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Urinary incontinence in older adults: what you need to know

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Abstract

Incontinence is a problem that can affect individuals of all ages. However, it is more frequently seen in older adults. It is a common geriatric syndrome, and its investigation should form part of a comprehensive geriatric assessment. Continence problems are usually ignored by patients and not reported to a medical professional, but with simple assessment and even simpler interventions, a significant improvement can be made for those living with incontinence. Most cases need a simple clinical assessment consisting of a good history and basic examination covering the abdomen, external genitalia and rectum. If no reversible causes are found, further investigations can be considered. The treatment for incontinence can be split into non-surgical and surgical management. Simple conservative measures, such as education around fluid intake, weight loss, managing constipation and pelvic floor exercises, can make a huge and positive impact on managing incontinence. If these are not effective, pharmaceutical therapies and surgical management can be considered, but there needs to be a careful consideration of the risk vs benefit in frail older adults.

Key words: Bladder outflow obstruction, Overactive, Pelvic floor disorders, Stress, Urge, Urinary bladder, Urinary incontinence

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Introduction

Incontinence is a common problem that can affect individuals of all ages, but is more frequently seen in older adults (Milsom and Gyhagen, 2019). Problems with continence are often overlooked or not volunteered by patients. However, with simple assessment and interventions, a significant improvement can be made for those living with incontinence. Internal medical trainees are expected to have knowledge of incontinence and demonstrate skills to assess and manage incontinence across healthcare settings, as part of their geriatric medicine competencies (Joint Royal Colleges of Physicians Training Board, 2019). This article will focus on the epidemiology, assessment, investigation and management of urinary incontinence. An understanding of fecal incontinence is also required, but is outside the scope of this review.

Epidemiology

Urinary incontinence is defined as involuntary urine loss and is characterised by lower urinary tract symptoms. It is estimated that between 3 and 6 million people in the UK suffer from a degree of urinary incontinence (DeMaagd and Davenport, 2012). The prevalence of urinary incontinence increases with age. It affects 7% of women 20–39 years old, increasing to around 23% of those aged 60–79 years. The prevalence of urinary incontinence in men is lower than in women. It is seen in around 11–34% of older men (Buckley and Lapitan, 2010). There are four main categories of urinary incontinence: stress, urge, overflow, and functional. The latter usually combines features of both stress and urge incontinence and is most commonly experienced in women (Biswas et al, 2017). Prostate problems in men can lead to overflow incontinence and, in turn, the treatment for this can lead to stress incontinence. These are the two most common types of incontinence seen in men (Khandelwal and Kistler, 2013). Impaired mobility or cognition is a key cause of functional incontinence in older adults, while nocturnal enuresis is a form of incontinence more prevalent in children.

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Types of urinary incontinence

Urge incontinence

Urge incontinence is characterised by the sensation of urgency to pass urine, which can lead to involuntary urination. It is caused by involuntary contractions of the detrusor muscle leading to excess signals from muscarinic receptors, causing the urge to pass urine even when the bladder is not full. Urge incontinence is most commonly caused by infection; however, it can also present in neurological disorders such as Parkinson's disease and multiple sclerosis (Steers, 2002).

Stress incontinence

Stress incontinence is characterised by small volumes of urine loss with coughing and sneezing. An increase in intra-abdominal pressure acts directly on the bladder, causing the pelvic floor muscles and the urethral sphincter to weaken. Age plays a big factor in the prevalence of stress incontinence. As women get older, it takes less pressure for the urethra to open and the pelvic floor muscles gradually weaken. Stress incontinence is most prevalent in women who have given birth or had pelvic surgery (Kuchel and DuBeau, 2009).

Overflow incontinence

Overflow incontinence is characterised by the inability to control urination because of detrusor muscle underactivity or bladder outlet obstruction. As a result of underactivity, the bladder is unable to completely empty, leading to urine leaking out unexpectedly. In contrast to other types of incontinence, overflow is most common in men and can be caused by an obstruction to urinary flow out of the bladder by an enlarged prostate. In women, the most common causes of outlet obstruction include uterine fibroids and uretercoeles. It can also be caused by damage to the nerves innervating the bladder, from diseases such as diabetes, Parkinson's disease or multiple sclerosis, as well as direct injury to the nerves themselves. Medications can also play a role in overflow incontinence; for example, antidepressants that block the neurotransmitter acetylcholine, preventing the bladder from contracting and resulting in urine leakage. Antipsychotic and anticholinergic medications can also cause urinary retention, leading to overflow incontinence (Abrams et al, 2005).

Functional incontinence

Functional incontinence is characterised by factors not directly related to pathology of the lower urinary tract or the micturition process (Nazaripanah et al, 2018).

Differential diagnosis

Causes of urinary incontinence can be separated into acute and chronic factors. A large majority of people affected by incontinence are older people, so one major acute cause of incontinence is delirium. Acute delirium needs to be ruled out in older adults and so it is important to look at a patient's current medication, any new medication and also rule out any acute infections when diagnosing incontinence. Urinary tract infections are the second most common infection in older adults and can present as incontinence (Melo et al, 2017). Other symptoms of these infections include burning or stinging when urinating, frequent urination, having a fever or general acute confusion. Urinalysis in older adults can be misleading as bacteriuria is common in older adults and the presence of bacteria in a urine sample does not always mean true infection, but can indicate contamination or colonisation (Cortes-Penfield et al, 2017). A mid-stream specimen of urine should only be sent if there are signs or symptoms suggestive of an infection (Public Health England, 2018).

Constipation, especially in the elderly, should always be ruled out as a cause of acute incontinence. A full bowel can press onto the bladder, reducing its capacity to hold urine leading to urgency to pass urine (Ranson and Saffrey, 2015).

Medication-induced incontinence can be reversed once identified. It is crucial to identify any new medications the patient has been started on, as well as enquire about side effects of current medications. Table 1 identifies important medications that should be considered.

If no acute causes of urinary incontinence are identified, it is important to consider chronic causes, which are common in older adults (Vogel, 2001). Cognitive impairment and dementia in older adults also have a significant impact on continence. Older adults suffering from dementia have difficulties with their memory and can often find it difficult to recognise the sensation of a full bladder and need to void, despite having a normal urinary tract, because of cognitive dysfunction.

Impaired mobility, poor dexterity and impaired ability to remove clothing can increase the risk of leakage when the urge to urinate is strong, as it takes longer to reach the toilet. This is more suggestive of a diagnosis of functional incontinence. Mood disorders like depression are common symptoms of dementia, which may present with poor motivation to maintain continence (Stothers, 2017).

In post-menopausal women, oestrogen levels fall, causing the vaginal wall to become inflamed, thin and dry. This is commonly known as atrophic vaginitis and can present as dyspareunia, increased itching around the vaginal area, painful urination and incontinence. If this is suspected as the cause of the incontinence in older females, a trial of topical oestrogen cream is useful (Mac Bride et al, 2010).

Diagnosis

Taking a thorough history and undertaking a physical examination, followed by investigations in some cases, is critical to diagnosing the type of incontinence (Table 2). In older adults, the assessment of continence should take place as a part of a wider comprehensive geriatric assessment (Elsawy and Higgins, 2011), as it is a geriatric syndrome inextricably linked with medications, falls, bowels and cognition (Vogel, 2001). It is important to elicit the main symptoms affecting the patient by asking if their incontinence is associated with urgency and frequency, or if it happens when they cough, sneeze or undergo physical activity. When asking about overflow incontinence, it is important to ask if the patient is aware when they are leaking urine or if they strain to pass urine. With regards to the duration of the symptoms, if there has been a sudden onset it is important to rule out reversible causes of incontinence first.

Basic patient details such as age, gender, medical history, current medication and social history all need to be taken into consideration when generating a diagnosis (Davila and Martin, 2020). It is important to initially establish whether the incontinence is stress, urge or both. Once the nature of the incontinence has been categorised, it is crucial to assess

Table 1. Classes of drugs that can lead to drug-induced incontinence

Class	Mechanism of effect	Type of incontinence
Antidepressants (such as sertraline, citalopram) Antipsychotics (such as haloperidol, chlorpromazine) Anti-Parkinson's medications (such as levodopa) Anticholinergics (such as solifenacin)	Inhibit bladder contractions causing urinary retention	Overflow incontinence
Opioids (such as codeine)	Cause faecal impaction and relax the bladder, causing retention	Overflow incontinence
Calcium-channel blockers (such as amlodipine)	Relax the bladder, causing retention	Overflow incontinence
Cyclooxygenase 2 selective non-steroidal anti-inflammatory drugs (such as meloxicam)	Increase fluid retention, causing nocturnal diuresis	Functional incontinence
Alpha-adrenergic antagonists (such as doxazosin)	Decrease urethral sphincter tone	Stress incontinence
Angiotensin-converting enzyme inhibitors (such as ramipril)	Decreases both detrusor overactivity and urethral sphincter tone Side effect: coughing	Stress incontinence
Diuretics (such as furosemide)	Increase urine production in kidneys, causing frequent urination	Overactive bladder Stress incontinence

From DeMaagd and Davenport (2012)

Table 2. Key questions to consider when taking an incontinence history

Type of incontinence	Key questions	Causes
Stress incontinence	■ Is the incontinence triggered by activities such as jumping, coughing, sneezing, exercise or weightlifting (any movement increasing intra-abdominal pressure)?	■ Medication ■ Pregnancy or after childbirth ■ Overweight ■ Post-prostate surgery
Urge incontinence	■ Does the urge to pass urine come on suddenly and, if so, does it feel uncontrollable? ■ How many times a day does this happen and/or does it happen at night? ■ Are there any activities that they feel trigger the urgency? ■ When they do get to the toilet, how much urine do they usually pass (ie from drops to fully emptying their bladder)?	■ Multiple sclerosis ■ Stroke ■ Parkinson's disease ■ Diabetes
Overflow incontinence	■ Do you notice ongoing dribbling? ■ Do you notice when your bladder is full? ■ How often do you go to the toilet and when you do go how much urine do you pass?	■ Enlarged prostate ■ Diabetes ■ Spinal cord injuries ■ Constipation
Functional incontinence	■ Does the patient struggle to reach the toilet because of mental or physical disabilities?	■ Arthritis ■ Dementia ■ Cognitive impairment

From McKertich (2008)

the impact of incontinence on the patient's life to ensure the correct initial management is commenced. The National Institute for Health and Care Excellence (2019) guidelines recommend using a validated urinary incontinence specific symptom and quality of life questionnaire to help with evaluation.

A full physical examination should be undertaken alongside the history, to identify any physical signs. If a mass or palpable bladder are found during an abdominal examination, overflow incontinence should be considered. A full neurological examination, including the cranial nerves, should be undertaken to rule out possible stroke, neuromuscular conditions or spinal stenosis causing incontinence. A pelvic and vaginal examination in women is necessary to help identify atrophic vaginitis as the cause, as well as to rule out a possible pelvic organ prolapse. In older adults, a full pelvic examination is not needed and a simple visual inspection for obvious prolapse or atrophy is acceptable. A rectal examination is important in both men and women to assess for faecal impaction causing overflow incontinence. In men, a prostate examination is necessary to rule out an enlarged prostate obstructing the outflow of urine (Abrams et al, 2005).

If there has been no reversible cause of incontinence found and the symptoms persist, further investigations are needed. It is helpful for the patient to keep a voiding diary, in which they keep record of frequency and estimated volume when they have episodes of incontinence. To aid a diagnosis, it is useful to ask the patient to document what they were doing at the time, if they were aware of being incontinent at the time, and how often they are awoken at night.

A measurement of the post-void residual urine aids a diagnosis of overflow incontinence. In this test, the amount of urine is measured, typically using an ultrasound machine after the patient has emptied their bladder (Kelly, 2004). In adults, a post-void residual urine over 200 ml indicates inadequate emptying. In older adults, a post-void residual urine of around 50–100 ml is considered normal. High pressure chronic retention should be treated to reduce symptoms and the risk of kidney damage. In cases of low pressure chronic retention, if a patient is asymptomatic with normal blood tests and ultrasound results, immediate management is not indicated and should instead be monitored and reviewed accordingly (Huang et al, 2011).

Once a detailed history and examination have been performed and an initial diagnosis is made, further investigations can be done if no reversible cause is found. However, this is

not needed in many cases. Urodynamic testing, such as filling and voiding cytometry, and investigations such as cystoscopy, magnetic resonance imaging and computed tomography, are not routinely performed unless indicated by a specialist service (National Institute for Health and Care Excellence, 2019).

Treatment

The treatment for incontinence can be split into non-surgical and surgical management.

Non-surgical management

Lifestyle interventions such as weight loss, altering fluid intake and reducing caffeine should be encouraged for those diagnosed with an overactive bladder. The use of laxatives for constipation, or vaginal oestrogen cream in atrophy are simple yet effective conservative measures. Pelvic floor muscle training should be trialled for at least 3 months in women with stress incontinence. The National Institute for Health and Care Excellence (2019) guidelines suggest exercises should be done at least three times a day, with around 8–10 contractions each time. For patients suffering with urgency or mixed incontinence, bladder training lasting for around 6 weeks is usually the first approach as a management option. In older adults who cannot engage with pelvic floor muscle training because of severe dementia or functional impairment, it is important to ensure care is provided for regular toileting and incontinence products, such as pads or Conveen urinary collection sheaths for men, are available. If this is not successful, medication can be added alongside bladder training in younger adults. In older adults, adding medication should be done with great caution because of the abundance of side effects (Shah and Badlani, 2002).

Electrical stimulation should only be used in women with an overactive bladder if they cannot adequately contract their pelvic floor muscles. Neurostimulation such as transcutaneous sacral nerve stimulation or percutaneous sacral nerve stimulation should only be used following advice from a multidisciplinary team review from specialists. It is used primarily for neurological disease (National Institute for Health and Care Excellence, 2004).

Intermittent catheterisation can used for patients who suffer from urinary retention, which often leads to recurrent infections and reduced renal function. It is important to ensure first that the cause of urinary retention cannot be reversed and second, that the patient or carer is able to understand the technique for self-catheterisation (Health Quality Ontario, 2019).

If initial lifestyle changes do not work effectively, medication can be used as an effective treatment. Antimuscarinic drugs, such as oxybutynin and tolterodine, prevent frequent bladder muscle contractions and reduce the urge to need to pass urine quickly. By relaxing the muscles of the bladder, a higher volume of urine can be held within it. This medication, commonly used for an overactive bladder in younger people, should be used with caution and started initially at a low dose with regular monitoring. Patients must be warned regarding common side effects such as dry mouth, blurred vision and in rare cases, glaucoma. Oxybutynin should not routinely be used in older adults because there are common interactions with dementia medications and, if trialling another anticholinergic medication in older adults, a timed trial must be planned. If there is no effect the medication should be stopped (Hsu et al, 2019).

Duloxetine is a medication used for stress incontinence as well as depression. Duloxetine works by inhibiting serotonin and noradrenaline reuptake. This leads to increased stimulation of the urethral sphincter, reducing incontinence when pressure is placed on the bladder. Duloxetine is not suitable for pregnant women or patients with severe liver and kidney disease. The side effects include nausea, headache, sleepiness and dizziness (Maund et al, 2017).

Surgical management

More invasive treatments can be offered to women suffering from symptoms of overactive bladder secondary to detrusor overactivity, which is not controlled by non-surgical management. Botulinum toxin type A can be injected into the bladder wall and works by

Key points

- Urinary incontinence is a debilitating symptom that has a huge effect on a patient's quality of life.
- Urinary incontinence is more prevalent in older adults and is a common geriatric problem, which should be assessed within a comprehensive geriatric assessment.
- It is important to take a detailed history, conduct a thorough physical examination and perform baseline tests to rule out reversible causes of urinary incontinence.
- A stepwise approach for management should be taken. Lifestyle changes and behavioural/pharmaceutical therapy should be considered first before moving on to more invasive therapies.
- Certain antimuscarinic medications such as oxybutynin should be avoided in elderly patients because of possible side effects and interactions with other medications.

blocking neuromuscular transmission and inhibiting the release of acetylcholine. This option should only be considered once there has been a local multidisciplinary team review and the risks, complications and benefits have been discussed with the patient. Percutaneous nerve stimulation can be offered after a multidisciplinary team review if their overactive bladder symptoms have either not responded to the botulinum toxin, or they were not prepared to accept the risk of needing catheterisation as a complication of the toxin injection (National Institute for Health and Care Excellence, 2019; Hagovska and Svihra, 2020).

Surgery for stress urinary incontinence with tape has previously provided successful relief of symptoms in many cases. However, some patients have experienced severe and debilitating complications following mesh and tape surgery. In 2018, the NHS announced a national 'pause' in the use of surgical mesh/tape to treat stress urinary incontinence, which took the form of high vigilance restriction. This period of high vigilance restriction is still ongoing (National Institute for Health and Care Excellence, 2018).

Colposuspension is a surgical procedure that can be offered if non-surgical management for stress incontinence has failed. This is a procedure in which the neck of the bladder is lifted and stitched into position to prevent further movement. This can be done either as open or laparoscopic surgery, but the recovery time is quicker if done by the latter route (Dean et al, 2017).

Autologous rectus fascial slings are another surgical option – these slings are made from abdominal fascia and are placed underneath the urethra and fixed back to the abdominal wall. The placement of this type of sling can be safely performed with a low morbidity rate and low erosion risk in comparison to synthetic slings (Bang and Belal, 2016).

Conclusions

Urinary incontinence is a prevalent cross-cultural condition that can have multiple causes, including lifestyle, age-related changes, medication and physiology. The three main types of incontinence are stress, urgency and overflow. It is crucial to identify the cause of a patient's incontinence by taking a history, performing physical examination and occasionally urodynamic studies, in order to start correct and appropriate treatment. The most non-invasive treatment options should be considered first, such as lifestyle changes, behavioural therapy and pharmaceutical therapies. The use of surgical management is currently very topical and is subject to change during an ongoing period of monitoring.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

Curriculum checklist

This article addresses the following requirements from the general internal medicine training curriculum

- Providing continuity of care to medical inpatients, including management of comorbidities and cognitive impairment
- Managing patients in an outpatient clinic, ambulatory or community setting, including management of long-term conditions
- Managing medical problems in patients in other specialties and special cases.

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