The initial assessment of men with overactive bladder (OAB) was outlined in the first article in this series. Often simple advice and education can help improve symptoms; those with more severe symptoms may need investigation. The various treatment options available to help improve the quality of life of these men are summarised in Box 1.

CONSERVATIVE THERAPY
Conservative management of OAB should be aimed at eliminating or controlling modifiable factors that worsen the condition. This includes reduction of caffeine, fizzy drinks and alcohol intake, smoking cessation, weight control and avoidance of constipation. Hashim et al. have suggested that a 25 per cent reduction in normal fluid intake can have a positive impact on OAB symptoms.

Liaison with a community continence advisor, if available, should be sought. Bladder drill, a technique gradually to increase intervals between voids, should be encouraged, perhaps with the addition of formal pelvic floor therapy with and without biofeedback. This may be a service offered by specialised physiotherapists or continence advisors.

In patients who have incontinence, the use of pads and containment devices may be necessary. Offer patients a range of choices to suit their lifestyle, starting with non-invasive devices such as condom sheaths. In intractable cases and special circumstances, an indwelling catheter may be required to offer temporary relief of symptoms while definitive investigations and management are planned.

MEDICAL THERAPY
The use of anticholinergics has been a topic of debate over the past decade, partly because there is a strong placebo effect and 'study effect', in that patients have a heightened awareness of their condition during studies; this perhaps emphasises the importance of patient education and a full discussion about side-effects before dispensing.

A Cochrane review in 2003 examined the data on monotherapy with various anticholinergics without any lifestyle interventions and found significant improvements in bladder symptoms; however, the benefits were of limited clinical significance. Later meta-analyses have reported that anticholinergic drugs are efficacious, safe, tolerable and improve quality of life.

The main side-effects of anticholinergics are dry mouth/eyes, constipation and

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blurred vision. They rarely cause any serious adverse events. Although there are concerns that these drugs could precipitate retention, there is an increasing body of evidence indicating that this is unlikely.6 Furthermore, there is a growing hypothesis suggesting that these drugs may exert their effect via the sensory/afferent nerves of the bladder, where their main mode of action would be during the storage phase, with little effect, at licensed doses, on the voiding phase (explaining the low likelihood of precipitating urinary retention).6 This may also explain how these drugs can help with urinary urgency, which is probably a sensory phenomenon.

Anticholinergics such as oxybutynin, tolterodine and trospium chloride are available as modified slow-release preparations. Some newer anticholinergics such as solifenacin, darifenacin and fesoterodine offer flexible dosing with two treatment doses.5,7

Alternative delivery options may be helpful in those patients in whom oral preparations provide adequate symptom control but at a cost of intolerable side-effects – for example, transdermal oxybutynin patches and topical oxybutynin gel, which avoid first-pass metabolism in the liver, thus reducing levels of active metabolites that contribute to the side-effect profile.8,9 This may also explain how these drugs can help with urinary urgency, which is probably a sensory phenomenon.

There is now good evidence to suggest that men with mixed lower urinary tract symptoms (LUTS) who are treated with an alpha-blocker should be prescribed an anticholinergic if their storage LUTS persist, resulting in good symptom benefit and moderate improvements in quality of life.11,12 When initial treatment fails, patients should be considered for referral for investigation and further management in a hospital setting. Treatment options for OAB that is refractory to conservative and pharmaceutical measures include sacral neuromodulation (SNM) and botulinum toxin-A.

**SACRAL NEUROMODULATION**

SNM involves the electrical stimulation of sacral nerves. Initially an electrode is placed into the foramen adjacent to the sacral nerve responsible for the bladder (S2–4, but usually S3). This is performed under local anaesthesia with or without sedation. The electrode is then connected to an external generator source with set parameters. Patients usually have a trial of three to seven days and an assessment is made of their OAB symptoms (Figure 1). If the initial trial is successful, ie there is a significant reduction in OAB symptoms (at least 50 per cent improvement), a permanent generator is connected to the electrode, which is implanted subcutaneously (InterStim, Medtronic). The procedure is reversible and the implanted pulse generator can be removed at any time.

NICE approved the use of SNM for OAB in 2004. It has also been used in treating other aspects of voiding dysfunction such as urinary retention and defecatory problems.13,14

The mechanism of action for SNM is unclear. It seems to act primarily by activation of non-muscular afferent sacral nerve fibres that modulate reflexes involved with micturition. Ultimately this appears to involve inhibiting parasympathetic bladder motor neurones in the cord through interneurones.15

Data from randomised controlled trials have shown that SNM can achieve complete continence or a 90 per cent improvement in the main OAB symptom in approximately 50 per cent of patients, in contrast to 1.6 per cent in the control group (delayed intervention group).16,17 A further 37 per cent had at least a 50 per cent improvement in main incontinence symptoms, compared with 3.7 per cent in the control group.16-19 Brazzelli et al. reviewed adverse events from

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**Figure 1. Sacral neuromodulation: the trial stage involves placing an electrode into the foramen adjacent to the sacral nerve responsible for the bladder. The electrode is then connected to an external generator source. If the trial is successful, a permanent generator is implanted subcutaneously (©Medtronic Inc)**

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randomised controlled trials and case series utilising SNM for urge incontinence and found the commonest problems to be reoperation rate in 33 per cent, pain at the implant site in 25 per cent, lead migration in 16 per cent and wound problems in 7 per cent.14 Long-term data are sparse, but subjective assessment of efficacy showed that 64 per cent of patients were happy with the treatment at last follow-up.

**BOTULINUM TOXIN-A**

Botulinum toxin-A, a toxin derived from the Gram-positive anaerobic spore-forming organism Clostridium botulinum, when injected into the bladder wall, has proven to be efficacious in refractory OAB. It is possible to inject the toxin with a flexible cystoscope under local anaesthetic in an outpatient setting, utilising an ultrafine 4mm long disposable needle, which is passed down a reusable sheath (Olympus, Keymed; Figure 2).20

Large randomised trials have shown efficacy in men and women with OAB with or without detrusor overactivity (DO), as well as those with neurogenic DO.21,22 A good response appears achievable in approximately 85 per cent of patients. The treatment is typically performed as an outpatient procedure under local anaesthetic.20

Use of botulinum toxin-A in the bladder is not yet licensed, although this is expected in the near future. Limitations include limited duration of effect and the need for repeat injections when OAB symptoms return (typically every 6–12 months), urinary tract infection and difficulty emptying the bladder, necessitating clean intermittent self-catheterisation (CISC), which can occur in up to one in three patients with OAB.23

**SURGERY**

Surgery in the management of OAB symptoms and DO is reserved for patients who have failed all other forms of therapy, have no contraindications, are prepared and understand the risks of the intervention and who are fit enough to undergo the operation. In patients with refractory DO and symptoms, surgical options include augmentation cystoplasty and urinary diversion.

**Augmentation cystoplasty**

Augmentation cystoplasty involves the interposition of a segment of bowel onto a bivalved bladder in order to increase bladder capacity and ameliorate the symptoms of OAB. The bowel segment is usually a piece of ileum.

In one of the largest series to date, involving 267 patients, Venn and Greenwell have documented outcomes and complications with this procedure.24,25 Patients with neuropathic bladders had a 76 per cent continence rate with cystoplasty alone, increasing to 90 per cent with the addition of an artificial urinary sphincter. Patients undergoing cystoplasty for idiopathic DO had a 93 per cent continence rate.

The procedure is a major operation and therefore early postoperative complications tend to be related to infection, bleeding and cardiorespiratory complications associated with any major abdominal surgery. Long-term complications are well described in all series of augmentation cystoplasty and include metabolic disturbances, as ammonia is reabsorbed along with chloride from the bowel segment and also in part by secretion of bicarbonate. This results in a hyperchloraemic metabolic acidosis. Other complications include deterioration in renal function, the need to perform CISC, mucus production, urinary tract infection, stone formation, bladder perforation, adenocarcinoma (rare and seen after many years), bowel disturbance and incontinence. Patient assessment, including the ability to perform CISC, counselling, compliance and the need for lifelong follow-up are paramount.

**Urinary diversion**

Urinary diversion refers to the rerouting of urine away from the urethra and is usually performed by placing the ureters into a segment of bowel. The bowel segment most commonly used is the ileum, which acts as a reservoir for urine storage (ileal conduit). The conduit is brought up to the abdominal wall as a stoma (urostomy). Continent urinary diversion may be created by a catheterisable urinary stoma.

In a series by Singh et al., 93 patients were followed for a minimum of two years and evaluated.26 Most had neurogenic DO, with the non-neurogenic patients (24 per cent) having intractable incontinence, genuine stress incontinence or interstitial cystitis. Patients were happy with the results, but required long-term follow-up in view of the potential complications of surgery. In this series they were reported as bladder problems (recurrent infection and pyocystis) in approximately 50 per cent, stomal problems in 30 per cent (of which parastomal hernia was repaired in 10 per cent) and new-onset upper tract dilatation in about one-third of patients.26

According to NICE guidelines, urinary diversion in men should be considered only for those whose symptoms have not responded to conservative management and drug treatments, and if cystoplasty or SNM are not clinically appropriate or are unacceptable to the patient.21
CONCLUSIONS
In the past, OAB was considered to be a women’s health issue. However, the effects of the syndrome can be equally significant in men. There are some inherent differences in aetiology, with some OAB related to bladder outflow obstruction. A careful evaluation for men with OAB symptoms is required to exclude significant other pathology. There are guidelines to guide evaluation and treatment. Several treatment options have been shown to improve symptoms and quality of life of men with OAB. Treatment should be guided by the severity of symptoms and bother. Initial management can be started in the community, but referral to specialised care should be sought in those with potentially serious other pathology or failed initial management.

Declaration of interests
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