

Management of urinary incontinence

Urinary incontinence (UI) is a common problem in older people and requires thorough assessment and management. The purpose of this review is to look at the various management strategies currently used in hospital practice to manage UI. **Drs Nadeem Aftab** and **Jonathan Potter** review each management strategy against the available clinical evidence to suggest good practice guidance for the management of this important clinical problem.

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Urinary incontinence (UI) is one of the 'geriatric giants'. It affects 25 per cent of older people and 30–60 per cent of people in long-term care. It can be a source of great distress and anxiety to the patient and the carer. UI has a profound negative affect in social well-being of the elderly person leading to social isolation and even depression. It is also a problem resulting in significant cost burden to the NHS. Unfortunately the management of UI still remains suboptimal. A national audit of continence care in older people undertaken by the Royal College of Physicians in 2006 showed little progress in the pursuit of a truly integrated continence service¹. Indeed there is room for significant improvement in how we deal with this common condition. Here we look at the causes of UI and briefly discuss the commonly used management strategies.

Causes of urinary incontinence

UI can be classified into four main diagnostic groups for the purpose of streamlining management. These are:

- Overactive bladder (OAB)/urge incontinence: detrusor overactivity when the residual volume is small but there is frequent voiding and the person is unable to hold on before the toilet is reached
- Stress incontinence: leakage of small volume of urine on coughing, sneezing, laughing etc
- Mixed UI: when features of both urge and stress

incontinence are present

- Overflow incontinence: results from bladder outlet obstruction resulting in massive bladder distention. Prostate enlargement in men is the most common cause of overflow incontinence.

In all patients reversible factors contributing to UI should be searched for and treated as appropriate (*Table 1*). A careful history and physical examination including rectal and urogenital examination should be performed in all patients. Bladder diaries should be kept for at least three days to help make an assessment of the type of incontinence. A thorough search for the reversible causes of UI should then be undertaken. Important initial investigations include a urine dip, urine culture/ sensitivity and ultrasound scan of the urinary tract to look for residual volume and structural abnormalities. Urodynamic studies should be considered in difficult cases and in all those where surgery is contemplated.

Management options

Management strategies in all forms of UI mentioned above are used in various combinations depending on the underlying cause. A summary of options for management are given in *Table 2*. We will now review some of the clinical evidence available for the commonly used management strategies.

Table 1 Reversible causes of UI

- Delirium
- Urinary tract infection
- Drugs – diuretics, anticholinergics, calcium channel blockers
- Stool impaction
- Polyuria due to hypercalcaemia or uncontrolled diabetes mellitus
- Prostatic hypertrophy and tumour in males
- Urinary tract stones and tumours of renal tract
- Urethral irritability – atrophic vaginitis, candida infection.

Table 2 Common management options for UI

- Bladder retraining
- Regular toileting
- Pelvic floor muscle training
- Bladder stabilising drugs eg, oxybutynin, tolterodine
- Surgical procedures eg, tension free transvaginal tape, colposuspension
- Intermittent catheterisation
- Synthetic vasopressin
- Oestrogen in women
- Botulinum toxin A injection for OAB.

Bladder retraining and regular toileting

The aim of bladder retraining is to gradually increase intervals between voiding and is widely used in treatment on UI. Wallace *et al*² reviewed the randomised and quasi randomised trials for bladder retraining in any form of incontinence. They looked at eight trials, which included 858 predominantly female patients. They concluded that the limited evidence available suggests that bladder training may be helpful for the treatment of UI, but this conclusion can only be tentative as the trials were of variable quality and of small size with wide confidence intervals around the point estimates of effect.

Regular toileting is a fixed time interval toileting assistance programme, which has been promoted for management of UI in patients who cannot participate in independent toileting. This method is commonly assumed to represent current practice in care home settings. Ostaszewicz *et al*³ looked at all of the randomised trials that addressed timed voiding and had alteration in continence status as the primary outcome. Their conclusion was that the data were too few and of insufficient quality to provide empirical support for or against the intervention of timed voiding.

Pelvic floor muscle training

This is often recommended for management of stress/mixed incontinence. The evidence in this area is difficult to evaluate as various randomised controlled trials (RCTs) used different pelvic floor muscle training (PFMT) regimens over a variable period of time. In some of the trials weighted vaginal cones were also used. The consensus

from these RCTs is in favour of PFMT for three months as a safe and effective treatment for stress and urge UI⁴.

A trial of supervised PFMT of at least three months duration should therefore be offered as first-line treatment to women with stress or mixed UI. PFMT programmes should comprise at least eight contractions performed three times per day. If it is beneficial, an exercise programme should be maintained.

Bladder stabilising drugs

Drugs used for UI commonly include oxybutynin, tolterodine, trospium, solifenacin (anticholinergics) and tamsulosin. Wagg *et al*⁵ studied the efficacy and tolerability of solifenacin in elderly people with OAB symptoms. They concluded that solifenacin 5–10 mg daily was efficacious and well tolerated in the treatment of elderly subjects with OAB symptoms. Garley *et al*⁶ also reported significant improvement in multiple patient related outcomes with flexibly dosed solifenacin. In a prospective RCT of extended release oxybutynin and tolterodine in treatment of OAB, Appell *et al*⁷ found extended release oxybutynin to be more effective than tolterodine as measured by end of study urge incontinence and micturition frequency episodes. Both groups had similar rates of dry mouth and similar side effects.

The National Institute for Health and Clinical Excellence (NICE) guidance⁴ suggests that there is no clinically important difference in the efficacy between antimuscurinic drugs. However, immediate-release oxybutynin is the most cost-effective option. If it is not tolerated other medications in the group may be used. It is also

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essential to counsel the patient about the adverse effects of these drugs such as dry mouth, urinary retention and confusion.

Surgical procedures for UI

This option is often limited to patients who do not respond to conservative therapy. Various surgical procedures including Burch colposuspension, tension-free transvaginal tape (TVT), fascial sling procedures, cystoplasty, detrusor myomectomy and Botulinum toxin injection have been used in the treatment of stress incontinence. In Burch colposuspension, the anterior vaginal wall is suspended at the level of the bladder neck with permanent sutures. In the autologous sling procedure, a harvested strip of rectus fascia is placed transvaginally at the level of proximal urethra and secured superiorly to rectus fascia with permanent sutures.

A recently published RCT^{8,9} compared the efficacy of Burch colposuspension versus fascial sling to reduce urinary stress incontinence. They concluded that pubovaginal slings work better than the Burch colposuspension but cause more complications. Women who had a fascial sling were more likely to be cured of incontinence after two years (47 per cent versus 38 per cent, $p < 0.01$), but they were also more

Key points

- > UI is distressing and embarrassing for the patient and should be dealt with sensitivity and empathy.
- > Management of UI remains suboptimal in the NHS despite adequate awareness of the scale of the problem.
- > History and bladder diaries (voiding record) should help to identify the underlying cause of UI.
- > Anticholinergics should be the first-line treatment in patients with OAB and mixed symptoms and are shown to be cost-effective.
- > PFMT is recommended for at least three month for stress UI.
- > Urinary catheters should be used only as a last resort for UI.

likely to develop voiding problems (14 per cent versus two per cent, $p < 0.001$) such as urge incontinence and recurrent urinary infections.

The current NICE guidelines⁴ recommend retro pubic mid-urethral tape procedures using a 'bottom-up' approach with macro porous (type 1) polypropylene meshes for stress UI if conservative management has failed. Open colposuspension and autologous rectus fascial sling are the recommended alternatives when clinically appropriate.

Sacral nerve stimulation (SNS) is recommended for the treatment of UI due to detrusor overactivity in women who have not responded to conservative treatments. Up to two-thirds of patients achieve continence or substantial improvement in symptoms after SNS and the available data show that beneficial effects appear to persist for up to three to five years after implantation.

Sehai *et al*¹⁰ reported treatment with Botulinum toxin is safe and effective for OAB with the beneficial effect lasting for at least 24 months. However, use of Botulinum toxin in OAB needs further evaluation.

Conclusion

UI is a common and disabling condition of the elderly, which warrants careful assessment and evaluation. Good history and examination should lead to identification of the type of UI. This should then guide the clinician to use appropriate drugs and refer for PFMT where appropriate. Surgical intervention should be considered in patients who do not respond to conservative management but are thought to be fit for surgery.

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