



Overcoming the Overactive Bladder



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Presented at the University of British Columbia Urology Update, 2004

Overactive bladder (OAB) is defined as urinary urgency, with or without urge incontinence, usually with urinary frequency and nocturia, in the absence of pathologic or metabolic factors that would explain these symptoms.

The pathophysiology of OAB is poorly understood, but likely involves changes at multiple levels that control micturition (*i.e.*, brain, spinal cord, bladder muscle).

The prevalence of OAB symptoms is similar in both men and women at 15% and 21% respectively. Women, unlike men, are more likely to present with urge urinary incontinence (33% versus 15%).

Complications include not only consequences of incontinence, such as skin ulceration and urinary tract infection, but also increased fall-related fractures, impaired work productivity, social isolation and depression.

How is OAB diagnosed?

Provided that typical symptoms of OAB are present and complicating factors can be excluded, empiric treatment may be initiated with minimal diagnostic testing. Specialist referral is required for cases in which anatomic abnormality is likely (*e.g.*, outlet obstruction, previous surgery), risk factors for malignancy are present (*e.g.*, smoking, any hematuria) or a neurologic etiology is suspected.

Ursula's Urgency

- Ursula, 49, complains of frequency and urgency.
- She rarely experiences incontinence, but wears a panty liner for daily reassurance.
- She voids every two hours during the day and has nocturia three to four times if she has tea before bed.
- Her symptoms have progressed over five years to the point where they are interfering with her work as a cashier.

For more on Ursula's symptoms, go to page 72.

History should focus on characterizing the patient's urinary symptoms and specific type of incontinence (Table 1) as well as any exacerbating or risk factors. In elderly patients, specific attention should be given to cognition, mobility, medications and underlying disease factors, such as diabetes or congestive heart failure.

Physical exam should specifically include a screening neurologic exam directed by history, prostate exam in men and vaginal exam using a half-speculum in women to assess for atrophy, pelvic prolapse and stress urinary incontinence. Bladder distension and signs of congestive heart failure should be excluded.



Table 1

Incontinence and lower urinary tract symptoms

Incontinence type	Definition	Pathophysiology	Symptoms and signs
Urge	Involuntary loss of urine associated with a strong sense of urinary urgency	<ul style="list-style-type: none"> Involuntary bladder contractions Detrusor overactivity with impaired contractility Involuntary sphincter relaxation 	<ul style="list-style-type: none"> Incontinence with an abrupt and strong desire to void, usually with loss of urine en route to the bathroom Elevated postvoid residual volume Involuntary loss of urine without symptoms
Stress	Urethral sphincter failure usually associated with increased intra-abdominal pressure	<ul style="list-style-type: none"> Urethral hypermobility due to anatomic changes or defects, such as fascial detachments Intrinsic urethral sphincter deficiency 	<ul style="list-style-type: none"> Small amount of urine loss during coughing, sneezing, laughing, physical activity Continuous leak with minimal exertion
Mixed	Combination of urge and stress incontinence	<ul style="list-style-type: none"> Combination of urge and stress features above Common in women, especially older women 	<ul style="list-style-type: none"> Combination of urge and stress incontinence symptoms as above Patient finds one symptom often more bothersome than the other
Overflow	Bladder overdistension	<ul style="list-style-type: none"> Acontractile detrusor Hypotonic or underactive detrusor secondary to drugs, fecal impaction, diabetes, lower spinal cord injury, disruption of the motor innervation of the detrusor muscle In men: Secondary obstruction due to prostatic hyperplasia, prostate cancer or urethral stricture In women: Obstruction due to severe genital prolapse or surgical over-correction of urethral detachment 	<ul style="list-style-type: none"> Variety of symptoms, including frequent or constant dribbling or urge or stress incontinence symptoms, as well as urgency and frequent urination

From Fantl JA, Kaschak-Newman D, Colling J, et al: Managing acute and chronic urinary incontinence. Clinical practice guideline update. A quick reference guide for clinicians, No. 2, 1996 Update. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research. AHCPH Pub. No. 96-0686.

Basic laboratory testing is aimed at ruling out exacerbating/risk factors and should always include a urinalysis with additional investigations directed by the history and physical exam.

Catheterization or ultrasound can exclude suspected incomplete emptying. A voiding diary (Figure 1) recorded for two to seven days is extremely valuable for clarifying the type of urinary symptoms and identifying

Conditions associated with symptoms of OAB

- Advanced age
- Reduced mobility and motivation
- Neurologic (stroke, lumbosacral disc disease, dementia)
- Diabetes
- Menopause (urogenital atrophy)
- Multiple pregnancies/deliveries
- Prior surgery (anti-incontinence, prolapse, radical pelvic, pelvic radiation)
- Bladder pathology (cystitis, tumour, stones)
- Bladder outlet obstruction (urethral stricture, large cystocele)
- Increased urine production related to disease states (congestive heart failure, venous stasis, renal disease)
- Fecal impaction
- Medication use (diuretics, psychiatric medications)
- Diet (caffeine, alcohol, high-volume fluid intake)

exacerbating factors, such as fluid intake and small functional bladder capacity. Standardized questionnaires, such as the American Urological Association Symptom Index in men, the Urogenital Distress Inventory in women or the Overactive Bladder questionnaire are useful for time-efficient screening and for monitoring response to treatment.

Specialist referral is not routinely required before initiating therapy, but needs to be considered in certain cases or when an adequate trial of initial therapy fails.

How is OAB treated?

The decision to initiate therapy for OAB depends on the patient's bother from the symptoms. It is important to explain to the patient that the exact cause of OAB is not completely understood and its natural history is difficult to predict. Some patients may be satisfied with

education and reassurance and decide not to pursue active treatment.

The specific treatment for OAB is three-fold—lifestyle modification, behavioural therapy and medications. Knowledge of a patient's history and circumstances places the primary-care physician at an advantage in individualizing a therapeutic plan.

Nonpharmacologic treatment is considered first-line based on its safety and efficacy, though proper execution and long-term compliance can be a challenge. The addition of pharmacologic therapy has shown to produce improvements in OAB symptoms.

Lifestyle modification & behavioural therapy

Lifestyle modification includes reduction of fluid intake if excessive, elimination of “bladder irritants” (e.g., caffeine, alcohol, carbonated drinks) and managing constipation. Behavioural therapy includes bladder retraining (e.g., timed voiding with gradual increase in voiding interval) and behavioural training (e.g., Kegel exercises, urge suppression). These measures alone may suffice in certain patients. In patients also requiring pharmacologic therapy, adding nonpharmacologic measures improves overall treatment outcomes.

Pharmacologic treatment

The mainstay of pharmacologic therapy is antimuscarinic medications, which suppress or reduce the intensity of involuntary detrusor muscle contraction by inhibition of muscarinic receptors. Available medications in Canada



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More on Ursula

- Her fluid intake includes four cups of coffee during the day and two glasses of wine with dinner.
- There is no history of urinary tract infection, hematuria, abdominal or flank pain.
- Ursula is G2P2, perimenopausal and has bothersome vaginal dryness.
- Neurologic and gastrointestinal history are noncontributory.
- She is otherwise healthy, takes no medications and has never smoked.
- On exam:
 - bladder is nonpalpable,
 - there is mild vaginal atrophy, but no pelvic prolapse and
 - screening neurologic exam is normal.
- Urinalysis is normal.

What is Ursula's diagnosis?

- **Answer:** Overactive bladder. Symptoms are likely exacerbated by her caffeine and alcohol intake and urogenital atrophy.

include immediate release oxybutynin and tolterodine and extended release formulations of each. Efficacy is very similar between the different drugs, while the side-effect profile of the extended-release agents and immediate-release tolterodine is more favourable compared to immediate release oxybutynin.

More recently an oxybutynin patch has become available and achieves similar efficacy while avoiding first-pass metabolism and production of the oxybutynin metabolite responsible for many of the side-effects.

Tricyclic antidepressants (TCA) have multiple effects on the lower urinary tract that are not completely understood. Although not approved specifically for the treatment of OAB by the U.S. Food and Drug Administration, TCAs are used as second-line pharmacologic therapy for OAB and may be useful in patients with a predominance of nocturia.

Symptomatic urogenital atrophy should be treated before initiating OAB treatment and there is some evidence that estrogen replacement (particularly vaginally) may improve OAB symptoms by a direct effect on the lower urinary tract.

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Instructions: Record the times you have urinated, leaked or drank fluid. Measure voided volumes in the "hat" provided. Indicate the reason for any leakage episodes (*i.e.*, urgency, cough) and estimate the volume leaked. Also describe your liquid intake (*i.e.*, coffee, water) and estimate the amount (*i.e.*, one cup).

Urination and leakage episodes					Liquid intake		
Time of day	Volume voided	Leakage?	Reason for leakage	Leak volume: 1=Drops 2=Wet-soaked 3=Bladder emptied	Time of day	Liquid intake volume	Type of liquid

Number of pads used: Day _____ Overnight _____

Figure 1. Voiding diary.