Overactive bladder (Urinary incontinence and urge incontinence)

Synonym: detrusor instability

See also the separate articles Urinary Incontinence and Voiding Difficulties.

What is overactive bladder syndrome?

Overactive bladder (OAB) syndrome is characterised by urgency, often with frequency and nocturia and sometimes leakage (urge incontinence). It is often but not always associated with detrusor muscle overactivity. It can be idiopathic or neurogenic [1] . Strictly speaking, the term overactive bladder should be confined to cases where the condition is secondary to a known cause, whilst overactive bladder syndrome should be used in cases which are idiopathic. In practice the term is often used interchangeably. OAB can have a significant impact on quality of life [2] .

Who gets overactive bladder syndrome? (Epidemiology)

- OAB is the second most common cause of female urinary incontinence (stress incontinence is the most common).
- The prevalence of OAB increases with age [3] .
- OAB may be associated with Parkinson's disease, spinal cord injury, diabetic neuropathy, multiple sclerosis, dementia or stroke; however, most cases have no specific cause.
- In men, urge incontinence may be due to neurological disease or an enlarged prostate gland (benign prostatic hypertrophy or prostate cancer).

Overactive bladder syndrome symptoms

Overactive bladder syndrome symptoms include a sudden urge to pass urine that is very difficult to delay and may be associated with leakage. Other features include:

- Frequency of micturition.
- Nocturia.
- Abdominal discomfort.
- Urge incontinence (more common in women) [1] .

There are no specific physical signs and the diagnosis is usually made from the symptoms and confirmed with urodynamic testing.

Differential diagnosis

- Stress incontinence
- Functional incontinence
- Overflow incontinence
- Urinary fistula
- Enuresis
- Urinary tract infection
- Diabetes
- Bladder cancer
- Bladder stones

Investigations

- Urine dipstick analysis and midstream urine specimen should be sent to the laboratory in order to rule out urinary tract infection.
- Investigations to consider differential diagnosis - eg, blood tests for renal function, electrolytes, calcium, fasting glucose.

- Urodynamic studies show involuntary contraction of the bladder during filling. Whilst this is a gold standard test for detrusor overactivity, it tends to be reserved for patients who are refractory to treatment[4] .
- Depending on the presentation, ultrasound of the renal tract and cystoscopy may be required. However, neither is recommended routinely by the European Association of Urology[4] .

Overactive bladder syndrome treatment and management [5]

Initial management in primary care[6]

The following may be helpful, both for men and for women.

- **Lifestyle changes**:
  - Trial of reduction in caffeine intake.
  - Modification of high or low fluid intake. Some patients may cut back on the amount that they drink so that the bladder does not fill so quickly.
  - However, this can make symptoms worse, as the urine becomes more concentrated, which may irritate the bladder muscle. Patients should aim to drink normal quantities of fluid per day (about two litres).
  - If body mass index is over 30, advise the patient to lose weight.
- **Bladder training**[7] :
  - This is first-line treatment and should be for a minimum of six weeks.
  - It typically involves pelvic muscle training, scheduled voiding intervals with stepped increases and suppression of urge with distraction or relaxation techniques[8] .

- **Drug treatment**:
  - Anticholinergic drugs: anticholinergics (antimuscarinic drugs) - eg, oxybutynin, propiverine, tolterodine, darifenacin, solifenacin, fesoterodine, trospium chloride - have a direct relaxant effect on urinary smooth muscle. They reduce involuntary detrusor contractions and increase bladder capacity. Anticholinergic drugs have been shown to improve symptoms in OAB syndrome and allow a modest improvement in quality of life. Depending on the severity of symptoms and the level of distress, anticholinergic drugs may be started immediately or added if the initial advice is not totally effective [6] . It is not clear whether any benefits are sustained during long-term treatment or after treatment stops [9] . There is no evidence of a clinically important difference in efficacy between antimuscarinic drugs. Immediate-release non-proprietary oxybutynin is the most cost-effective of the available options, although European guidelines suggest extended-release forumulations are associated with fewer side-effects (eg, dry mouth) [4] . Oxybutynin may be started if bladder training is not effective. It may also be used in conjunction with bladder training. Do not use in frail elderly women [10] .
  - The efficacy and side-effects of tolterodine are comparable to those of modified-release oxybutynin. When choosing between oral immediate-release oxybutynin or tolterodine, tolterodine may be preferable because of the reduced risk of dry mouth. As with oxybutinin, extended-release preparations of tolterodine might be preferred to immediate-release preparations because there is less risk of dry mouth [11] .
  - Tolterodine is as effective in reducing leakage and other symptoms of OAB in patients with mixed incontinence as it is in patients with urge incontinence alone [12] .
  - If immediate-release oxybutynin is not well tolerated, darifenacin, solifenacin, tolterodine, propiverine, trospium or an extended-release or transdermal formulation of oxybutynin should be considered as alternatives [6] .
  - Intravaginal oestrogens: these can be used to treat OAB syndrome in postmenopausal women who have vaginal atrophy.

- Mirabegron is an agonist of beta-3 receptors in detrusor smooth muscle, designed to promote detrusor relaxation. It is recommended for people in whom antimuscarinic drugs are contra-indicated or clinically ineffective, or who have unacceptable side-effects [13] . It is contra-indicated in patients with severe uncontrolled hypertension [14] .

Editor's note

Dr Krishna Vakharia, 13th September 2024

Vibegron for treating symptoms of overactive bladder syndrome [15]

NICE is recommending Vibegron as an option for treating the symptoms of overactive bladder syndrome in adults. It is only recommended if other antimuscarinic medicines are not suitable, do not work well enough or have intolerable side effects. Vibegron works in a similar way to mirabegron and works better than placebo.

When to refer [6]

- Patients on anticholinergic drugs should be reviewed four-weekly and the dosage altered or another drug in the group tried if there is no benefit from current treatment.
- A secondary care referral should be considered for patients who fail to respond to drug treatment after three months or who do not wish for drug treatment.
- Patients who are stable on drug treatment should be reviewed annually (or six-monthly if aged over 75).

Management options offered in secondary care [10]

Before embarking on invasive treatments, patients who fail to respond to conservative measures should have urodynamic studies to ensure that their symptoms are due to detrusor overactivity. Involvement of a multidisciplinary team (MDT) is recommended.

- **Botulinum toxin A**:
    - Injection of the bladder wall with botulinum toxin A is the first-line invasive option. It may be used if there is idiopathic OAB that has not responded to conservative treatment. The patient must be prepared to perform intermittent catheterisation if the effects wear off between injections. Urinary tract infections are a recognised risk. The duration is variable. More research is required to determine the long-term risks and benefits.
- **Nerve stimulation**:
    - Sacral nerve stimulation is effective in treating symptoms of OAB, including urinary urge incontinence, urgency and frequency in patients who do not respond to botulinum toxin A.
    - Percutaneous posterior tibial nerve stimulation (PTNS) is also effective in reducing symptoms in the short term and medium term for patients with OAB syndrome and should be offered to patients who do not want the first- or second-line options.
- **Surgical treatment**:
    - Surgery is only indicated for intractable and severe idiopathic OAB. Augmentation cystoplasty is the most frequently performed surgical procedure for severe urge incontinence.
    - In patients whose condition is refractory to non-surgical treatment, open augmentation cystoplasty is an established procedure.
    - Laparoscopic augmentation cystoplasty (including clam cystoplasty) is also indicated for OAB syndrome. Potential advantages of a laparoscopic approach are less intraoperative blood loss, quicker recovery, less pain, a shorter stay in hospital and smaller scars [16] .
    - Urinary diversion may be considered if augmentation cystoplasty is neither appropriate nor acceptable to the patient.

Complications

May cause severe social difficulties, including undertaking shopping and attending meetings and therefore may also lead to social isolation and psychological difficulties.

Prognosis [17]

Behavioural therapy combined with drug treatment is often effective, with over 80% of cases improved and with excellent long-term results.

Further reading

- Tran K, Levin RM, Mousa SA; Behavioral intervention versus pharmacotherapy or their combinations in the management of overactive bladder dysfunction. Adv Urol. 2009:345324. doi: 10.1155/2009/345324. Epub 2009 Dec 15.

References

1. Jayarajan J, Radomski SB; Pharmacotherapy of overactive bladder in adults: a review of efficacy, tolerability, and quality of life. Res Rep Urol. 2013 Dec 6;6:1-16. doi: 10.2147/RRU.S40034.
2. Basra R, Kelleher C; Disease burden of overactive bladder: quality-of-life data assessed using ICI-recommended instruments. Pharmacoeconomics. 2007;25(2):129-42.
3. Srikrishna S, Robinson D, Cardozo L, et al; Management of overactive bladder syndrome. Postgrad Med J. 2007 Jul;83(981):481-6.
4. Fontaine C, Papworth E, Pascoe J, et al; Update on the management of overactive bladder. Ther Adv Urol. 2021 Aug 31;13:17562872211039034. doi: 10.1177/17562872211039034. eCollection 2021 Jan-Dec.
5. Urinary incontinence; European Association of Urology (2017)
6. Urinary incontinence and pelvic organ prolapse in women: management; NICE guideline (April 2019 - updated June 2019)
7. Lee HE, Cho SY, Lee S, et al; Short-term Effects of a Systematized Bladder Training Program for Idiopathic Overactive Bladder: A Prospective Study. Int Neurourol J. 2013 Mar;17(1):11-7. doi: 10.5213/inj.2013.17.1.11. Epub 2013 Mar 31.
8. Diokno AC, Burgio K, Fultz NH, et al; Medical and self-care practices reported by women with urinary incontinence. Am J Manag Care. 2004 Feb;10(2 Pt 1):69-78.
9. Nabi G, Cody JD, Ellis G, et al; Anticholinergic drugs versus placebo for overactive bladder syndrome in adults. Cochrane Database Syst Rev. 2006 Oct 18;(4):CD003781.

10. Overactive bladder drugs; NICE Pathways, 2015 - last updated 2021
11. British National Formulary (BNF); NICE Evidence Services (UK access only)
12. Kreder KJ Jr, Brubaker L, Mainprize T; Tolterodine is equally effective in patients with mixed incontinence and those with urge incontinence alone.; BJU Int. 2003 Sep;92(4):418-21.
13. Mirabegron for treating symptoms of overactive bladder; NICE Technology Appraisal Guidance, June 2013
14. Mirabegron (Betmiga®): risk of severe hypertension and associated cerebrovascular and cardiac events; Drug Safety Update, Medicines and Healthcare products Regulatory Agency (MHRA), October 2014
15. Vibegron for treating symptoms of overactive bladder syndrome; NICE Technology appraisal guidance, September 2024
16. Laparoscopic augmentation cystoplasty (including clam cystoplasty); NICE Interventional Procedure Guidance, December 2009
17. Dmochowski R; Interventions for detrusor overactivity: the case for multimodal therapy. Rev Urol. 2002;4 Suppl 4:S19-27.

Last updated by: Dr Laurence Knott 18/11/2021	
Peer reviewed by: Dr Hayley Willacy, FRCGP 18/11/2021	**Next review date:** 17/11/2026

Patient Access

To find out more visit www.patientaccess.com
or download the app

Download on the App Store

GET IT ON Google Play

Follow us