

Diagnosis and management of urinary incontinence in residential care

Addressing both reversible and structural causes of bladder control problems can improve the quality of life for long-term care residents.

ABSTRACT: Urinary incontinence is a burdensome chronic condition afflicting a large number of elderly residents in long-term care facilities. Reversible causes commonly contribute to transient incontinence for many residents. These causes include poor fluid intake, stool impaction, depression, and the use of certain pharmaceuticals. Assessment and management in these cases can improve symptoms. Most cases of persistent incontinence have structural causes. These include impairments that lead to urge, flow, stress, and functional incontinence. As with transient incontinence, assessment and management of persistent incontinence can improve symptoms. Many other chronic conditions, such as Parkinson disease and constipation, can also contribute to loss of bladder control. Effective strategies for managing all forms of incontinence can be supported by facility policy and culture, and by staff education. Such strategies benefit elderly residents by reducing the morbidities and indignities of incontinence.

Urinary incontinence (UI) is the involuntary loss of urine. In residential care it is extremely prevalent, affecting over half of all residents.¹ Costs associated with UI have been estimated at \$5 billion per year.² Incontinence contributes to skin diseases, infections, and injurious falls. It also increases social isolation and profoundly affects the quality of life for both residents and caregivers alike.

Transient UI

A number of UI causes do not involve a primary problem with the genitourinary system and are thus reversible. The mnemonic DISAPPEAR³ is a helpful way to remember the causes of transient UI that are most easily remedied. These causes and management recommendations are provided in **Table 1**. A list of pharmaceuticals that contribute to incontinence—the second P in DISAPPEAR—is provided in **Table 2**.

When assessing a residential care patient for transient UI, a history of fluid intake should be done since some residents take in large amounts of caffeinated or diet beverages, and both caffeine and aspartame are bladder irritants. Concentrated urine from not

drinking enough noncaffeinated or noncarbonated beverages can also irritate the bladder. Evaluation for fluid shifts, such as pedal edema, should also be considered. Depression, delirium, and constipation are other conditions that can contribute to incontinence. Stool impaction in particular can cause anatomic changes that contribute to overactive bladder, urine retention, or loss of sphincter control.

Urinary and fecal incontinence are comorbid conditions that affect over 50% of elderly patients in residential care.⁴ Constipation and other causes common to both types of incontinence can overlap and predispose a resident to develop dual incontinence. Fecal incontinence can also increase the risk of a symptomatic urinary tract infection, especially for female residents, due to atrophic changes and incorrect

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Table 1. DISAPPEAR mnemonic for reversible causes of transient urinary incontinence.

Causes and effects	Recommended management
Delirium—cannot find bathroom, cannot attend to sensation of need	<ul style="list-style-type: none"> Find cause and resolve delirium
Intake of fluid poor or incorrect (amount, type, and timing)—frequency, urgency, nocturia	<ul style="list-style-type: none"> Encourage intake of at least 1500–1800 mL fluid per day by 6 p.m. Avoid fluids that are irritants and diuretics (caffeine, aspartame, and alcohol)
Stool impaction—urinary retention and potential for fecal bypassing leading to urinary tract infection	<ul style="list-style-type: none"> Do post-void residual to check for retention Relieve impaction and implement prevention Ensure thorough perineal cleansing
Atrophic vaginitis/urethritis—stress, urge urinary incontinence, or both	<ul style="list-style-type: none"> Prescribe estrogen cream Recommend vaginal jelly (Trimo-San or Replens) if there is a history of reproductive cancer
Psychological problems (depression)	<ul style="list-style-type: none"> Manage depression
Pharmaceuticals that can contribute to incontinence (see Table 2)—post-op retention due to anesthetic	<ul style="list-style-type: none"> Do post-void residual test to check for retention Review medications, including OTC, for contributors Give prescribed diuretic in afternoon rather than morning when patient is already dehydrated For urgency/frequency always rule out retention before prescribing antimuscarinic or anticholinergic agents
Excess urine output—excess intake or CHF with pedal edema	<ul style="list-style-type: none"> Consider reducing fluid intake to 2000 mL Reduce fluid intake in evening to sips Elevate legs in evening, consider pressure stockings
Abnormal lab values: UTI—frequency and urge hyperglycemia—UTI, diuresis, and urge hypercalcemia—diuresis hypothyroid—bladder instability and urge	<ul style="list-style-type: none"> Treat infection Avoid Foley catheters Control blood sugar Treat thyroid
Restricted mobility—retention	<ul style="list-style-type: none"> Avoid bedpans Avoid restraint Mobilize Promote ease of getting to bathroom, with appropriate clothing, commode, regular toileting, prompt assistance

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Table 2. Pharmaceuticals that can contribute to urinary incontinence.

Class	Examples	Effect on bladder control
Diuretic	furosemide, hydrochlorothiazide, caffeine (coffee, tea) alcohol	<ul style="list-style-type: none"> Polyuria, frequency, urgency
Anticholinergic	oxybutynin (Ditropan), flavoxate (Urispas), dimenhydrinate (Gravol)	<ul style="list-style-type: none"> Relaxes the bladder and can cause constipation (impaction) which can result in retention with overflow
Antidepressant	amitriptyline, doxepin, imipramine, nortriptyline, trazodone	<ul style="list-style-type: none"> Anticholinergic effect Sedation (decreased sensitivity to bladder cues)
Antipsychotic	haloperidol, chlorpromazine, thioridazine, loxapine, risperidone,	<ul style="list-style-type: none"> Anticholinergic effect Sedation (decreased sensitivity to bladder cues) Rigidity, reduced mobility
Sedatives	lorazepam, oxazepam, diazepam	<ul style="list-style-type: none"> Sedation (decreased sensitivity to bladder cues) Muscle relaxation Confusion
Narcotic analgesic	morphine, codeine	<ul style="list-style-type: none"> Urinary retention, especially if administered with another anticholinergic medication Fecal impaction Sedation (decreased sensitivity to bladder cues) Confusion
Alpha-adrenergic blocker	prazosin (Minipress), doxazosin (Cardura), terazosin (Hytrin), tamsulosin (Flomax)	<ul style="list-style-type: none"> Relaxes the urethral sphincter and can contribute to stress incontinence
Alpha-adrenergic agonist	ephedrine, sudafed (contains pseudoephedrine)	<ul style="list-style-type: none"> Can increase urethral closing pressure/resistance and result in retention, especially if there is pre-existing obstruction
Muscle relaxants	baclofen (Lioresal), dantrolene (Dantrium), cyclobenzaprine (Flexeril)	<ul style="list-style-type: none"> Smooth muscle relaxation Can cause retention
Calcium channel blockers	Verapamil (Isoptin), nifedipine (Adalat), felodipine (Plendil), diltiazem (Cardizem)	<ul style="list-style-type: none"> Can reduce smooth muscle contractility in the bladder Can cause retention, especially if given with an anticholinergic

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Table 3. Structural causes of persistent urinary incontinence.

	Cause	Symptoms	Signs	Post-void residual
Urge	Detrusor instability	Urge Enuresis Large volume	Often none	Low
Stress	Sphincter insufficiency	Triggers No enuresis Small volume	Atrophy Prolapse Cystocele	Low
Overflow	Outlet obstruction Detrusor underactive	Small volume Enuresis Frequency	Benign prostatic hyperplasia +/- palpable bladder Neurodeficits	High
Functional	Environment Musculoskeletal disease Cognitive impairment	Varied volume Restraints		Low

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perineal cleansing. Often establishing an effective bowel protocol, including regular toileting for bowel movements, can help with this problem.

A review of symptoms and quick external observation for atrophic changes in the perineum are key to diagnosing vaginitis or urethritis, conditions common in frail postmenopausal women. Low-dose topical estrogen can often make an impact on symptoms. A quick mobility evaluation such as a timed Get Up and Go test will assess the resident's functional ability to get to the bathroom. Inquiring about resident ability to remove clothing in time for toilet use should be asked. Screening tests, including those measuring glucose, calcium, TSH, and renal function, and a urinalysis and culture should be done, especially in the face of recent onset or worsening incontinence. A post-void residual test to rule out retention of urine should be included in the workup.

Persistent UI

If urinary incontinence persists after assessment and management of reversible causes, the next step is to investigate and address structural causes. **Table 3** describes causes of four types of persistent urinary incontinence: urge, stress, overflow, and functional incontinence.⁵

Urge incontinence

Urge incontinence results from overactive bladder (OAB), a disorder characterized by symptoms of nocturia, frequency, and urgency (the immediate and urgent need to void accompanied by fear of leakage or pain). The cause of OAB is poorly understood but it is very common in the elderly and is the most common bladder abnormality in residential care.

Oxybutynin, tolterodine, darifenacin, and solifenacin are members of the antimuscarinic group of medications used to treat OAB. Oxybutynin, which is the most commonly used

agent, is also the most likely to cross the blood-brain barrier and have CNS side effects. However, all antimuscarinics have the potential to cause CNS side effects in the elderly because of increased blood-brain barrier permeability, and all antimuscarinics cause other anticholinergic side effects to varying degrees. The maxim "Start low and go slow" is particularly important for these agents. Anticholinergic side effects are very problematic in the frail elderly, causing varying degrees of dry mouth and eyes, constipation, delirium, urinary retention, dizziness, and orthostatic hypotension, which can predispose to falls.

Long-acting formulations seem more effective and better tolerated than other formulations. Many patients will experience significant side effects that may outweigh the minimal benefit derived. The choice of medication will depend on the resident's overall goals, frailty, comorbidities, and use of other medications, especially those affecting anticholinergic load. The risk-benefit ratio for the individual must be considered.

Other important nursing interventions that should be implemented by the interdisciplinary care team in the residential care setting include timed voiding (e.g., every 3 hours) and prompted voiding (encouraging the resident regularly to try to void).

Stress incontinence

Stress incontinence occurs with any effort or exertion that increases intra-abdominal pressure, such as exercise, coughing, laughing, or lifting. This type of incontinence is very common in seniors, particularly women with poor pelvic muscle strength and tone. Kegel exercises can strengthen pelvic floor muscles. Unfortunately, Kegel exercises are difficult to teach frail seniors with any cognitive impairment. Kegel exercises also require

self-motivation to be effective and must be part of a lifelong exercise program. Timed and prompted voiding are thus more practical recommendations for stress incontinence.

Overflow incontinence

Overflow incontinence results from incomplete bladder emptying due to urethral blockage, lack of bladder tone, or neurological pathway damage. Diagnosis can be made with a post-void residual urine test, either by in-and-out catheterization or, preferably, by portable ultrasound bladder scanner. When incomplete emptying is caused by vaginal or bladder prolapse, pessary insertion can be quite effective and should be considered. Urological interventions can be attempted if retention is due to prostatic hypertrophy or urethral stricture. Surgical intervention may not eliminate incontinence in many elderly patients, but is indicated in those who are experiencing pain, discomfort, delirium, or recurrent infections. Because urinary retention can contribute to agitation and aggression, delirium, recurrent urinary tract infections, and kidney damage, not to mention personal discomfort, overflow incontinence should be identified and managed. A urology consult should be considered if a reversible cause cannot be found. Insertion of an indwelling catheter is sometimes a necessary last resort.

Functional incontinence

Mobility and other factors that affect ease of voiding can worsen incontinence. A facility should consider basic modifications to the environment to aid continence of residents, such as appropriate placement and access to toilets and commodes. Large, colorful pictures or cartoons of a toilet at eye level rather than symbols or words are recommended, as they are more easily

identified by residents with severe dementia.

Dementia and UI

Urinary incontinence is particularly common in persons with moderate to severe dementia, and is a marker of worsening disease. Indeed, UI is a significant risk factor for admission to residential care because of increased care needs.⁶ There is no clear neurological cause for UI developing in

with advancing dementia, the resident will increasingly find it difficult to get to the bathroom or ring for help in time. Medications that have anticholinergic effects can contribute to urinary retention and cause overflow urinary incontinence. Psychotropic drugs prescribed to manage behaviors can also increase Parkinsonian symptoms, which in turn can affect detrusor instability as well as impairing mobility and function.

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individuals with dementia; rather, incontinence is likely the result of one or more sequelae of dementia. Decreased executive function may result in poor problem-solving and planning to access the toilet. Difficulty identifying the urge to void may result in not attempting to use the toilet at all or not until it is too late. Patients with dementia become increasingly disoriented to place and time, and will sometimes forget where the bathroom is or not recognize what it is for. Consequently, this can result in voiding in inappropriate places. For example, the patient may recall voiding outdoors and see a potted plant as an appropriate place to void. Multiple morbidities that affect mobility and function also predispose persons with dementia to incontinence. As mobility decreases

Indwelling catheters and UI

Indwelling catheters are used almost exclusively for chronic urinary retention not amenable to surgical treatment or for keeping urine away from healing wounds (e.g., decubitus ulcer) on a short-term basis. Symptomatic retention (infections, pain, delirium) would be a stronger indication for catheter use than asymptomatic retention, which occasionally can be managed by accepting a higher than normal post-void residual volume. Before considering a long-term catheter, ensure that any reversible causes are addressed, especially medications, constipation, impaction, prolapse, and irregular toileting. While an indwelling catheter can be used when skin breakdown is an issue, once any ulcers or rashes are healed, the goal should

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be excellent skin care that eliminates the need to use a catheter. The benefit of close, urinary monitoring or 24-hour testing needs to be weighed against the multiple risks of catheterization. Furthermore, the risk-benefit ratio for an indwelling catheter should be evaluated in relation to urinary tract infections and repeated antimicrobial treatment. Finally, catheters are rarely necessary for end-of-life care if appropriate pain control and nursing are provided.

Conclusions

Transient and structural urinary incontinence can be effectively managed even in frail residents. Behavioral management, including effective interprofessional evaluation of in-

continence, timed and prompted voiding, and addressing functional issues, can significantly improve symptoms. Moreover, better UI management requires facility-level strategies such as those outlined by Palmer,⁷ including staff education and a focus on resident comfort and dignity.

Despite the prevailing attitude that incontinence is an inevitable consequence of institutionalization and aging, the senior in residential care can have a number of reversible conditions that contribute to or worsen UI. Even for those residents with persistent incontinence, facility practices can reduce the morbidities and indignities accompanying loss of bladder control and improve resident quality of life.

Competing interests

None declared.

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