Assessing overactive bladder in primary care

While the majority of OAB cases can be managed in primary care, it is important to understand the indications for when referral is necessary, write Kevin O’Connor and John Fitzpatrick

OVERACTIVE BLADDER is a highly prevalent condition, affecting approximately 16.5% of the adult population.1 Quality of life (QOL) is substantially impacted by this disorder as social, psychological, occupational, domestic, physical and sexual functioning are all affected. Despite the considerable impact this condition has on QOL, overactive bladder remains under-recognised and under-treated as a result of patient embarrassment and reluctance to seek medical help.

The majority of patients with OAB present initially to primary care, where they can be diagnosed and managed appropriately without the need for secondary care referral. Referral may be necessary for certain patients and it is important to understand the indications for this.

The International Continence Society (ICS) defines OAB as symptoms of urgency with or without urge incontinence, usually associated with urinary frequency and nocturia in the absence of local pathology and significant endocrine factors.2 Urinary urgency is defined by the ICS as a sudden desire to pass urine, which cannot be deferred. When eliciting the history, a wide differential must be considered which may be contributing to the symptoms (see Table 1).

A number of points should be elucidated from the history:
• Are there any obstructive symptoms or proven urinary tract infections?
• How many pads does one have to wear throughout the day?
• Is the problem affecting quality of life?
• Is there any history of neurological disease?
• Has she had any previous pelvic operations?
• Are they a smoker which may suggest an underlying bladder tumour?
• Is there excessive fluid intake, in particular caffeinated beverages?
• What medication are they taking?

Finally, it is vital to detect ‘red flag’ symptoms that may indicate more sinister pathology requiring referral. Symptoms include haematuria, pain, recurrent UTI or neurological/locomotor abnormalities.

Examination
An examination should be conducted on all patients and include assessment of urinary, gynaecological and neurological systems. Abdominal palpation and vaginal examination will enable identification of a palpable bladder, prolapse or pelvic mass, as well as determine the patient’s oestrogen status (see Table 2).

Initial tests
Investigations which should be carried out include a urine dipstick and frequency volume chart. In the urine dipstick, particular attention should be paid to evidence of haematuria ≥1+ which may indicate bladder pathology such as transitional cell carcinoma of the bladder. Urinary tract infection is indicated by both leucocytes and nitrates. Diabetes mellitus is indicated by glycosuria. Presence of haematuria in the absence of infection necessitates referral to a urologist to rule out a urological malignancy. If there is evidence of infection on dipstick urine culture should be considered to aid antibiotic prescribing.

Much information can be gained from the frequency volume chart including volume of fluid intake, urinary frequency and incontinence episodes and functional bladder capacity. Conditions such as polyuria (> 3l over 24-hour period) can be established. If polyuric, is the polyuria present throughout the 24 hours or is it confined to nighttime (nocturnal polyuria)?

Post-void residual (PVR) is rarely performed in the primary care setting; however, a palpable bladder indicates chronic retention. PVR can be done using either a bladder scan or an in-out catheter. Incomplete bladder emptying can indicate obstruction, detrusor failure or underlying...
neurological conditions such as multiple sclerosis. Large post-void residuals can predispose to recurrent urinary infections. In the case of a patient with urinary urgency and a negative urinalysis the doctor can be more definitive in the diagnosis of an overactive bladder, especially in the presence of a small post-void residual.

More specialised tests performed by the urologist such as urodynamics and flexible cystoscopy may be performed if the patient is refractory to initial management in the community or has other symptoms such as pain, frank haematuria, recurrent microscopic haematuria or neurological symptoms which require further assessment.

**Treatment options for patients with OAB**

A stepwise ladder can be considered (see Table 3). Lifestyle changes (ie. decreased intake of caffeinated drinks, smoking cessation, losing weight if obese) are carried out in conjunction with bladder retraining and pelvic floor exercises. Anticholinergics are followed by intravesical injection of botulinum toxin A. Sacral neuromodulation augmentation cystoplasty, urinary diversion and ileal conduit formation are carried out if all else fails in very severe cases.

Bladder retraining works on the principle that the central control can be relearned in the same way it was learned in infancy. This is done by setting a target time for using the toilet before which the patient should not void. Once this has been achieved the target time should be increased. This process should be continued for at least six weeks before assessing its effect.

Pelvic floor muscle exercises strengthen and rehabilitate the pelvic floor by increasing the urethral resistance and strengthening the tone of the pelvic floor muscles. It is performed by long slow contractions and sharp pull-ups at regular intervals. Generally, at least three sets of eight contractions are performed per day. This process should be continued for three months before assessing its affect as per the NICE guidelines on urinary incontinence.

**Anticholinergics**

Efficacy of anticholinergics ranges from 50-75%. They help to reduce urgency and incontinence episodes as well as reducing the frequency of micturition (see Table 4 for list of anticholinergics). Anticholinergics are competitive muscarinic receptor antagonists and have a high affinity for the cholinergic muscarinic receptors that mediate contraction of the urinary bladder. The majority of muscarinic receptors expressed in the detrusor muscle are M2. However, M3 receptors are the functionally important ones in the detrusor muscle.

Selective muscarinic receptors have high affinity for M2 and M3 receptors and in particular do not affect brain M1 receptors and thus have a better side-effect profile. Common side-effects include dry mouth, dyspepsia, constipation, blurred vision and drowsiness. Serious side-effects include anaphylaxis, drowsiness and cognitive and memory impairment, especially in the elderly. Cardiac arrhythmias due to prolongation of the QT interval have also been reported. Contraindications to prescribing anticholinergics include myasthenia gravis, narrow-angled glaucoma, urinary retention, active ulcerative colitis and bowel obstruction.

**Intravesical botulinum toxin A**

If the patient with symptoms of OAB has not responded to lifestyle changes, bladder retraining and anticholin-
ergic therapy, then they should be referred to a urologist with view to cystoscopy and intravesical botulinum toxin A injection. Prior to proceeding with this treatment, or other surgical treatment options, cystometrogram (CMG) urodynamics should be carried out to confirm the presence of detrusor overactivity.

CMG urodynamics involves measuring the pressures within the bladder and rectum on bladder-filling with small calibre catheter transducers. By subtracting the intravesical pressure from the rectal pressure the detrusor pressure can be ascertained.

Botulinum toxin A is a neurotoxin derived from *Clostridium botulinum*. The available formulations are Botox, Dysport and Xeomin. Botulinum toxin A works by blocking the presynaptic vesicle release of acetylcholine at the neuromuscular junction of the parasympathetic nerves supplying the detrusor. This results in temporary paralysis of the detrusor muscle. Modulation of the sensory pathways through the P2X receptors leading to a reduction in urgency is also seen. The mean efficacy of botulinum toxin A for idiopathic detrusor instability is 70%. The effect lasts four to 10 months, when it has to be repeated. Side-effects include pain, UTIs, bleeding, and requirement for temporary self-catheterisation (10-15%).

**Sacral neuromodulation (SNM)**

SNM is used in situations of intractable detrusor overactivity. It is recommended in the NICE guidelines. It is rarely used in the Republic of Ireland and it is thought to be effective in 60-75% of cases of idiopathic detrusor overactivity. It is unknown exactly how it works, but it is thought that the continuous use of mild electrical activity to stimulate the sacral afferents modulates local neural reflexes and inhibits detrusor contraction. It is a minimally invasive two-stage procedure.

Initially, a test implant is inserted into the S3 foramina. This is attached to a temporary pulse generator device that the patient wears externally. If the patient gains a significant benefit after two weeks, a permanent electrode is inserted into the S3 foramina with a pulse generator being implanted superficially adjacent to anterior superior iliac crest. Battery life of the latest implants last seven years, after which the device will have to be replaced.

**Augmentation cystoplasty, ileal conduit**

Bladder augmentation using small bowel impairs bladder contraction, lowers the detrusor pressure and increases the capacity of the bladder. The principle is to bivalve the bladder coronally and patch the defect with a piece of bowel, generally ileum. This procedure is rarely used nowadays with the advent of anticholinergic medications and botulinum toxin. Patients must be willing to undergo self-catheterisation as up to 60% of patients with idiopathic detrusor overactivity will have to do so post-operatively. Other long-term sequelae include mucus production, stone formation, recurrent urinary infections, hyperchloreaemic metabolic acidosis, B12 and folate deficiency.

There is also an increased risk of malignancy in the augmented bladders. There is, however, a long latent period (>10 years). These patients should therefore have a surveillance flexible cystoscopy beginning 10 years postoperation. Urinary diversion is an option if all else fails in very severe cases. Finally, for those patients unfit to undergo surgery, a long-term suprapubic catheter could be considered.

**Effective assessment**

OAB is a common complaint that can have a devastating impact on quality of life. Most patients can be effectively assessed and managed in primary care, using lifestyle modification, bladder training and anticholinergics. Failure with one agent does not preclude usage of another and recently combinations of anticholinergics with improved efficacy and no increase in side-effects have been reported. Referral to secondary care should be made for any patient presenting with ‘red flag’ symptoms or those who fail to improve with conservative measures.

**References**


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