Office management of urinary incontinence among older patients

Christopher Frank MD FCFP  Agata Szlanta MD CCFP

Case
Mrs M.A. is an 84-year-old lady with mild Alzheimer dementia. She lives at home and is cared for by her 87-year-old husband. They come in together for an appointment, and he comments that his wife’s urinary incontinence (UI) is worsening and is causing increased caregiver stress.

She has had occasional incontinence for more than 5 years, but during the past 6 months she has had at least 3 episodes of urine loss daily, at least 1 of these during the night. He is doing more laundry than before, and they are restricting social activities to minimize embarrassment.

Mrs M.A. minimizes the concern and reports only occasional urine loss. She is independent in self-care but needs assistance with shopping and complex meal preparation. She was started on donepezil 7 months ago and is currently taking 10 mg daily. She also takes 30 mg of extended-release nifedipine daily and 25 mg of hydrochlorothiazide daily for hypertension, 81 mg of enteric-coated acetylsalicylic acid, and 30 mg of oxazepam at bedtime as needed for sleep.

Urinary incontinence is a challenging clinical condition to treat in family medicine. Although it is common, many family physicians have received minimal training in management. Patients underreport the presence of UI and physicians do not commonly ask about it in routine questioning, leading to undertreatment. A survey of family physicians in 2002 found that only 37% of respondents thought they had an organized approach to management, and a similar percentage reported feeling comfortable with management. Almost 50% of respondents managed patients by making referrals, most commonly to urology. Knowledge of resources such as Nurse Continence Advisors was minimal. Despite these concerns, it has been shown that family physicians can improve symptoms and quality of life for those with UI.

Abstract
OBJECTIVE To provide family physicians with a guide to office management of urinary incontinence (UI) among older patients.

SOURCES OF INFORMATION Ovid MEDLINE and the Cochrane database were searched using the terms urinary incontinence, stress incontinence, overactive bladder, urge incontinence, elderly, and geriatrics.

MAIN MESSAGE A variety of conditions affecting the nervous system and the lower urinary tract can affect bladder function and UI. Among older patients the effects of decreased cognition and impaired mobility can be substantial, and environmental barriers can play a role. When managing older patients with UI, emphasis on treating concurrent conditions, optimizing medications, and working on lifestyle and behavioural factors is at least as important as pharmacologic treatment. Medications are relevant, but the potential for adverse effects increases among older patients.

CONCLUSION Various resources are available to support family physicians in office management of UI, and family physicians can improve symptoms and the quality of patients’ lives by screening for and helping patients to manage incontinence.

Résumé
OBJECTIF Fournir au médecin de famille un guide pour le traitement, au bureau, de l’incontinence urinaire (IU) chez la personne âgée.

SOURCES DE L’INFORMATION On a consulté les bases de données Ovid et Cochrane à l’aide des rubriques urinary incontinence, stress incontinence, overactive bladder, urge incontinence, elderly et geriatrics.

PRINCIPAL MESSAGE Diverses conditions affectant le système nerveux et les voies urinaires inférieures peuvent modifier l’activité de la vessie et causer une IU. Chez le patient âgé, les problèmes cognitifs et la perte de mobilité sont souvent des facteurs importants, et les obstacles environnementaux peuvent aussi être en cause. En présence d’IU chez la personne âgée, traiter les maladies concurrentes, optimiser la médication, et discuter du mode de vie et des facteurs comportementaux sont des éléments au moins aussi importants que le traitement pharmacologique. Les médicaments sont une solution pertinente, mais la possibilité d’effets indésirables augmente chez le patient âgé.

CONCLUSION Le médecin de famille dispose de plusieurs ressources pouvant l’aider à traiter l’IU au bureau; il peut soulager les symptômes et améliorer la qualité de vie du patient en faisant un dépistage et en aidant le patient à gérer son incontinence.
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Although UI is not part of “normal aging,” it is common in older patients. Almost 20% of home-care clients in a Canadian sample had incontinence, and this increases to 25% of older hospital patients and up to 50% of nursing home residents.\(^3\)\(^4\)

This paper will focus on management in older, frail patients, although the basic management principles hold true for all patients.

Sources of information
Ovid MEDLINE and the Cochrane database were searched from January 2000 to August 2010 using the terms urinary incontinence, stress incontinence, overactive bladder, urge incontinence, elderly, and geriatrics. Relevant review articles and original research were used when appropriate.

Main message
Causes of incontinence. A variety of conditions affecting the nervous system and the lower urinary tract can affect bladder function. In older patients, the effects of decreased cognition and impaired mobility can be substantial, and environmental barriers can play a role. Table 1 outlines a commonly used classification system and conditions affecting the pathways that control continence.

Assessment in the office

Mrs. M.A. describes small-volume urine loss with coughing or laughing, but also reports loss of moderate volumes of urine (enough to drip down her leg) if she “doesn’t get to bathroom right away” (within 2 minutes) when she starts to get the urge. She occasionally wakes up wet and needs to go to the toilet immediately upon awakening. She drinks a cup of coffee in the morning and 3 cups of tea between lunch and bedtime. She does not use alcohol or smoke. During the past month she has substantially restricted her fluid intake, and her husband tries to remind her to go to the bathroom several times throughout the day.

Clinicians should consider whether a patient’s UI is recent or chronic, as the possible causes can differ. A mnemonic used with transient incontinence is presented in Box 1. A UI evaluation is difficult to do in one visit in the office setting, and it might be helpful to break down the evaluation into different visits with older patients who have more difficulty with history and physical examination maneuvers. The Rational Clinical Examination series has reviewed approaches to clarifying the causes of incontinence\(^6\) and provides an additional resource for family physicians.

Box 1. DIAPPERS mnemonics for transient causes of urinary incontinence

<table>
<thead>
<tr>
<th>Classification</th>
<th>Mechanisms</th>
<th>Description</th>
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<tbody>
<tr>
<td>Stress</td>
<td>Intrinsic sphincter deficiency (e.g., postsurgical); pelvic floor weakness</td>
<td>• usually small volume (5-10 mL) loss with cough, sneeze, laugh, etc</td>
</tr>
<tr>
<td>Urge</td>
<td>Detrusor hyperreflexia (e.g., central causes like stroke, NPH); detrusor instability (e.g., local causes such as atrophic vaginitis, bladder cancer)</td>
<td>• larger volume of urine loss; short period of time between onset of urgency and loss of urine</td>
</tr>
<tr>
<td>Overflow</td>
<td>Detrusor inadequacy (e.g., anticholinergic medications, diabetic neuropathy); outflow obstruction (e.g., fecal impaction, BPH)</td>
<td>• constant dribbling with or without sensation of fullness; frequency and urgency in older patients</td>
</tr>
<tr>
<td>Mixed • Functional</td>
<td>Mobility; environmental barriers (e.g., bedrails); cognition (e.g., unable to recognize need to void or to recognize or use toilet)</td>
<td>• presence of mobility limitations or moderate to severe dementia; • environmental barriers especially in institutions (e.g., bedrails)</td>
</tr>
</tbody>
</table>

BPH—benign prostatic hypertrophy, NPH—normal-pressure hydrocephalus.

History is not always straightforward, and in the frail elderly it might not correlate well with the causative mechanism. A 3-item questionnaire (3IQ), which asks questions about if, when, and how often patients experience urine leaks, used in combination with a urinalysis has been shown to identify and reasonably accurately categorize UI in middle-aged to elderly women.\(^6\) Other questionnaires are available for older patients.\(^7\)\(^9\) Clarifying obstetrical and surgical history is relevant, especially with stress or overflow UI. Strategies tried by the patient can provide insight into the mechanism and treatment options to use. Questions related to lifestyle, especially caffeine and fluid intake, are important, and use of a bladder diary can help develop management strategies. The Geriatric Interprofessional Interorganizational Collaboration website has a helpful tool kit with many of these resources.\(^10\)
Concurrent conditions common in older patients, such as Parkinson disease, stroke, heart failure, sleep apnea, and diabetes, can all affect bladder function. Constipation will also impair bladder emptying, and in a frail patient can precipitate overflow incontinence due to retention.11

Physical examination is controversial, and the type of examination required depends on the clinical setting. Older patients’ overall cognitive and functional status is often known to family physicians but can be assessed further by observation and by specific mobility and cognitive assessments. An abdominal examination is relevant, as is examining for conditions affecting fluid redistribution such as venous insufficiency or heart failure. A lower-extremity neurologic examination should be considered, especially in cases of urgency or overflow without clear cause. Perineal sensation and rectal tone should be checked.5,11-13

There is little evidence or clarity on the extent of pelvic examination that is necessary in the family medicine office. Although a full speculum examination with bimanual examination is ideal to check mucosal integrity and degree of prolapse, this is not always possible with frailer patients. The role of the family physician might be more to rule out prolapse that requires obvious surgical consideration. If a more complete pelvic examination is a barrier to providing care in a busy office with a frail patient, then it seems reasonable to do the full pelvic examination or refer the patient if initial assessment is not helpful.11 Checking for circumvaginal muscle strength is relevant and might guide pelvic floor exercises.12,13

In older patients, prescribed and over-the-counter medications can have considerable effects on bladder function and should be considered an essential part of the evaluation. Table 2 lists common medications and their mechanisms of affecting bladder function.

Mrs M.A. is able to get out of a chair and walk safely with a Timed Up and Go test14 of 3 metres in 12 seconds. She recently scored 22 out of 30 on the Mini-Mental State Examination. Results of her basic physical examination are unremarkable, but a stress maneuver (having the patient cough or do Valsalva maneuver in a supine position with a full bladder) does reveal urine loss. There is moderate atrophy and a small rectocele and circumvaginal strength is weak. Postvoid residual (PVR) urine volume done by in-and-out catheterization is 120 mL. Urine dip results show moderate leukocytes but no blood or nitrites.

Postvoid residual volume is a very important measure in UI assessment, but it can be a challenge to obtain in a family medicine practice. Bladder scanners are convenient but expensive, and their accuracy varies with the experience of the user and with patient characteristics. Bladder scanners might be feasible in group practices or family health teams where they are shared among several physicians. In-and-out catheterization requires training and increases the risk of infection. Some authors suggest that for patients without substantial risk factors, abdominal examination and bladder percussion can suffice, at least initially.11 Our experience is that patients without clear risks sometimes have surprisingly high PVR volumes, especially in hospitals and institutions, and whenever possible measuring the volume is relevant. When it is impossible to obtain the PVR volume, failure to respond to initial therapy should be a cue to seek outside assessment. A normal PVR volume is less than 100 mL,13 but less than 200 mL suggests that retention or overflow incontinence is not a main contributing factor.

Urine dip should be done to look for local irritants causing hematuria and urge incontinence. In the absence of symptoms, routine use of urine culture in older patients with established incontinence is not recommended, and treating otherwise asymptomatic urinary tract infections has been shown to be ineffective (at least among nursing home patients) at improving UI.15

### Table 2. Common medications and their mechanisms of affecting bladder function

<table>
<thead>
<tr>
<th>MEDICATION CLASS CONTRIBUTING TO URINARY INCONTINENCE</th>
<th>MECHANISM OF EFFECT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anticholinergics</strong> (TCA, medications for urinary urgency, antihistamines, skeletal muscle relaxants, antiparkinsonian agents, antipsychotics)</td>
<td>Inhibit bladder contraction and result in urinary retention; sedation</td>
</tr>
<tr>
<td><strong>Opiates</strong></td>
<td>Relax bladder; fecal impaction; sedation</td>
</tr>
<tr>
<td><strong>Diuretics</strong></td>
<td>Increased urine output; can have a substantial effect in the elderly</td>
</tr>
<tr>
<td><strong>Sedatives and hypnotics</strong></td>
<td>Impair cognition; functional incontinence</td>
</tr>
<tr>
<td><strong>Angiotensin-converting enzyme inhibitors</strong></td>
<td>Can cause cough and precipitate stress incontinence</td>
</tr>
<tr>
<td><strong>Calcium channel blocker</strong></td>
<td>Relax bladder and can cause retention</td>
</tr>
<tr>
<td><strong>α-Adrenergic agents</strong></td>
<td>Increase sphincter tone, contributing to overflow or retention</td>
</tr>
<tr>
<td><strong>α-Adrenergic blockers</strong></td>
<td>Decrease sphincter tone, contributing to stress incontinence</td>
</tr>
<tr>
<td><strong>Cyclooxygenase-2 selective NSAIDs and thiazolidinediones</strong></td>
<td>Fluid retention and resulting nocturnal diuresis</td>
</tr>
<tr>
<td><strong>NSAID—nonsteroidal anti-inflammatory drug, TCA—tricyclic antidepressant.</strong></td>
<td></td>
</tr>
</tbody>
</table>
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**Treatment.** In older patients, emphasis on treating concurrent conditions, optimizing medications, and working on lifestyle and behavioural factors is at least as important as pharmacologic treatment. Medications are relevant, but the potential for adverse effects beyond dry mouth (eg, falls, urinary retention, cognition changes) increases among older patients. Pharmacologic treatment of UI is outlined in Table 3.16

Lifestyle choices, such as alcohol or coffee consumption, can have a much greater effect on older people who have concurrent cognition or physical barriers to getting quickly and safely to a toilet. For this reason reduction and preferably elimination of caffeinated beverages and minimization of alcohol intake is recommended as a primary step. Patients often restrict fluid intake, but concentration of urine can irritate the urinary tract and accentuate bladder irritability, so fluids should only be restricted after supper to minimize nocturia.

Cochrane reviews have not found adequate evidence to recommend for or against behavioural strategies such as timed voiding, habit retraining, and prompted voiding. However, when caregivers and patients are willing to participate, regular scheduling of toileting based on the clock or based on usual voiding habits should be considered. For patients with dementia, an every-2-hours schedule can be helpful, but this might not be possible if staffing is limited in residential facilities or if the patient will not tolerate it.17-19

Pelvic floor exercises should be considered even with very elderly patients if they are motivated and have the cognitive ability to learn and remember.20 Although developed for stress incontinence, there is evidence that urgency might improve with improved pelvic floor strength. A summary of how to discuss pelvic floor exercises can be found in a 2003 Canadian Family Physician article21 and in the Geriatric Interprofessional Interorganizational Collaboration tool kit.10 The optimal way to educate patients is by referral to a physiotherapist with interest in pelvic floor rehabilitation or to a Nurse Continence Advisor. Although these resources are

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**Table 3. Pharmacologic treatment of urinary incontinence**

<table>
<thead>
<tr>
<th>DRUG CLASS</th>
<th>USED TO TREAT</th>
<th>GENERIC DRUG (TRADE NAME)</th>
<th>INITIAL DOSE (USUAL DOSE)</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticholinergics</td>
<td>Urge UI</td>
<td>Oxybutynin (Ditropan)</td>
<td>2.5 mg once daily at bedtime (5 mg, 2-3 times daily)</td>
<td>SEs: dry mouth, blurred vision, constipation, confusion, GI discomfort</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oxybutynin XL (Ditropan XL)</td>
<td>5-10 mg once daily (15-20 mg once daily)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Oxytrol patch</td>
<td>36 mg every 3-4 d</td>
<td>SEs are common in the elderly; sustained-release reported to have fewer SEs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tolterodine (Detrol)</td>
<td>1-2 mg twice daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tolterodine LA (Detrol LA)</td>
<td>2-4 mg once daily</td>
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<tr>
<td></td>
<td></td>
<td>Darifenacin (Enablex)</td>
<td>7.5 mg once daily (can increase at 2 wk to 15 mg once daily)</td>
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<tr>
<td></td>
<td></td>
<td>Solifenacin (Vesicare)</td>
<td>5 mg once daily (can go to 10 mg once daily)</td>
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<td></td>
<td></td>
<td>Trospium (Trosec)</td>
<td>20 mg once daily at bedtime (20 mg twice daily if eGFR &gt;30 mL/min)</td>
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<tr>
<td></td>
<td></td>
<td>Vaginal:</td>
<td>• Premarin (0.625 mg/g cream)</td>
<td>The evidence for estrogen in stress UI is somewhat weak and controversial</td>
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<td></td>
<td></td>
<td></td>
<td>• Vagifem 25-µg (or 10-µg) vaginal tablet</td>
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<td></td>
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<td></td>
<td>• Estring 2-mg vaginal tablet</td>
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<td></td>
<td></td>
<td></td>
<td>Gel: • EstroGel 2.5 g daily</td>
<td></td>
</tr>
<tr>
<td>Estrogen</td>
<td>Stress UI</td>
<td></td>
<td>• 0.5-2 g vaginally twice weekly</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• 1 tablet vaginally twice weekly</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Ring vaginally every 90 d</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Gel: • Apply as directed</td>
<td></td>
</tr>
<tr>
<td>Antidepressants</td>
<td>Stress or mixed UI</td>
<td>TCA: imipramine</td>
<td>10-25 mg at bedtime (50-100 mg/d)</td>
<td>Avoid or use caution in the elderly</td>
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<tr>
<td></td>
<td></td>
<td>Moderate to severe stress UI</td>
<td>SNRI: duloxetine</td>
<td>Limited evidence in the elderly</td>
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<tr>
<td>α Blockers</td>
<td>BPH</td>
<td>Alfuzosin (Xatral)</td>
<td>10 mg once daily after a meal</td>
<td>SEs: dizziness, postural hypotension</td>
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<td></td>
<td></td>
<td>Doxazosin (Cardura)</td>
<td>1-4 mg once daily at bedtime</td>
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<tr>
<td></td>
<td></td>
<td>Tamsulosin (Flomax)</td>
<td>0.4-0.8 mg once daily</td>
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<tr>
<td></td>
<td></td>
<td>Tamsulosin CR (Flomax CR)</td>
<td>0.4-0.8 mg once daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Terazosin (Hytrin)</td>
<td>1-5 mg once daily at bedtime</td>
<td></td>
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</tbody>
</table>

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not available in most areas in Canada, verbal feedback on the effectiveness of the patient’s response provided during physical examination can be as effective as bio-feedback, so family physicians and office nurses can still provide benefit.22

Patients with urge incontinence might benefit from anticholinergic agents. As noted, the most common side effect is dry mouth, but older patients can experience substantial cognitive effects even with long-acting preparations and with the newer agents. There is some evidence that long-acting preparations are better tolerated,23 and these are increasingly available on provincial formularies. Use of anticholinergic agents should not be considered without lifestyle and behaviour modification efforts with older patients, given the potential side effects.11,19 If patients have minimal response to anticholinergic agents, it is wise to consider stopping the drug after an adequate trial of at least 1 month rather than continuing indefinitely, given the increased risk of cognitive adverse effects as people become frail over time.

Initiating anticholinergics in patients with dementia must be done with caution and should be avoided unless nonpharmacologic treatments are unhelpful and a trial is desired by patients. Some provincial formularies will not cover cholinesterase inhibitors in patients taking anticholinergic bladder agents.

Estrogen has a somewhat controversial role in UI management. A Cochrane review found that oral estrogen actually increased incontinence but that topical estrogen should be considered in the treatment of urge and stress incontinence.24 Local estrogen can be delivered by cream intravaginally or periurethrally, which is not always easy for older patients or their caregivers to apply. Estrogen rings might be better tolerated and are easily prescribed from a family medicine office.

During the past few years, the role of pessaries for UI and prolapse has changed, and family physicians commonly fit and care for patients using pessaries. They should be considered for women with symptomatic prolapse and have been shown to be effective for stress UI. Several reviews in Canadian Family Physician provide information for readers.25,26

The appropriate use of protective undergarments is also important. Older patients commonly use inadequate strategies such as tissue paper or panty liners for considerable urine loss. Use of a full brief might contribute to functional problems if the patient is unable to remove them quickly enough at the toilet. Ensuring that patients are asked what they are using is an important part of the history. A Nurse Continence Advisor or medical equipment store might be able to provide helpful advice on product use.

Criteria for specialist referral are mostly based on consensus with little research evidence; they are summarized in Box 2.11,27,28

Box 2. When to consider referral of an older patient with incontinence for further urologic, gynecologic, or urodynamic evaluation.11,27,28

Consider referral for older patients who have ...
• had surgery or pelvic floor radiation within the past 6 mo
• incontinence associated with recurrent symptomatic urinary tract infections
• postvoid residual volumes greater than 200 mL
• unexplained hematuria
• incontinence with new-onset neurologic symptoms, muscular weakness, or both
• persistent bothersome symptoms after trials with behavioural treatment, drug treatment, or both
• pelvic pain associated with incontinence
• pelvic organ prolapsed past the introitus or symptomatic pelvic prolapse
• inability to tolerate or lack of response to a pessary or other adjunctive treatment
• substantial prostate enlargement, prostate nodule, induration of lobes, or asymmetry
• difficulty passing a 14-Fr straight urinary catheter

Conclusion

Mrs M.A. stops drinking coffee and takes 1 cup of tea in the morning. Although she still restricts fluids before car trips and after supper, she does not aggressively restrict intake at other times. She continues to take donepezil, as she believes there has been good benefit even with the risk of increasing bladder activity. Her bedtime sedation is minimized, and her nifedipine discontinued in case it contributed to increased PVR volume. Hydrochlorothiazide is switched to an angiotensin-converting enzyme inhibitor. She works hard at Kegel exercises and uses them with moderate success for urge suppression. A trial of long-acting tolterodine results in mild confusion that is frightening for her and is discontinued. Overall, she is pleased with the decrease in frequency of UI episodes (to about 2 per week) and notes she is usually up 1 less time at night.

Dr Frank is an Associate Professor and Dr Szlanta is a Lecturer, both at Queen’s University in Kingston, Ont.

Contributors
Dr Frank and Dr Szlanta contributed to the literature search and to preparing the article.

Competing interests
None declared

Correspondence
Dr Christopher Frank, St Mary’s of the Lake Hospital, 340 Union St, Kingston, ON K7L 5A2; telephone 613 548-7222, extension 2208; fax 613 544-4017; e-mail frankc@pccchealth.org
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EDITORS’ KEY POINTS

- **Urinary incontinence (UI) is a challenging clinical condition** to treat in family medicine. Although it is common, many family physicians have received minimal training in management. Patients underreport the presence of UI and physicians do not commonly ask about it in routine questioning, leading to undertreatment.

- **Assessing elderly patients with UI might require more than one visit.** A comprehensive history (including surgical and obstetrical history, cognitive function, lifestyle factors, and concurrent conditions), physical examination, evaluation of medications, urine dip, and postvoid residual volume measurement, if possible, should be completed.

- **Addressing lifestyle choices and physical barriers, behavioural strategies, pelvic floor exercises, appropriate protective undergarments, pessary insertion, and medications can all play a role in the treatment of older patients with UI. Referral might be necessary for patients not responding to these treatments; other referral criteria are outlined by the authors.**

**REFERENCES**


