



CLINICAL INVESTIGATIONS FROM THE RACP

Assessing urinary incontinence in women

Key points

- Urinary incontinence affects between 25 and 45% of women at some time in their lives.
- GPs are ideally placed to initiate management.
- Reversible causes should be sought, particularly medications such as diuretics and antihypertensive drugs (including prazosin).
- History, examination, urinalysis, urine culture, a bladder diary and (in selected cases) measurement of postvoid residual urine volume are sufficient for a diagnosis in most cases.
- Pelvic floor exercises and bladder training can be effective treatments.
- Specialist referral should be considered for patients who do not respond to these measures.

How can we help a wee problem?

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In this series, we present authoritative advice on the investigation of a common clinical problem, especially commissioned for family doctors and written by members of the Royal Australasian College of Physicians.

Urinary incontinence is common in females, with a prevalence between 25 and 45%. Daily incontinence affects between 5 and 15% of middle-aged and older women.¹ Many women do not seek help. Those who do seek help usually consult their GP in the first instance, but a survey has found only 35% receive recommended treatments.² GPs are ideally placed to screen for incontinence by routinely inquiring about bladder and bowel symptoms. A GP with a systematic approach to assessment is also ideally placed to initiate management of urinary

incontinence. An approach to investigating female urinary incontinence is outlined in the flowchart on page 49.

RISK GROUPS FOR URINARY INCONTINENCE

High-risk groups for urinary incontinence include:

- school-aged children
- pregnant and postpartum women
- menopausal women
- people who are obese
- people with diabetes, disabilities or

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neurological conditions such as stroke, Parkinson's disease and psychiatric illness

- elderly people, particularly those with impaired mobility, impaired cognition and frailty.

A decline in physical health has been associated with an increased incidence of incontinence. Conversely, moderate intensity physical activity, including walking, has been reported to reduce the risk of developing urinary incontinence by 20 to 25%.³

Poorly controlled diabetes is often associated with worsening urinary symptoms. Improving diabetes control is important in this group.

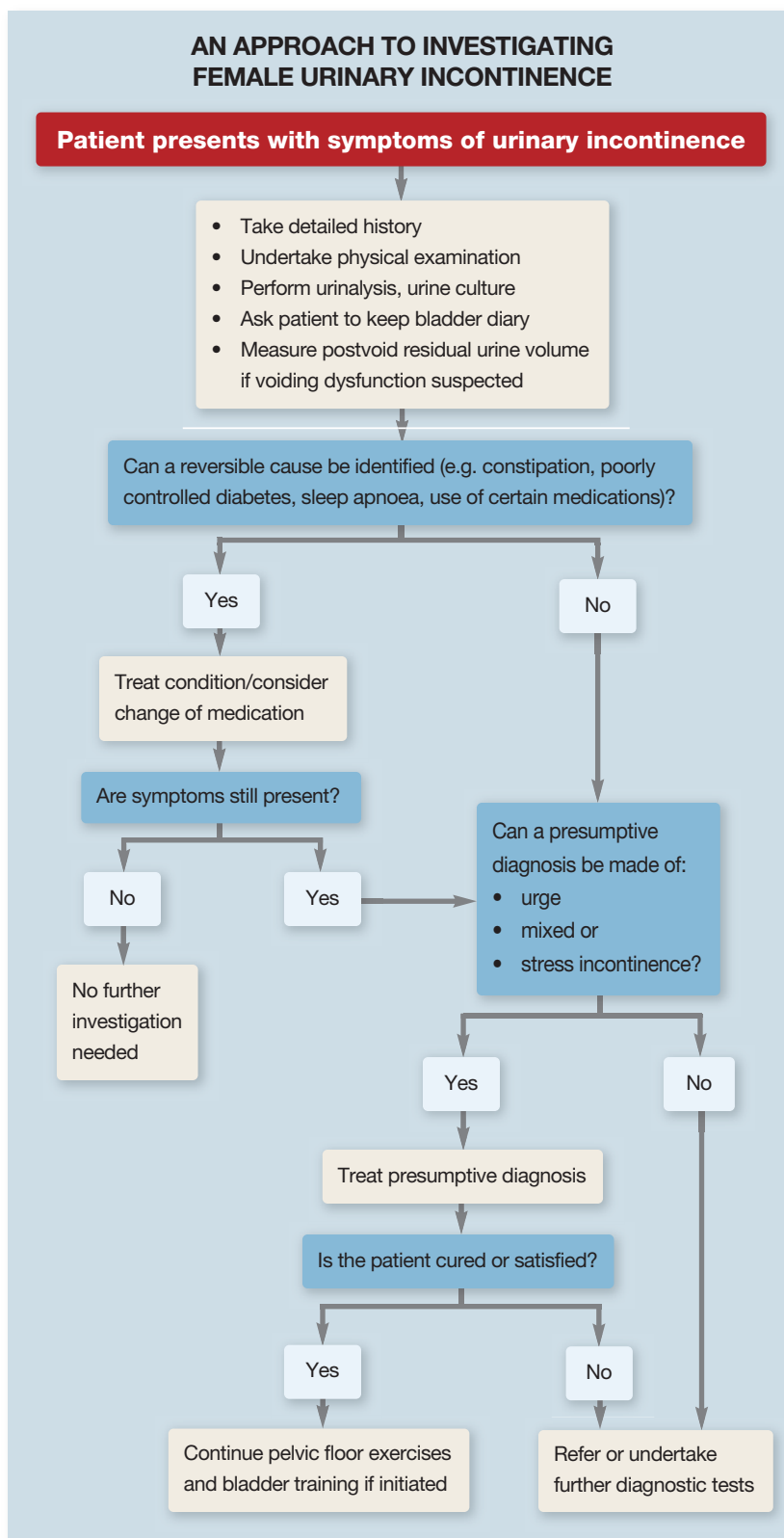
The presence of nocturia should alert to the possibility of sleep apnoea, particularly in patients who are snorers and obese. Sleep apnoea is associated with increased atrial natriuretic peptide (ANP) production, which can lead to nocturia. The incidence of sleep apnoea is increased in the presence of alcohol excess, hypothyroidism, congestive cardiac failure and diabetes. Treating sleep apnoea can reduce bladder symptoms.⁴

Many classes of medications can cause or contribute to urinary incontinence, including diuretics and certain antihypertensive medications (see the box on page 50). For example, the antihypertensive prazosin can cause stress incontinence because of its alpha-adrenergic blocking effects. Before prescribing a new medication, doctors should inquire about bladder symptoms and, at follow up, should check whether the new medication has affected these symptoms. The possibility that urinary incontinence is caused by a medication should be considered before prescribing drug treatments for incontinence.

HISTORY

Many patients do not volunteer to talk about their urinary symptoms. Useful introductory questions are:

- 'How many times do you get up to go to the toilet at night?' and 'How often do you go during the day?'
- 'Do you have to hurry to the toilet?' and 'Do you leak urine if you don't get to the toilet quick enough?'



MEDICATIONS AND OTHER DRUGS THAT CAN AFFECT URINARY CONTINENCE

- Alcohol
- Anaesthetics*
- Angiotensin-converting enzyme inhibitors (e.g. captopril, enalapril)
- Alpha blockers (e.g. prazosin)
- Anticholinergic medications (e.g. disopyramide, benzotropine)*
- Anticholinesterase inhibitors (e.g. donepezil, galantamine, rivastigmine)
- Antipsychotics (e.g. clozapine, haloperidol)
- Antihistamines*
- Caffeine
- Calcium channel blockers
- Diuretics (e.g. frusemide, bumetanide)
- Lithium
- Narcotic analgesics*
- Nasal decongestants
- NSAIDs
- Sedatives*
- Tricyclic antidepressants*

* Can cause urinary retention

- 'Do you leak urine on coughing, sneezing, laughing or exercise?'
- 'Do you have to wear pads?'

Having established that a patient has urinary incontinence, it is helpful to take a detailed history (see the box on this page, top right).

Constipation is associated with worsening urinary symptoms.⁵ Straining in constipation can weaken the pelvic floor muscles. In the presence of constipation, symptoms of urinary urgency and frequency and postvoid residual (PVR) urine volumes may be increased. Faecal impaction can cause urinary retention and is also associated with an increased incidence of urinary tract infection. Good bowel care and treatment of constipation

are essential parts of any continence management program.

One-third to two-thirds of women with stress incontinence report symptoms of sexual dysfunction, including dyspareunia, vaginal dryness and coital incontinence. More than two-thirds (68%) report that their urinary symptoms adversely affect their sex life.⁶

EXAMINATION

Abdominal examination

The abdomen should be examined to exclude a palpable bladder, which would suggest incomplete bladder emptying. However, the absence of a palpable bladder does not exclude impaired bladder emptying. A palpable bladder usually corresponds to a volume greater than 300 mL.

Neurological examination

An examination that includes checking for lower limb weakness, abnormal gait or impaired sensation should be undertaken if the history suggests a possible neurological cause, such as a spinal cord lesion, past stroke or Parkinson's disease. Hyperreflexia may be a clue to coexisting multiple sclerosis.

Perineal/genital examination

Inspection of the vulva and perineum allows any alteration in anatomy, atrophic changes, excoriation, erythema or rashes due to incontinence and pad use to be identified.

The patient should be asked to cough and strain in lying and standing positions to elicit evidence of leakage or prolapse. Optimally this is done with a full bladder. The presence of leakage on coughing is helpful in diagnosing stress incontinence. A negative result is less helpful as it is influenced by other factors, such as bladder volume. Sometimes leakage may be elicited only with provocative testing.

Pelvic floor assessment

Pelvic floor muscle strength can be assessed as strong, weak or absent, or it

DETAILED HISTORY IN URINARY INCONTINENCE

A detailed history should cover:

- Duration of symptoms
- Nocturia episodes
- Frequency of voiding
- Urgency and urge incontinence
- Number of incontinence episodes
- Leakage on coughing, sneezing, laughing, exercise
- Haematuria
- Dysuria, history of urinary tract infections
- Sensation of incomplete emptying
- Use of continence products
- Bowel habits, including faecal incontinence
- Fluid intake: caffeine, alcohol, water
- Past urological and gynaecological history and treatment
- Medications
- Severity of symptoms and how bothersome

can be graded on a scale such as the Oxford scale (1 to 5, where 1 is weak and 5 strong).⁷ A physiotherapist experienced in pelvic floor assessment or a nurse continence adviser can assist in the assessment if required. A digital examination to assess that the patient can perform a pelvic floor contraction correctly is particularly important before prescribing pelvic floor muscle training (PFMT). A pelvic floor contraction involves activating the pelvic floor muscles around the anus and vagina, squeezing the openings closed and lifting the pelvic floor muscles cranio-ventrally, thus displacing the urethra up and behind the pubic symphysis.

Cognitive assessment

This is important in the elderly or those with psychiatric or neurological illness.

Patients with impaired cognition often give an unreliable history. They also have difficulty completing bladder charts and are often unable to modify fluid intake or to participate in bladder training or PFMT. They are at risk of poor compliance and cognitive decline with anticholinergic medications.

INITIAL INVESTIGATIONS

Urinalysis and urine culture

Urinalysis is a screening test to detect haematuria, glycosuria and pyuria, which may be a clue to the presence of bacteriuria. If urinalysis gives normal results, then urinary tract infection is unlikely. If results are abnormal, then a midstream urine culture should be undertaken.

Bladder diary

A frequency–volume chart or micturition (bladder) diary is useful to quantify the severity of the problem. It is recommended that the patient complete this for at least three days and nights for accuracy. An example of a bladder diary is available from the Continence Foundation of Australia website (<http://www.continence.org.au/resources.php>). The diary can be tailored to suit the individual and can provide information on frequency, bladder volumes, incontinence episodes, pad usage, bowel habits, fluid intake and response to treatment. However, a surprising number of patients have difficulty completing these charts accurately, even in their simplest form.

Postvoid residual urine volume

PVR urine volume should be measured by bladder ultrasound examination in patients with suspected voiding dysfunction, suggested by recurrent urinary tract infections, previous continence or prolapse surgery, spinal surgery or severe constipation. Continence nurses often have access to portable bladder scanners. There is no evidence-based PVR volume that is considered normal, and the significance of a PVR value depends on coexisting

symptoms. However, a PVR less than 50 mL is usually considered adequate bladder emptying, and a PVR greater than 200 mL is considered inadequate emptying.⁸ Higher PVRs are more common in the elderly, independent of symptoms. Higher PVRs increase the risk that medications with anticholinergic properties will worsen urinary symptoms and lead to urinary retention.

DIAGNOSIS OF INCONTINENCE TYPE

The history of lower urinary tract symptoms together with the examination will help identify whether the problem is likely to be stress incontinence, urge incontinence, incomplete bladder emptying or a combination of these (mixed incontinence; see the box on this page for definitions).⁹ Stress incontinence is more common in younger and middle-aged women. Mixed and urge incontinence are more common in older women.

INITIAL MANAGEMENT

Antibiotic treatment

Patients with a symptomatic urinary tract infection should be treated with antibiotics. Patients with urinary incontinence and bacteriuria but no other symptoms suggesting a urinary tract infection should also receive a course of antibiotics. However, if the urinary incontinence does not improve despite resolution of the bacteriuria, they are likely to have asymptomatic bacteriuria. They should not have repeated courses of antibiotics if subsequent urine cultures demonstrate bacteriuria in the absence of new symptoms.

Pelvic floor exercises and bladder training

A patient with urinary symptoms can be provided with fact sheets on good bladder habits, pelvic floor muscle exercises and bladder training and also with information about constipation. Fact sheets on these topics, in English and 20 other languages, are available from the Australian Government Bladder and Bowel website

TYPES OF URINARY INCONTINENCE*

Stress urinary incontinence (SUI)

Involuntary leakage on effort or exertion, or on sneezing or coughing

Urge urinary incontinence (UUI; also known as urgency urinary incontinence)

Involuntary leakage accompanied by or immediately preceded by urgency

Mixed urinary incontinence

Involuntary leakage associated with urgency and also with effort, exertion, sneezing or coughing

* As defined by the Standardisation Sub-committee of the International Continence Society.⁹

(<http://www.bladderbowel.gov.au>).

Before suggesting pelvic floor exercises it is important to assess that the patient can perform a pelvic floor muscle contraction correctly, as it has been reported that almost half of all women are unable to do so. In addition to pelvic floor muscle exercises, women with stress incontinence should be instructed to do the 'knack' – i.e. contract the pelvic floor muscles just before and during a cough.¹⁰

Patients with urge incontinence should practise good bladder habits and undertake bladder training. They should:

- drink 1.5 to 2 litres of fluid per day
- minimise intake of caffeine, carbonated drinks and alcohol
- avoid going to the toilet 'just in case'
- 'hold on' to increase their bladder capacity.

Bladder charts can be useful in monitoring response.

Anticholinergic medication

Patients with normal bladder emptying who do not respond to bladder training alone may be considered for a trial of bladder training together with an anticholinergic medication such as oxybutynin

INDICATIONS FOR URODYNAMIC TESTING

- Before surgery for genuine stress incontinence* or pelvic organ prolapse in women, when the results are likely to change management
- Treatment failure (conservative or surgical), when the diagnosis is not clear
- Suspected neurological cause of lower urinary tract dysfunction, such as a spinal cord lesion or multiple sclerosis resulting in neurogenic bladder
- Impaired bladder emptying

* Incontinence due to increased abdominal pressure in the absence of detrusor contraction.

USEFUL SOURCES OF INFORMATION ON URINARY INCONTINENCE**Australian Government Bladder and Bowel website**

(<http://www.bladderbowel.gov.au>)

Includes fact sheets in 20 languages and Continence Aids Payment Scheme (CAPS) application forms

Continence Foundation of Australia

(<http://www.continence.org.au>)

Includes a bladder diary that can be downloaded or ordered for free and information for the public and professionals

International Continence Society

(<http://www.icsoffice.org>)

Includes the online book *Incontinence* (4th ed., 2009) from the 4th International Consultation on Incontinence, Paris, 2008

(2.5 mg at night, increasing to 2.5 mg twice daily, initially, if tolerated). Some patients can tolerate doses of up to 5 mg three times a day. Patients unable to tolerate oral oxybutynin because of side effects such as severe dry mouth or concerns of cognitive impairment could have a trial of transdermal oxybutynin (patch applied twice weekly).

Continence products

Patients requiring assistance with continence products can be referred to the Continence Aids Payment Scheme (CAPS). The Continence Foundation of Australia has a free bladder helpline (1800 33 00 66) available to the public and health professionals and can advise on the nearest continence service for assessment by a continence nurse or physiotherapist.

INDICATIONS FOR SPECIALIST REFERRAL

Patients should be referred to a specialist such as a urologist, gynaecologist or geriatrician who deals with incontinence if there is:

- insufficient improvement with conservative therapy

- haematuria (in the absence of a urinary tract infection)
- a persistent painful bladder
- recurrent urinary tract infections
- suspected or proven voiding problems
- significant pelvic organ prolapse
- persistent or recurrent incontinence after surgery
- suspected urinary fistula.

ADDITIONAL INVESTIGATIONS**Kidney function**

If there is suspected renal impairment, then biochemical tests of kidney function are indicated.

Imaging

Routine imaging of the lower urinary tract is not recommended unless the history, symptoms or signs suggest co-existing lower urinary tract or pelvic pathology.¹¹

Imaging of the upper urinary tract is also not indicated for the evaluation of non-neurogenic stress, urge or mixed incontinence. However, it is indicated in

neurogenic incontinence with a high risk of renal damage, in chronic retention with urinary incontinence and in untreated severe urogenital prolapse.

Routine cystoscopy is not recommended. Cystoscopy is, however, highly recommended if there is haematuria.

Urodynamic testing

Urodynamic testing aims to reproduce patient symptoms in order to identify their cause. Urodynamic tests can be used to:

- help assess bladder sensation and bladder capacity
- detect detrusor overactivity and associated incontinence
- assess urethral competence
- determine detrusor function during voiding
- assess for outlet obstruction and incomplete emptying
- detect the presence of stress urinary incontinence.

Urodynamic testing is also useful in the diagnosis of neurogenic bladder. It should be undertaken in selected patients, particularly if the result is likely to change management (see the box on page 52, left).

FURTHER RESOURCES

Internet sources of useful information on urinary incontinence are shown in the box on page 52 (right).

CONCLUSION

Urinary incontinence is common. A history, examination, urinalysis and urine culture, bladder diary and (in selected cases) measurement of PVR volume are sufficient for a diagnosis in most patients. Simple treatments such as PFMT and bladder training can be initiated. Those who do not respond to these measures will benefit from specialist referral. **MT**

REFERENCES

1. Buckley BS, Lapitan MC, Epidemiology Committee of the Fourth International Consultation on Incontinence, Paris, 2008. Prevalence of urinary incontinence in

men, women, and children – current evidence:

findings of the Fourth International Consultation on Incontinence. *Urology* 2010; 76: 265-274.

2. Shaw C, Das Gupta R, Williams KS, Assassa RP, McGrother C. A survey of help-seeking and treatment provision in women with stress urinary incontinence. *BJU Int* 2006; 97: 752-757.

3. Danforth KN, Shah AD, Townsend MK, Lifford KL, et al. Physical activity and urinary incontinence among healthy, older women. *Obstet Gynaecol* 2007; 109: 721-727.

4. Margel D, Shochat T, Getzler O, Livne PM, Pillar G. Continuous positive airway pressure reduces nocturia in patients with obstructive sleep apnea. *Urology* 2006; 67: 974-977.

5. Averbek MA, Madersbacher H. Constipation and LUTS - how do they affect each other? *Int Braz J Urol* 2011; 37: 16-28.

6. Hannestad YS, Rortveit G, Daltveit AK, Hunskaar S. Are smoking and other lifestyle factors associated with female urinary incontinence? The Norwegian EPINCONT Study. *Br J Obstet Gynaecol* 2003; 110: 247-254.

7. Laycock J. Clinical evaluation of the pelvic floor. In: Schussler B, Laycock J, Norton P, Stanton SL, eds. *Pelvic floor re-education*. London, UK: Springer-Verlag; 1994: 42-48.

8. Fantl JA, Newman DK, Colling J. Urinary incontinence in adults: acute and chronic management: 1996 update. AHCPR clinical practice guidelines, No. 2. AHCPR Pub. No. 96-0682. Rockville, MD: Agency for Health Care Policy and Research; 1996.

9. Abrams P, Cardozo L, Fall M, Griffiths D, et al. The standardisation of terminology of lower urinary tract function: report from the Standardisation

Sub-committee of the International Continence Society. *Neurourol Urodyn* 2002; 21: 167-178.

10. Miller JM, Ashton-Miller JA, DeLancey JOL.

A pelvic muscle precontraction can reduce cough-related urine loss in selected women with mild SUI. *J Am Geriatr Soc* 1998; 46: 870-874.

11. Tubaro A, Artibani W, Bartram C, DeLancey J, et al. Imaging and other investigations. In: Abrams P, Cardozo L, Khoury S, Wein A, eds; 4th International Consultation on Incontinence, Paris, 2008. *Incontinence*. 4th ed. Paris: Health Publication; 2009. p. 541-630.

COMPETING INTERESTS: None.

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