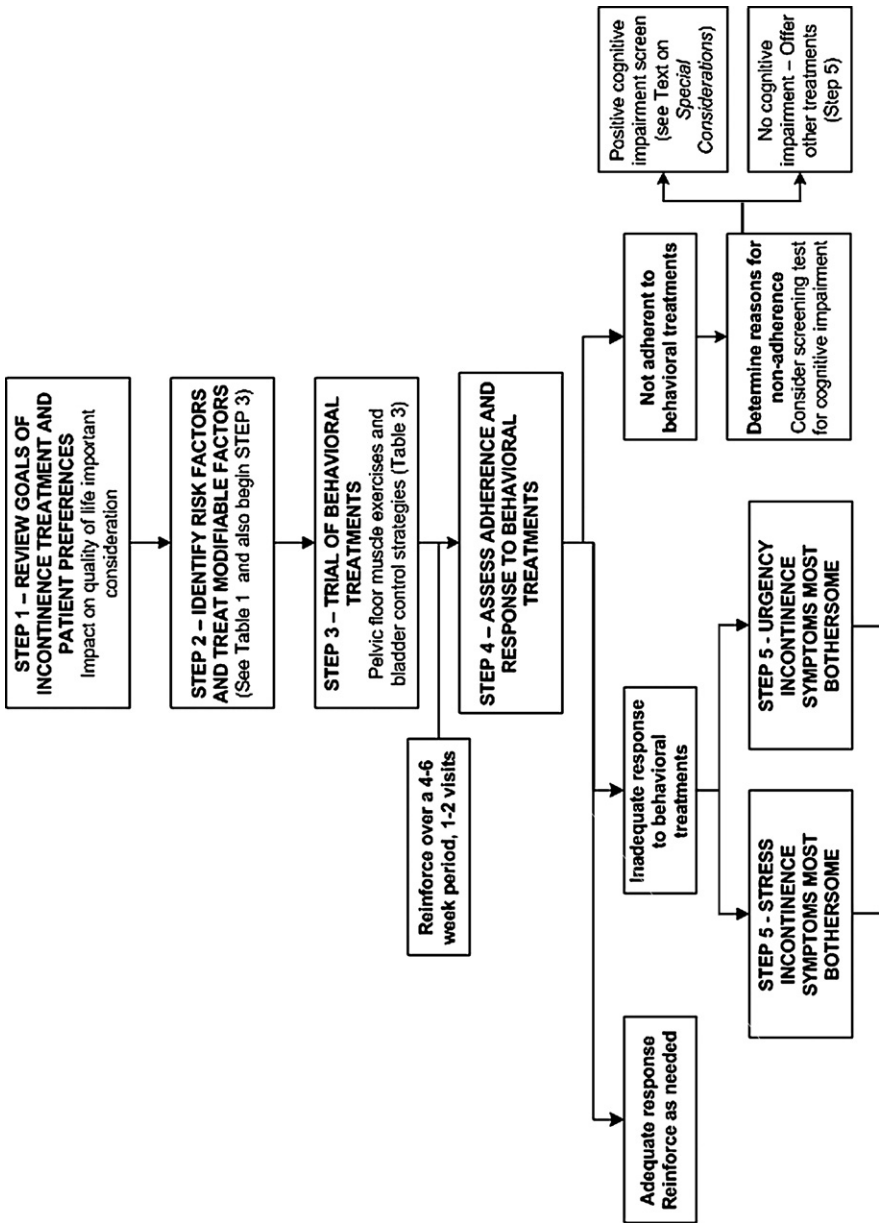
<b>Evaluation Type</b>	<b>Components</b>
Focused history	Review of chronic conditions and medications Onset, duration, previous history/treatments Characteristics of symptoms and impact on quality of life Frequency/severity Fluid status Concomitant symptoms—ie, constipation, fecal incontinence, dysuria, nocturia, vaginal dryness/vaginal bulging (in women) Cognitive assessment (if indicated, see section on special considerations for patients with cognitive impairment)
Physical examination	<b>General</b> Volume status Abdominal examination (masses, suprapubic tenderness, palpable bladder) Neurologic examination (tremor, cogwheeling, reflexes, sensation) Musculoskeletal (strength, balance, gait) Cognition (delirium) Vaginal examination (cough stress test, prolapse evaluation, muscular strength—circumferential squeeze around examining finger(s), internal and anterior displacement—scarring in perineal body, anal wink, vaginal atrophy) Rectal in women and men (resting and squeezing sphincter tone, sphincter asymmetry with squeeze, impaction, prostate size/contour/tenderness in men) Perineal skin evaluation (contact dermatitis, skin tags, scars, perineal warts)
Laboratory	Urinalysis/culture (rule out infection or hematuria) Fluid status (metabolic panel) Other for consideration: thyroid studies, vitamin B12 levels as indicated, vitamin D levels (25-OH vitamin D)
Radiology (not always indicated)	Postvoid residual volume: bladder ultrasonography, if available Abdominal kidney/ureter/bladder radiograph for constipation, hematuria, or abdominal pain

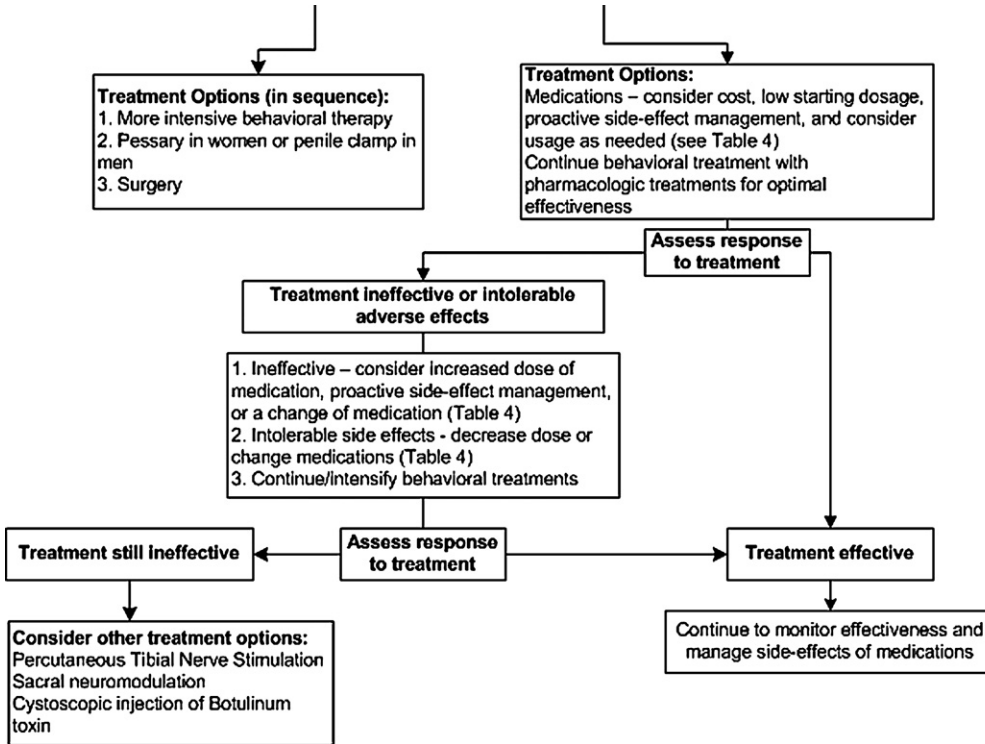
*Adapted from* Gibbs CF, Johnson TM 2nd, Ouslander JG. Office-based management of geriatric urinary incontinence. *Am J Med* 2007;120:211–20; with permission.

Sometimes the pattern of leakage is unclear. A bladder diary (<http://kidney.niddk.nih.gov/kudiseases/pubs/pdf/diary.pdf>), in which the patient writes down the times they void and the time and circumstances of any leakage, may help identify a pattern that can be treated with a behavioral strategy. Diaries are also helpful for identifying times when a strategy might have prevented leakage, planning for the next time, and monitoring progress of behavioral interventions.

Behavioral lifestyle changes are generally used in addition to other behavioral interventions such as pelvic floor muscle exercises and bladder control strategies, but evidence shows that they can be sufficient treatments alone. Reducing caffeine intake may reduce both stress and urgency incontinence.<sup>28</sup> To avoid withdrawal symptoms, caffeine reduction should be gradual, and may include mixing caffeinated and decaffeinated beverages incrementally.

To evaluate fluid intake, an intake diary or patient's recall of types and amounts of fluid consumed in a usual day can provide very helpful information. Although reducing excess fluid intake can decrease incontinence,<sup>29</sup> many older women attempt to control





**Fig. 1.** Stepwise approach to treatment of urinary incontinence in older adults. (Modified from Goode PS, Burgio KL, Richter HE, et al. Incontinence in older women. JAMA 2010;303(21):2172–81. Copyright 2010, American Medical Association. All rights reserved; with permission.)

<b>Type of Leakage</b>	<b>Patient Complaint</b>	<b>Strategy</b>
Stress incontinence	Urine loss during sneezing, coughing, or lifting Urine loss during exercise	Squeeze and hold the pelvic floor muscles just before and during these activities (Squeeze before you sneeze!). If it happens too suddenly, squeeze anyway, it will be too late that time, but will help establish the habit When possible, squeeze for certain components of exercise, but also know that as strength increases with continued exercise, leakage with exercise will decrease
Urge or urgency incontinence	Urine loss following an urge to urinate—can't get to the bathroom in time Urine leakage starts with sudden urgency when running water, pumping gas, driving up to the house, or putting the key in the front door	Instead of rushing to the bathroom, stay still and repeatedly tighten the pelvic floor muscles without relaxing them until the urgency is gone (Freeze and squeeze!). Then walk to the bathroom at a normal pace. Repeat the Freeze and squeeze if urgency reoccurs on the way to the bathroom Anticipate and prevent urgency. Squeeze and hold the pelvic floor muscles before turning on the water, pumping gas, getting out of the car, or opening the front door. Also, consider voiding before doing dishes or pumping gas
Leakage without warning	Urine starts flowing when the person stands up from a chair or the bed, without urgency	Squeeze and hold the pelvic floor muscles before standing and hold them as you stand up. This helps prevent the sudden detrusor contraction that causes the leakage
Post-void dribbling	Urine drips on the floor after standing up from voiding. Urine seeps out in the underwear after voiding	Tighten the pelvic floor muscles before the final wiping or shaking. If the person sits to void, tighten the pelvic floor muscles as they stand up to prevent leakage. Men may "milk" the penis to empty the urethra

*Adapted from* Burgio KL, Pearce KL, Lucco AJ. Staying dry: a practical guide to bladder control. Baltimore (MD): Johns Hopkins University Press; 1989; with permission.

incontinence by restricting fluid intake. Although fluid restriction can be helpful at certain times, such as before social activities, restricting overall fluid intake is not recommended because of the risk of dehydration. Though it may seem counterintuitive, it is beneficial to encourage older patients to consume at least 6 8-ounce glasses of fluid each day.<sup>30</sup>

Weight loss studies have shown significant improvement in incontinence for younger women following bariatric surgery<sup>31</sup> and with 5% weight reduction in a more traditional weight loss program.<sup>32</sup> However, more evidence is needed to evaluate the effectiveness of weight loss as an incontinence treatment for older women or for men.

Behavioral interventions are safe, and result in significant reduction in symptoms and improved quality of life. Such interventions do require the active participation of a motivated patient or caregiver and a knowledgeable clinician. Behavioral interventions are commonly implemented by advanced practice



nurses ([http://www.wocncenter.com/public/member\\_directory.cfm](http://www.wocncenter.com/public/member_directory.cfm)), physical therapists with special training (<http://www.apta.org>), or other professionals who have developed the appropriate expertise ([www.nafc.org](http://www.nafc.org)). Behavioral treatments usually work gradually at first and rely on patient self-management; therefore, it is important to follow patients regularly to sustain behavioral changes over time.

### **Pharmacologic Therapy**

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Various drug therapies (**Table 4**) are available to treat UI depending on the underlying etiology. Anticholinergic antimuscarinic drugs, which target bladder smooth muscle leading to relaxation, are most often used to treat urgency or mixed incontinence.<sup>33,34</sup> These drugs can be used in men and women, and all have similar efficacy.<sup>35</sup> Anticholinergic side effects such as dry mouth and constipation are common,<sup>35,36</sup> and long-term adherence is often limited.<sup>37</sup> Older adults with evidence of incomplete bladder emptying should be monitored for worsening urinary retention while taking antimuscarinic agents. Further, there is potential for negative effects on cognition, particularly when using antimuscarinic drugs which are less selective for the bladder or more likely to cross the blood-brain barrier.<sup>38</sup>

Antimuscarinic agents may be used alone in men for symptoms of urgency incontinence, but are often paired with drug treatments targeting benign prostatic enlargement (BPE).<sup>39</sup>  $\alpha$ -Adrenergic antagonists and 5 $\alpha$ -reductase inhibitors are effective for symptoms associated with BPE, which may include urgency incontinence.<sup>40,41</sup> The use of a selective  $\alpha$ -adrenergic antagonist is associated with less risk of orthostatic hypotension compared with nonselective agents. 5 $\alpha$ -Reductase inhibitors, alone or in combination with an  $\alpha$ -adrenergic antagonist, have been shown to reduce urinary symptoms, the risk of acute urinary retention, and the need for future invasive surgical therapy.<sup>40</sup>

Fewer pharmacologic treatments have been studied for stress UI, and only among women. Duloxetine, a serotonin and norepinephrine reuptake inhibitor, has been evaluated in several randomized controlled trials, and a recent systematic review suggests it may be beneficial for stress incontinence in women,<sup>42</sup> but is not approved for this indication in the United States.

Low-dose, topical vaginal estrogen therapy can be effective in older women for the reduction of symptoms associated with overactive bladder syndrome, including urgency incontinence.<sup>43</sup> Systemic absorption while using dosages typical for treating urogenital atrophy (0.5 g of estrogen cream 3 times a week) is low,<sup>44</sup> although such treatment should be used with caution among women with a history of breast cancer. The estradiol ring, which is placed vaginally every 90 days, may be a convenient method of treatment for many older women.

### **Devices**

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For women with stress incontinence or mixed incontinence with stress predominance, intravaginal mechanical devices can reduce episodes of UI. Both tampons and pessaries have been studied in a randomized controlled trial, and have demonstrated decreased volumes of incontinence compared with no treatment.<sup>45</sup> A large randomized controlled trial showed that the use of a pessary was as effective as pelvic floor muscle exercise-based behavioral therapy in reducing episodes of stress incontinence and leading to satisfaction with treatment at 12 months.<sup>46</sup> Pessaries must be fitted in a clinic setting to optimize comfort and performance. Further, their use requires regular cleaning and reinsertion of the device, which may be difficult for some older women, thus necessitating frequent visits to their clinician for proper maintenance of the device.

For men with stress UI or continuous leakage, penile clamps or collection devices such as condom catheters can offer self-management options. One small study

<b>Table 4</b>		
<b>Drugs commonly used to treat different types of incontinence</b>		
<b>Drugs</b>	<b>Usual Adult Dose</b>	<b>Comments</b>
<b>Drugs with Predominantly Anticholinergic or Antimuscarinic Effects</b>		
Darifenacin	7.5–15.0 mg daily orally	The drug is selective for the bladder M3 muscarinic receptor, and may have fewer cognitive side effects than other anticholinergic agents
Fesoterodine	4–8 mg daily orally	This prodrug is easily converted to an active metabolite chemically identical to the active metabolite of tolterodine
Oxybutynin <sup>a</sup>	2.5–5.0 mg 1–3 times daily orally (short-acting) 5–30 mg daily orally (long-acting) 3.9 mg over a 96-h period (transdermal) 10% topical gel 0.5–1 g daily	Long-acting and transdermal preparations have fewer side effects than short-acting preparations The transdermal patch can cause local skin irritation in some patients
Solifenacin	5–10 mg daily orally	The drug has some selectivity for the bladder M3 muscarinic receptor over other muscarinic receptors
Tolterodine <sup>a</sup>	2–4 mg daily orally	The drug has relatively low lipophilicity with limited ability to penetrate the central nervous system
Trospium	20 mg twice daily orally 60 mg daily orally (long-acting)	The agent is a quaternary ammonium compound, which is less likely to cross the blood-brain barrier and may have fewer cognitive side effects than other anticholinergic agents
<b>Estrogen (for Women)</b>		
	Approximately 0.5 g cream applied topically nightly for 2 weeks, then twice per week Estradiol ring, replaced every 90 days Estradiol, 1 vaginal tablet daily for 2 weeks, then 1 tablet twice a week	Local vaginal preparations are probably more effective for urgency related to local irritation than oral estrogen, but definitive data on effectiveness are lacking
<b>Serotonin and Noradrenaline Reuptake Inhibitor</b>		
Duloxetine	20–80 mg daily	Not approved for this indication in the USA; however, a systematic review of clinical trial data suggests improvement in stress UI Transient nausea is a common side effect
<b><math>\alpha</math>-Adrenergic Antagonists (for Men)</b>		
Alfuzosin (selective)	10 mg daily orally	Postural hypotension can be a serious side effect Doses of nonselective agents must be increased gradually to facilitate tolerance

*(continued on next page)*

Drugs	Usual Adult Dose	Comments
<b><math>\alpha</math>-adrenergic Antagonists (for Men)</b>		
Doxazosin (nonselective) <sup>a</sup>	1–8 mg daily orally at bedtime	
Prazosin (nonselective)	1–5 mg twice daily orally	Also used for posttraumatic stress disorder in men
Silodosin (selective)	4–8 mg daily orally	
Tamsulosin (selective) <sup>a</sup>	0.4–0.8 mg daily orally	
Terazosin (nonselective) <sup>a</sup>	1–10 mg daily orally at bedtime	
<b>5<math>\alpha</math>-Reductase Inhibitors (for Men)</b>		
Dutasteride	0.5 mg daily orally	
Finasteride <sup>a</sup>	5 mg daily orally	

<sup>a</sup> Available as a generic.

Data from Ouslander JG. Management of overactive bladder. *N Engl J Med* 2004;350:786–99; and Gibbs CF, Johnson TM 2nd, Ouslander JG. Office-based management of geriatric urinary incontinence. *Am J Med* 2007;120:211–20.

assessed different types of penile clamps and found the Cunningham clamp (a rigid metal and foam clamp) to be the most comfortable and effective but, even at the loosest setting, penile artery Doppler ultrasonography revealed decreased systolic blood flow.<sup>47</sup> Penile clamps must be removed at least every 4 hours to prevent penile erosion. Before they recommend a penile clamp, clinicians should confirm that men are cognitively intact and have the manual dexterity to open and close the device. Collection devices provide a method for containment of incontinence. Condom catheters were studied in one randomized study<sup>48</sup> and were shown to reduce the risk of bacteriuria, symptomatic urinary tract infection, and death compared with indwelling catheters in a group of hospitalized older men, particularly in those without dementia, but likely result in a higher infection rate than diapering.<sup>49</sup> Newer types of collection devices are becoming available and can be explored using consumer advocacy Web sites such as the National Association for Continence ([www.nafc.org](http://www.nafc.org)) and the Simon Foundation ([www.simonfoundation.org](http://www.simonfoundation.org)).

Absorptive undergarments may be a preferred method of containment for some patients,<sup>50</sup> but generally should not be the first response to incontinence as a treatment option. In addition, these products are costly and are not covered by Medicare or most insurance plans. If continence products are preferred, proper fit for comfort and use are essential. Assessment of self-care practices to prevent skin breakdown (changing undergarments when wet, use of barrier creams or treatment of fungal infections if necessary) is important in those who use absorptive products.

### **Surgical Treatment**

Minimally invasive surgeries for UI include midurethral slings for stress incontinence in women and men and artificial urinary sphincters in men.<sup>51–53</sup> Midurethral sling surgeries are often done in the outpatient setting for women and men with stress urinary incontinence.<sup>51–53</sup> In men, less evidence regarding the different types of sling surgeries exists in comparison with women.<sup>53</sup> Men with stress urinary incontinence also have the option of surgical implantation of an artificial urinary sphincter.<sup>53</sup>

For refractory urgency incontinence, minimally invasive procedures and surgeries include implantation of a sacral neuromodulation device, percutaneous tibial nerve stimulation, and botulinum toxin A bladder injections (off-label usage). Sacral neuromodulation therapy involves an outpatient surgical implantation of an electronic device approved by the Food and Drug Administration (FDA) that stimulates the S3 sacral nerve.<sup>54</sup> Neuromodulation also occurs through projections from the posterior tibial nerve to the sacral nerve plexus at the S2-S4 junction. Electrical stimulation of the posterior tibial nerve can be performed via a fine-needle electrode inserted percutaneously near the ankle.<sup>55</sup> Treatments last 30 minutes and are done in clinic once a week for 12 weeks, then repeated as needed. Although not currently FDA-approved, botulinum toxin A injected cystoscopically into the detrusor muscle is increasingly being used for patients who are refractory to other treatments for urgency, frequency, and urgency incontinence.<sup>56,57</sup>

### **SPECIAL CONSIDERATIONS FOR TREATMENT OF PATIENTS WITH COGNITIVE IMPAIRMENT**

Patients with cognitive impairment and incontinence need modified evaluation and treatment approaches. Symptoms of urinary tract infection can be nonspecific in cognitively impaired older adults, and can include worsening incontinence as well as decreased cognitive status. Although it is important not to treat asymptomatic bacteriuria, if a functional decline occurs in conjunction with worsening or new incontinence, a urinalysis and culture are indicated.

In identifying factors that may have precipitated or worsened incontinence, medications may play a role (see **Table 1**). Cholinesterase inhibitors used to treat dementia work to increase acetylcholine levels and therefore may precipitate incontinence.<sup>58</sup> The benefits of the cholinesterase inhibitor need to be balanced with the burden of incontinence in deciding whether the medication should be withdrawn or changed.

During the physical examination, an abdominal and a digital rectal examination are necessary to rule out constipation as a precipitating factor in patients unable to monitor their frequency of bowel movements.<sup>59</sup> Also, perineal skin should be inspected and any perineal irritation treated with an antifungal cream if indicated, and with a moisture barrier ointment.

For patients with mild to moderate cognitive impairment, a behavioral program limited to caffeine reduction and timed voiding can reduce incontinence. For patients with a caregiver, the active involvement of the caregiver is usually essential for optimal outcomes with behavioral treatment. Prompted voiding works very well in reducing incontinence in community-dwelling older persons.<sup>60</sup> A 3-day trial of prompted voiding can determine if quality of life improves for the caregiver and patient.<sup>61</sup> If there is no improvement after 3 days, a “check and change” management strategy, using appropriate absorbent garments, can contain incontinence and preserve dignity. Substituting pull-ups for the patient’s usual underwear can provide considerable relief for the caregiver without being bothersome to the patient.

Antimuscarinic medications can worsen cognitive function, and should be used with caution in older patients with preexisting cognitive impairment.<sup>38</sup> Careful monitoring for worsening mental status should be part of the instructions given to the caregiver. If improvement is not noted within a month or if the patient has a functional decline sooner, the medication should be discontinued.

Although surgical procedures may be indicated, such as in cases of severe pelvic organ prolapse and incontinence, in general, patients with dementia may sustain cognitive and functional decline with surgical interventions.

**Box 1****Reasons for referral of older adults with urinary incontinence for specialty evaluation**

Surgery or pelvic floor radiation within the past 6 months and not responding to a behavioral treatment plan

Recurrent urinary tract infections (2 or more urinary tract infections in a 12-month period)

Postvoid residual volume >200 mL

Asymptomatic microscopic or macroscopic hematuria (as per guidelines)<sup>18</sup>

Incontinence with new-onset neurologic symptoms and/or muscular weakness

Persistent bothersome symptoms after trials with behavioral and/or drug treatment

Failure to isolate pelvic floor muscles in a patient desiring to try behavioral therapy

No longer able to tolerate or lack of response to a pessary or other adjunctive treatment

Pelvic pain associated with incontinence

In women: pelvic organ prolapse past the introitus or less severe prolapse with discomfort

In men: abnormal prostate examination on digital rectal examination

**REFRACTORY SYMPTOMS/REFERRAL**

Many older patients with UI are referred to specialists for further evaluation and treatment. Common reasons for referral are listed in **Box 1**. However, most UI can be evaluated and treated in the primary care setting.

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