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Consultant Pharmacist Continuing Education Series

April 2024

Overactive bladder

Overactive bladder syndrome (OAB) is characterised by the increased frequency of the urge to urinate during the day or night, with or without urinary incontinence. OAB increases with age, due to increased idiopathic detrusor activity, comorbidities, limited mobility and polypharmacy. OAB has an adverse impact on people's lives, affecting daily activities, sleep patterns, mental wellbeing and quality of life. Drug-induced OAB is particularly common among older persons.

Prevalence

OAB is very common among residents in aged care, affecting 20-30% of the population over 75 years. Women tend to report incontinence more frequently than men. However, the occurrence is comparable in both genders after the age of 80 years.

Risk factors

There is a significant correlation between age, obesity and OAB.

Some neurological conditions increase the risk of OAB, including:

- Dementia
- Diabetic neuropathy
- Multiple sclerosis
- Parkinson's disease
- Stroke
- Damage to pelvic and spinal nerves

Women with pelvic organ prolapse tend to experience higher rates of OAB. Menopause is linked to an increase in OAB symptoms.

In men, conditions such as benign prostatic hyperplasia, prostatitis, and prostate cancer are associated with OAB symptoms.

Many medications can trigger or exacerbate OAB, including:

- Diuretics
- Alpha-blockers (prazosin)
- Anticholinesterases (donepezil)
- Sedatives

Diuretics can worsen OAB by promoting excessive urine production. Menopausal hormone therapy (formerly HRT), antidepressants, antipsychotics and alpha-blockers may induce involuntary detrusor contractions. Opioids may cause urinary retention and overflow incontinence.

Smoking, excessive coffee consumption and alcohol intake significantly increase the risk of OAB.

Symptoms

The symptoms of OAB include frequent urination and urinary incontinence. Symptoms arise from involuntary contractions of the detrusor muscle during the filling stage of the bladder. This leads to a sense of urgency to empty the bladder at small quantities than normal. Detrusor overactivity is primarily mediated by stimulation of muscarinic receptors in the bladder.

People with OAB experience more urinary tract infections (UTIs), skin infections, and have an increased risk of falls.

Identification

The diagnosis of OAB requires an evaluation of signs and symptoms and ruling out other conditions. A comprehensive medical and medication history, physical examination and laboratory tests are required for diagnosis of OAB.

A bladder diary is helpful to record daily fluid intake and voiding habits. A bladder diary should be completed for a minimum of three days to differentiate between urinary frequency, polyuria, nocturia and nocturnal polyuria.

Assessment of comorbidities is important, as sleep apnoea, diabetes and heart failure can contribute to OAB symptoms.

Urine dipsticks should not be used for diagnosing UTIs. Most people in residential aged care will have asymptomatic bacteriuria and do not require antibiotics.

Red flags

Red flag symptoms that require medical assessment include:

- Blood in urine (haematuria)
- Palpable bladder on examination after voiding
- Recurrent urinary tract infection
- Persisting bladder or urethral pain
- Associated faecal incontinence.
- Voiding difficulty

Treatment

It is important to identify and address underlying causes of OAB symptoms. all medication should be reviewed regularly, and ceased if no benefit is evident.

Bladder training

Bladder training can be beneficial and should be offered for a minimum of six weeks. It involves deliberate delay of urination following the initial urge. This can increase the time before urination by 5-15 minutes, gradually increasing over time. Bladder training teaches the bladder to hold more urine and helps reduce the number of times needed to pass urine, leading to a gradual alleviation of symptoms.

Lifestyle interventions

Lifestyle changes include reducing consumption of caffeine and alcohol, weight reduction and smoking cessation. Protective pads and timed voided may be helpful, especially in people with cognitive impairment and limited mobility.

Anticholinergics

The main class of medications used to manage OAB are muscarinic antagonists or anticholinergics. They block the muscarinic receptors in the bladder, preventing or reducing the bladder contractions. Onset of benefit may be at least four weeks.

Muscarinic antagonists include:

- Oxybutynin (*Ditropan, Oxytrol patch*)
- Solifenacin (*Vesicare, Solifenacin, Solicare ODT*)
- Darifenacin (*Enablex*)
- Tolterodine (*Detrusitol*)

Many medications with anticholinergic properties have intolerable adverse effects, such as dry mouth, urinary retention, constipation, confusion, and cognitive impairment. Reduced sweating can occur, which may be problematic in hot weather. Oral oxybutynin has the highest incidence of dry mouth; and oxybutynin patches have a lower incidence compared to oral tablets. It is important to recognise and document these side effects, as the balance of benefit and risk may vary among older persons. Anticholinergics are best avoided in people with dementia and should be prescribed with cholinesterase inhibitors such as donepezil (*Aricept*), galantamine (*Reminyl*) or rivastigmine (*Exelon*).

The accumulation of adverse effects, “anticholinergic burden” is closely linked to falls and mortality. There is a strong association between high anticholinergic burden and declines in cognition and physical functioning. Pharmacists conducting comprehensive medication reviews will alert to anticholinergic burden and provide recommendations to reduce the burden.

Mirabegron

Fortunately, there are other medications available to treat OAB that do not have anticholinergic properties. Mirabegron (*Betmiga*) is an effective alternative to anticholinergics. Mirabegron works by relaxing the detrusor muscle during the storage phase, allowing greater filling of the bladder and increasing bladder capacity. In clinical trials, mirabegron reduces the number of incontinence episodes by about 1 in 48 hours compared to placebo. This is similar effect compared to anticholinergics.

The recommended starting dose of mirabegron is 25 mg once daily. Based on individual patient efficacy and tolerability the dose may be increased to 50 mg once daily. It may take up to 8 weeks for full effect to be seen. Absorption is greater if taken on an empty stomach.

The most reported adverse reactions (greater than 2% of patients and greater than placebo) are hypertension, nasopharyngitis, urinary tract infection and headache.

Estrogens

Vaginal estrogen may be effective in postmenopausal women with urogenital symptoms. Systemic estrogens (menopausal hormone therapy) may worsen incontinence.

Botulinium toxins

Botulinum toxin A (*Botox*) is injected into the bladder wall and may be considered for people with urge incontinence if other treatments are not tolerated or are ineffective. Therapy may not be effective in all persons.

Selective alpha-blockers

Selective alpha-blockers (alfuzosin, prazosin, silodosin, tamsulosin) block receptors in bladder neck and urethra, which may help to reduce outflow obstruction and overflow incontinence in males with benign prostatic hypertrophy but may precipitate or worsen incontinence in women.

References
Australian Medicines Handbook 2024
Pharmaceutical Journal, January 2024.