

Frequently asked questions in the evaluation and management of overactive bladder

Educational Objectives

At the conclusion of this activity, participants should be able to:

- Review the prevalence and pathophysiology of overactive bladder (OAB) and barriers that may exist to the diagnosis and evaluation of patients with OAB
- Discuss the role of behavioral therapy in the management of overactive bladder and optimizing outcomes in the management of overactive bladder
- Recognize when referral to a urologist is appropriate and be aware of the options that a urologist may present to patients for refractory OAB

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Primary care physicians (PCPs), obstetricians-gynecologists who function as PCPs for their patients, general urologists, nurse-practitioners, and physician assistants.

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AN EXPERT PANEL INTERVIEW

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Urology University CME

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The International Continence Society (ICS) defines overactive bladder (OAB) as a symptom syndrome consisting of urgency with or without urgency urinary incontinence (UUI), often associated with urinary frequency and nocturia.^{1,2} These symptom combinations are suggestive of urodynamically demonstrable detrusor overactivity but can be related to other forms of urethrovesical dysfunction.

Despite high prevalence rates, OAB remains underdiagnosed and undertreated. First-line therapies for the management of OAB are behavioral therapy and pharmacologic therapy, ideally used in combination. Antimuscarinic agents are the mainstay of pharmacologic therapy. Despite the effectiveness of these agents, persistence with therapy remains low. Patient education, behavioral interventions, and effective management of side effects may allow patients to achieve more satisfactory outcomes with OAB therapy and improve persistence.

To address these issues, Urology University CME faculty experts—Pamela I. Ellsworth, MD, Stephen A. Brunton, MD, Allen J. Wein, MD, PhD (Hon), and Eric S. Rovner, MD—answer some commonly asked questions about OAB, its etiology and prevalence, evaluation and management of OAB, and how to optimize treatment outcomes.

Rates of OAB are similar in men and women and increase dramatically with age.

UROLOGY UNIVERSITY: If so many adults have OAB, why are so few primary care providers seeing them in the office?

DR BRUNTON: Epidemiologic studies have shown that prevalence rates for OAB range from 11.8% to 16.9%; rates of OAB are similar in men and women and increase dramatically with age.^{3,4} It is estimated that as many as 33 million adults in the United States have symptoms of OAB.⁴

Despite the personal and social impact and costs related to OAB, it is a condition that remains underreported and undertreated.^{2,4} In fact, one population-based prevalence study showed that only 60% of individuals with OAB symptoms seek treatment, and only 27% receive treatment⁵—a statistic that may be related to multiple factors, including lack of significant bother.

A number of patient- and physician-related causes contribute to the lack of identification of patients with OAB. Many patients are reluctant to seek medical help for OAB and urinary incontinence because of the social stigma and the misconception that urinary incontinence is a normal consequence of aging.⁶ Many individuals are not aware that effective medical therapy is available and therefore do not seek treatment.^{3,5} Also, not all individuals are bothered by their symptoms, and not all individuals with OAB wish to be treated or need to be treated.^{7,8} Others choose not mention their OAB symptoms to a clinician for fear that assessment and treatment will cause more discomfort than the symptoms themselves.⁹

Without active screening by a health care provider, many cases of OAB may go unnoticed. Often, however, primary care providers (PCPs) are daunted by the thought of having yet one more condition to screen. The misconception that OAB is difficult to evaluate and treat may lead some PCPs to avoid asking screening questions. When patients come into the family practice office, it is important to ask specifically about the degree of bother related to frequency of urination, nocturia, and urgency. I find it helpful to assess bother using a 5-point Likert scale (1 = no bother, 5 = constant bother) when screening for OAB symptoms. If the symptoms are not of sufficient concern to the patient, then it may be prudent not to aggressively manage this condition.

A variety of questionnaires can be used to assess the degree of bother and the impact of OAB on an individual's quality of life. The OAB Questionnaire (OAB-q) and the OAB Questionnaire Short Form (OAB-q SF), developed by Pfizer, are designed to assess symptom bother and health-related quality of life (HRQoL) in patients with OAB, regardless of continence status. The OAB-q includes an 8-item symptom bother scale and 25 HRQoL items that assess coping, concern, sleep, and social interaction.¹⁰ The OAB-q SF includes a 6-item symptom bother scale and 13 HRQoL items.¹¹ As reviewed by Matza et al,¹² a number of other validated questionnaires are available to assess bother and QOL effects in patients with OAB symptoms.

Asking a patient to use a bladder diary to track his or her fluid intake and voiding can also be helpful in identifying patients with OAB (see sample diary at www.urology-

universitycme.com/screening_tools.asp).² Furthermore, one may be able to identify coping mechanisms and dietary issues that exacerbate OAB symptoms (TABLE 1).

Men are often undertreated because many clinicians place emphasis on evaluating and managing the obstructive component (voiding symptoms) of lower urinary tract symptoms (LUTS) and are less comfortable treating persistent storage symptoms.

Tools are available to facilitate screening and therapeutic management, and heightened awareness among PCPs and patients about the magnitude and impact of OAB can lead to improved patient outcomes.

UROLOGY UNIVERSITY: Does OAB have multiple causes? Why do some patients have urgency incontinence while others remain dry?

DR WEIN: One can look at this as either one continuous question or two separate questions. I will try to combine the answers.

To understand what the “causes” of OAB might be, one has to look very carefully at the definition of OAB. As noted earlier, ICS defines OAB as “urgency, with or without urge incontinence, usually with frequency and nocturia...if there is no proven infection or other obvious pathology.”^{1,2} It is a symptom syndrome suggestive of lower urinary tract dysfunction.

The original goal of the terminology was to describe a common condition in a brief, physician-friendly manner, implying that OAB is an empiric diagnosis that can be used as the basis for initial management. The diagnosis would be made after assessing the individual’s LUTS, physical findings, urinalysis, and other investigations, without complicated, extensive, or invasive studies.^{13,14} To fully understand the global definition of OAB, one must understand the definition of its component parts (FIGURE 1).²

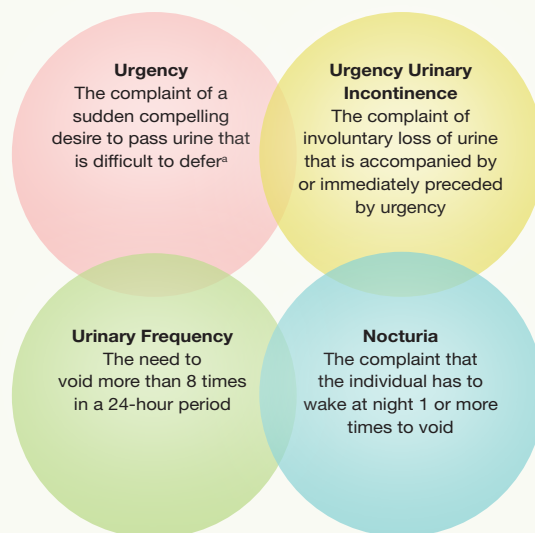
One potential point of confusion is that the term *OAB* should be used only if there is no proven infection or other obvious pathology. Thus, there are constellations of symptoms and conditions that can cause the symptoms of OAB but do not actually meet the technical definition of OAB as defined by the ICS.

Strictly speaking, the “causes” of OAB need to satisfy the definition, and therefore the “causes” need to fall under one or a combination of possible pathophysiologies currently proposed for the condition. These can be divided roughly into neurogenic and idiopathic (nonneurogenic) causes, but with the caveat that some (or perhaps many) cases of “idiopathic” OAB may in fact have an as-yet un-

TABLE 1
Coping mechanisms and dietary issues that exacerbate OAB symptoms

EXACERBATING FACTOR	EFFECT
Defensive voiding	Number of voids increased
Fluid restriction	Concentrated urine acts as bladder irritant
Evening fluids	Nocturia exacerbated
Caffeinated beverages and foods (eg, coffee, tea, cola, chocolate)	May act as diuretic and bladder irritant
OAB, overactive bladder.	

FIGURE 1
Components of OAB



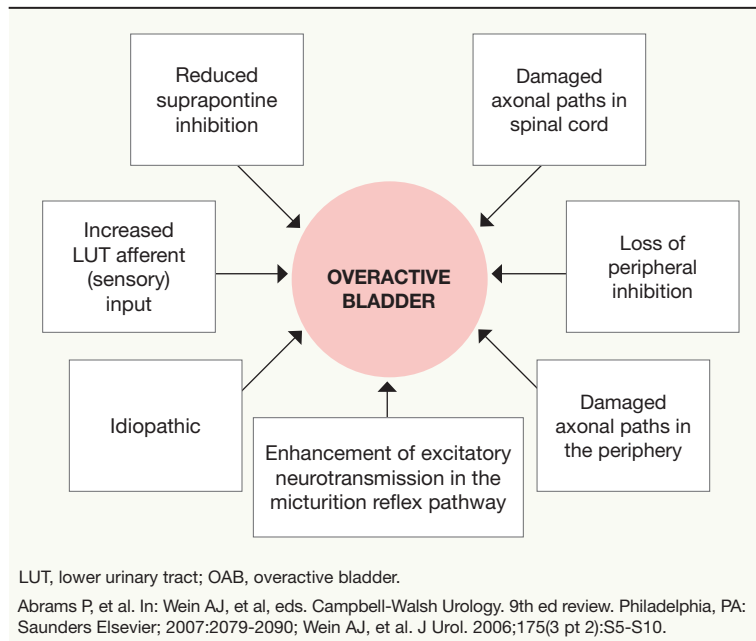
^aOlder definition included “for fear of leakage.”

Abrams P, et al. *Neurourol Urodyn*. 2002;21:167-178.

recognizable source emanating from the efferent or afferent side of the nervous system. The currently accepted pathophysiologies can broadly be grouped, as shown in FIGURE 2.^{14,15}

Unfortunately, the current definition of OAB is not perfect, and this limits our ability to describe the causes of OAB as being distinct from the causes of symptoms suggestive of OAB. For instance, the term *urgency* as the sine qua non of the diagnosis eliminates what we used to call “reflex incontinence”—the type of incontinence that occurs in a patient with spinal cord injury who has no sensation but experiences involuntary bladder contractions. The definition also omits leakage owing to involuntary bladder contractions in an individual with cerebral neurologic disease who simply does not have a sensation of urgency with leakage due to detrusor overactivity (the ICS

FIGURE 2
Multiple pathophysiologies of OAB



term for an involuntary bladder contraction).²

The ICS definition also places certain patients in limbo—those who have bladder outlet obstruction (BOO) and those whose OAB symptoms, it is assumed either rightly or wrongly, are in some way related to the BOO.² Many times these symptoms are relieved by correction of BOO, especially via surgical intervention. In this latter example, one could argue whether the BOO represents “other obvious pathology” or not.

The gamut of easily recognizable “OAB” and those conditions that can cause symptoms suggestive of OAB but that fall under the classification “other obvious pathology” are discussed elsewhere in this supplement (see “What conditions causing and/or mimicking OAB symptoms should I be aware of when assessing patients?” on page S5).

Urgency may or may not be associated with UUI. In a US telephone survey conducted under the NOBLE (National Overactive BLadder Evaluation) Program, 37% of individuals with OAB reported having some urinary incontinence (OAB “wet”) and, accordingly, 63% did not (OAB “dry”).⁴ It has been reported that, among individuals with OAB, more women experience incontinence than do men. In NOBLE, the overall prevalence of OAB wet was 9.3% in women and 2.4% in men; in contrast, OAB dry was reported by 7.6% of women and 13.6% of men.⁴ European results from the EPIC Study showed that within the population of patients with OAB,

45.5% of women and 26.0% of men had some type of incontinence (including urgency UI, stress UI, mixed UI, and other).¹⁶

Why some individuals have UUI while others simply have urgency is a question that has not been fully answered. It would be logical to assume that those individuals who have adequate warning (ie, urgency occurs before or at the onset of an involuntary bladder contraction) and who can suppress or abort the involuntary contraction—primarily by contracting the pelvic floor musculature to (1) voluntarily close the bladder outlet by contraction of the striated sphincter, and (2) inhibit the micturition reflex via the afferent impulses that result from this contractile activity—will stay “dry.” It is believed that in men, the prostate is somehow “protective” against UUI to a certain extent because it adds to the over-

all outlet resistance, thereby making it more difficult for the individual to “leak” unless there is a very strong involuntary bladder contraction or one that occurs with outlet relaxation.

UROLOGY UNIVERSITY: If a woman complains of OAB symptoms, how do I determine if she has OAB?

DR ELLSWORTH: The goals of the evaluation of a patient presenting with OAB symptoms are first to confirm that the patient’s symptoms are consistent with OAB, and second to rule out other conditions that could cause or mimic OAB.²

The evaluation (TABLE 2) starts with a history identifying the onset and severity of OAB symptoms as well as an assessment of bother. A bladder diary is helpful in assessing the patient’s symptoms and determining volume and type of fluid intake. The patient’s medical conditions and current medications must be assessed, because some conditions and medications (such as diuretics) may cause and/or exacerbate OAB symptoms (please see Dr Wein’s response to the question, “What conditions causing and/or mimicking OAB symptoms should I be aware of when addressing patients?” below). Similarly, it is important to determine whether the patient has undergone prior pelvic surgery or radiation, since these procedures may result in LUTS.

The physical examination in women includes a fo-

cused neurologic examination, an abdominal examination (to assess for distended bladder and abdominal masses), and a pelvic examination (to evaluate pelvic floor support, identify cystocele, rule out pelvic masses, and assess for urethral mobility and stress urinary incontinence).

Laboratory testing is minimal: A urinalysis rules out pyuria (suggestive of a urinary tract infection [UTI] or stone), hematuria (for which further evaluation to rule out stones and bladder cancer is indicated), decreased specific gravity (suggestive of a concentrating defect), and glucosuria (suggestive of underlying diabetes mellitus). Further laboratory evaluation will depend on the patient's history.

A postvoid residual (PVR) assessment is not necessary in most women; however, in women with significant pelvic organ prolapse or a prior history of pelvic surgery, or women who complain of troubles emptying their bladder, a sensation of incomplete emptying, or a poor stream, it is useful. Although no universally accepted cutoff has been established for "elevated PVR," many clinicians use a PVR volume of ≥ 100 mL as the criterion to define incomplete emptying. Others would argue that a percentage of bladder capacity (eg, 25% to 33%) may be a more appropriate indicator. In the elderly, a PVR volume of 150 mL to 200 mL or greater is often considered significant. For a practical discussion of PVR measurement and its uses, see Kelly's 2004 article in *Reviews in Urology*.¹⁷ Rarely is further diagnostic testing indicated. One should also evaluate bowel function to determine whether the patient has underlying constipation, as this condition may aggravate bladder symptoms and affect tolerability of medical therapy.

UROLOGY UNIVERSITY: Is further evaluation needed in men with OAB symptoms?

DR ELLSWORTH: In men presenting with symptoms of OAB, the initial evaluation is the same as that performed in women. However, a bladder scan PVR is more commonly performed in men. It is helpful for men who have voiding-phase symptoms, particularly those with a sensation of incomplete emptying and/or straining to void. In ad-

TABLE 2
Evaluation of women with OAB symptoms

✓	Patient history	<ul style="list-style-type: none"> Identify onset, severity of symptoms^a Assess bother
✓	Review medical conditions, current medications, past surgery	<ul style="list-style-type: none"> Certain conditions/medications cause and/or exacerbate OAB symptoms Pelvic surgery or radiation may result in LUTS
✓	Physical exam	<ul style="list-style-type: none"> Focused neurologic exam Abdominal exam <ul style="list-style-type: none"> Bladder distention? Abdominal masses?
✓	Pelvic exam	<ul style="list-style-type: none"> Evaluate pelvic floor support Identify cystocele Rule out pelvic masses Assess for urethral mobility and SUI
✓	Urinalysis	<ul style="list-style-type: none"> Rule out pyuria, hematuria, decreased specific gravity, glucosuria
✓	Postvoid residual	<ul style="list-style-type: none"> Useful in women with: <ul style="list-style-type: none"> Neurologic disease Significant pelvic organ prolapse History of pelvic surgery Bladder emptying difficulty Sensation of incomplete emptying Poor stream
✓	Bowel function	<ul style="list-style-type: none"> Identify underlying constipation

LUTS, lower urinary tract symptoms; OAB, overactive bladder; SUI, stress urinary incontinence.

^aUse a bladder diary, when possible.

dition, PVR can be assessed by pelvic ultrasound prevoid and postvoid or via catheterization.

The American Urological Association has recently changed its clinical practice guidelines regarding prostate cancer screening and now supports prostate-specific antigen (PSA) and digital rectal examination (DRE) in men starting at age 40.¹⁸ If a baseline PSA has not been obtained within the past year, one should be performed if the patient wishes to undergo prostate cancer screening and has an anticipated life span of 10 or more years. At this time, baseline PSA screening at age 40 has not been adopted by other organizations, including the US Preventive Services Task Force, and thus is considered controversial.¹⁹

UROLOGY UNIVERSITY: What conditions causing and/or mimicking OAB symptoms should I be aware of when assessing patients?

DR WEIN: Remember that the strict definition of OAB is "urgency, with or without urge incontinence, usually with frequency and nocturia...if there is no proven infection or other obvious pathology."² Thus, the term *overactive bladder* refers to idiopathic OAB, and the goal of the evaluation

TABLE 3
Conditions that may cause or mimic OAB symptoms

✓	UTI
✓	Vaginal prolapse
✓	Urethral obstruction, including BOO, in men
✓	Bladder neck or urethral stenosis or postsurgical urethral obstruction in women
✓	Atrophic vaginitis
✓	Bladder cancer or carcinoma in situ
✓	Interstitial cystitis
✓	Diabetes (increases urine output)
✓	Congestive heart failure (daytime vascular pooling with reabsorption in the evening leading to nocturia)
✓	Medications or diuretics causing increased urine output or transiently increased urine output
✓	Neurogenic LUT dysfunction ^a
✓	Miscellaneous etiologies: bladder calculi, prostate cancer (uncommon), delirium/confusion, depression, dementia, restrictive mobility, near constipation or stool impaction

BOO, bladder outlet obstruction; LUT, lower urinary tract; OAB, overactive bladder; UTI, urinary tract infection.

^aCauses include but are not limited to stroke; brain tumor; Parkinson's disease; multiple sclerosis; spinal cord injury, disease, or tumor; myelodysplasia/myelomeningocele; diabetic neuropathy; and neurologic damage/dysfunction due to pelvic surgery.

is to identify possible conditions that cause or mimic OAB (TABLE 3).

UROLOGY UNIVERSITY: Are any patients with OAB symptoms better served by referral to a urologist for evaluation and management?

DR ROVNER: This is an interesting and controversial question. I suppose that there are some urologists who would like to see all the patients with OAB. However, in most busy urology practices, this is not feasible. In truth, OAB is such a highly prevalent condition that if urologists saw all of these individuals, they would be swamped and have no time to see the rest of their patients.

Having said that, there certainly are patients who would be best served by seeing a urologist. These are patients with LUTS suggestive of OAB but who have another cause of their symptoms (see "What conditions causing and/or mimicking OAB symptoms should I be aware of when assessing patients?" on page S5). The big question is, how can we identify these patients? There are several groups who can be identified for referral based on history, physical examination, or urinalysis (TABLE 4).²⁰

Patients who have failed primary therapy for OAB are difficult to classify accurately, since there is no universally

agreed upon definition of "refractory" or even "failed" therapy. The definition ultimately comes from the individual patient when he or she has had an adequate trial of conservative therapy, including pharmacologic therapy, and decides that he or she is willing to move on to a more invasive therapeutic option such as neuromodulation or surgery.

UROLOGY UNIVERSITY: Are there nonmedical therapies that I can offer to my patients who don't wish to take medication?

DR ELLSWORTH: Yes. Behavioral therapy is an alternative and/or complement to pharmacologic therapy. The goal of behavioral therapy is to improve bladder control through systematic changes in patient behavior and environmental conditions.²¹

Patient education is a key component of the successful management of OAB. For instance, it is important for patients to understand the normal function of the bladder and pelvic floor muscles and to recognize normal voiding habits. Similarly, patients need to know that medical and behavioral management of OAB can improve but does not cure symptoms, and that OAB tends to be a chronic condition, although it may be intermittent in some individuals.

TABLE 5 lists a number of behavioral treatment options for OAB.^{21,22} Over the past 3 decades, numerous studies have demonstrated that outpatient behavioral therapy is effective in reducing UUI episodes.^{21,23-35} Behavioral treatment was recommended by the Agency for Health Care Policy and Research as a first-line therapy for urinary incontinence in adults.²² Pharmacologic therapy is also a first-line option for the management of patients with OAB, particularly in combination with behavioral therapy.

Behavioral therapy requires a motivated patient. In addition, patients must be able to ambulate without difficulty, be able to identify and properly contract their pelvic floor muscles, and be willing to commit to a continuous regimen.

Behavioral therapy may be used as monotherapy in those patients for whom pharmacologic therapy is not indicated or for those who wish to refrain from pharmacologic therapy. Burgio et al have demonstrated, however, that the combination of behavioral therapy and antimuscarinic therapy is superior to monotherapy.³⁶ In a conditional crossover design, patients who were not completely satisfied with behavioral treatment were offered drug therapy to supplement behavioral therapy. Those not completely satisfied with drug therapy were offered behavioral therapy in addition to their drug regimen for an additional 8 weeks.

Bladder diaries showed significant clinical improvement—from a mean 57.5% reduction of incontinence after behavioral therapy alone to a mean of 88.5% overall reduction after the addition of oxybutynin ($P=.034$). Among those patients who first started on drug therapy and added behavioral therapy, bladder diaries demonstrated added improvement—from a mean 72.2% reduction of incontinence after drug therapy alone to a mean 84.3% overall reduction with combined therapy ($P=.001$).³⁶

The combination of behavioral therapy and antimuscarinic therapy is superior to monotherapy.

UROLOGY UNIVERSITY: There are so many OAB medications available. How do I choose between them? Are they all the same?

DR ROVNER: There are indeed many OAB medications, but this is similar to other therapeutic drug classes such as antihypertensive agents and antidepressants, in which a multitude of choices are available. In these other therapeutic areas, subtle differences may allow choices among products. With regard to pharmacotherapy for OAB, differences in efficacy, tolerability, and safety may allow some differentiation, although the lack of head-to-head studies limits direct and accurate comparisons among agents. Nevertheless, differences do certainly exist, but the basis for these differences is not well understood. The differences may be related to muscarinic receptor selectivity, metabolic pathways, urinary excretion and local effects, molecular size, and polarity, as well as other factors. For example, several agents have been studied with respect to potential safety issues, including cognitive impairment, cardiovascular side effects, and drug-drug interactions.³⁷⁻⁴³ These agents might be used preferentially in those populations at increased risk for such problems.

When selecting an antimuscarinic drug—particularly for use in an elderly patient—special consideration should be given to the potential for anticholinergic side effects. The impact of anticholinergic agents on memory and cognitive function is influenced by both drug- and patient-specific factors. For example, the central nervous system effects caused by antimuscarinics vary depending on a drug's ability to penetrate the blood-brain barrier. Patient-specific

TABLE 4
Who should be referred to a urologist?

SPECIALIST REFERRAL IS APPROPRIATE FOR PATIENTS WHO HAVE:

✓	Abnormal urinalysis (eg, unexplained hematuria, pyuria)
✓	Potentially neurogenic bladder with spinal cord injury, CVA, PD, MS, spina bifida, and others
✓	Prior LUT surgery (eg, anti-incontinence surgery, vaginal prolapse surgery)
✓	Prior radical pelvic surgery (eg, radical hysterectomy, prostatectomy, abdominoperineal resection)
✓	A history of treated or untreated pelvic malignancy (eg, prostate, bladder, colon, gynecologic), and especially those who have had radiation therapy
✓	Poor bladder emptying (eg, symptoms such as straining to void and/or sensation of incomplete emptying, or increased PVR)
✓	Recurrent UTI
✓	Pelvic, bladder, urethral, or vaginal pain
✓	Significant pelvic organ prolapse
✓	Abnormalities of the prostate (abnormal on DRE and/or elevated PSA)
✓	Poor or no response to primary therapy for OAB ^a

CVA, cerebrovascular accident; DRE, digital rectal examination; LUT, lower urinary tract; MS, multiple sclerosis; OAB, overactive bladder; PD, Parkinson's disease; PSA, prostate-specific antigen; PVR, postvoid residual; UTI, urinary tract infection.

^aThese patients would be classified as having refractory OAB and may wish to have a consultation for invasive therapy (eg, neuromodulation).

Rovner ES, et al. *Womens Health Primary Care*. 2000;3:117-126.

ic factors are often related to age or the presence of comorbidities and can include changes in drug metabolism rate, blood-brain barrier integrity, number and distribution of muscarinic receptors, age-related deficits in neurotransmission, use of other medications with anticholinergic side effects, and preexisting cognitive dysfunction.⁴⁴ (A detailed discussion of special considerations for managing OAB in the elderly population can be found in E-newsletter #2 at www.UrologyUniversityCME.com.)

Dosing of the various agents also offers some differentiation. The majority of antimuscarinic agents are available as extended-release formulations, which offer a distinct advantage over their immediate-release precursors with respect to efficacy and tolerability.⁴⁵ Certain agents must be dosed on an empty stomach, while others do not have this requirement. Some offer flexible, wide-ranging dosing options, whereas others do not. Finally, those patients who would like an alternative to a pill formulation may prefer a patch or gel formulation.⁴⁶

UROLOGY UNIVERSITY: Persistence with OAB medications seems to be quite low. Why is adherence a problem?

TABLE 5
Components of behavioral therapy for patients with OAB

COMPONENT	GOAL / PURPOSE
✓ Education	<ul style="list-style-type: none"> • Understand normal bladder function • Be aware of normal voiding habits • Set realistic expectations for treatment outcomes
✓ Dietary modification	<ul style="list-style-type: none"> • Ensure adequate hydration • Avoid caffeinated, carbonated, or spicy foods and fluids if they affect the bladder
✓ Bladder drill and bladder training	<ul style="list-style-type: none"> • Increase voiding intervals, teach strategies to cope with urgency <ul style="list-style-type: none"> - Resist sensation of urgency - Postpone urination - Gradually increase voiding intervals
✓ Timed voiding	<ul style="list-style-type: none"> • Teach patients to void at regular intervals to preempt UUI episodes
✓ Pelvic floor muscle training and exercise	<ul style="list-style-type: none"> • Alter physiologic responses of bladder and pelvic floor muscles • Teach patients to inhibit bladder contractions using pelvic floor muscle contractions and other urgency-suppression strategies • Reduce or eliminate bladder spasms by using “quick flicks” (quick, repeated contractions of pelvic floor muscles); particularly useful for inhibiting detrusor overactivity/urgency (as opposed to protracted contractions, which are more useful for SUI prevention)

OAB, overactive bladder; SUI, stress urinary incontinence; UUI, urgency urinary incontinence.
Burgio KL. *Urology*. 2002;60(5 suppl 1):72-77; Fantl A, et al. *AHCPR*; 1996. Publication No. 96-0682.

DR BRUNTON: Although antimuscarinic drug therapy has been shown to improve the symptoms of OAB, persistence is poor, with patients adhering to their prescribed treatment regimens for approximately 3 months on average.⁴⁷ Various factors, including unrealistic expectations about time to symptom relief, patients’ dietary intake, use of coping mechanisms that have a negative impact, drug cost, and adverse side effects, may all influence adherence.

Because of the chronic nature of OAB, it is essential that medication be taken as prescribed. Adherence to the treatment regimen has been shown to be a critical predictor of outcomes in chronic conditions. When persistence with long-term treatment is required, adherence becomes even more difficult. Medication should also be accompanied by appropriate education and behavioral therapy.

Identifying the patient’s expectations regarding treatment and setting realistic goals is important. Some patients have hopes of improving within 1 week of treatment initiation. It is important to let patients know that continuing on the treatment plan for at least 4 weeks will allow us to evaluate whether symptoms are improving. It is also important to discuss what is viewed as symptom improvement. Treatment success for the patient may be a reduction of 1 or 2 urinations a day. Another important teaching

point for patients is that these medications can certainly improve symptoms, but to cure them is rare.

Managing patient expectations also involves education regarding the types of side effects that occur with treatment and how patients can manage them. Despite advances in recent years in the tolerability and efficacy of OAB medications, side effects such as dry mouth and constipation are still a problem. **TABLE 6** shows the adverse effects associated with approved antimuscarinic therapies compared with placebo and the drug-to-placebo ratio. This information is taken from the information reported from phase 3 clinical trials as reported in the prescribing information for these agents.⁴⁸ Although not statistically validated, the drug/placebo ratio allows clinicians to compare data between the drugs in the absence of head-to-head trials.

If patients with OAB are to be treated effectively, tolerability issues must be addressed with education and understanding.⁴⁹ Clinicians need to be proactive and provide patients with strategies to manage and/or prevent possible side effects. These methods include fiber supplementation, adequate fluid intake, and laxative use for constipation, and salivary pastilles, mouthwashes, and sugar-free candy for dry mouth. Comorbid conditions and concomitant drugs should also be taken into account, because a patient may have underlying constipation or dry mouth related to use of other medications (eg, diuretics or other agents with anticholinergic properties). PCPs play a crucial role in educating patients on the various side effects of these agents and how to proactively prevent or manage them.

UROLOGY UNIVERSITY: How long should I keep a patient on an antimuscarinic agent before deciding whether it is going to improve the patient’s symptoms?

DR BRUNTON: Improvement over time is the goal of any therapeutic intervention for OAB. Measuring a patient’s perception of improvement over time can assist in determining whether a patient’s symptoms are diminishing. Responses to the Patient Global Impression of Improvement (PGI-I) questionnaire have been shown to correlate significantly with measures of symptom severity, includ-

TABLE 6
Adverse effects of antimuscarinic agents used for OAB^a

DRUG ^b	AE	DRUG AE, %	PBO AE, %	DRUG: PBO RATIO
Darifenacin				
7.5 mg	Dry mouth	20.2	8.2	2.5
	Constipation	14.8	6.2	2.4
	Dizziness	0.9	1.3	0.7
15 mg	Dry mouth	35.3	8.2	4.3
	Constipation	21.3	6.2	3.4
	Dizziness	2.1	1.3	1.6
Fesoterodine				
4 mg	Dry mouth	18.8	7.0	2.7
	Constipation	4.2	2.0	2.1
	Insomnia	1.3	0.5	2.6
8 mg	Dry mouth	34.6	7.0	4.9
	Constipation	6.0	2.0	3.0
	Insomnia	0.4	0.5	0.8
Oxybutynin 10% gel	Dry mouth	7.5	2.8	3.3
	Constipation	1.3	NR	–
	Application-site reaction	5.4	1.0	5.4
	Dizziness	2.8	1.0	2.8
Oxybutynin transdermal	Dry mouth	9.6	8.3	1.2
	Constipation	3.3	0	–
	Application site: Pruritus	16.8	6.1	2.8
	Erythema	5.6	2.3	2.4
Solifenacin				
5 mg	Dry mouth	10.9	4.2	2.6
	Constipation	5.4	2.9	1.9
	Dizziness	1.9	1.8	1.1
	Blurred vision	3.8	1.8	2.1
10 mg	Dry mouth	27.6	4.2	6.6
	Constipation	13.4	2.9	4.62
	Dizziness	1.8	1.8	1.0
	Blurred vision	4.8	1.8	2.7
Tolterodine IR 2 mg twice daily	Dry mouth	35	10	3.5
	Constipation	7	4	1.8
	Dizziness	5	3	1.7
Tolterodine ER 4 mg	Dry mouth	23	8	2.9
	Constipation	6	4	1.5
	Headache	6	4	1.5
	Dizziness	2	1	2.0
	Abnormal vision	1	0	–
Tropium IR	Dry mouth	20.1	5.8	3.5
	Constipation	9.6	4.6	2.1
	Headache	4.2	2.0	2.1
Tropium ER	Dry mouth	10.7	3.7	2.9
	Constipation	8.5	1.5	5.7
	Dry eyes	1.6	0.2	8.0

AE, adverse effect; ER, extended release; IR, immediate release; LA, long-acting; NR, not reported; OAB, overactive bladder; PBO, placebo.

^aCompiled from prescribing information for medications listed.

^bOxybutynin IR and ER not included, as prescribing information reports AEs from multiple doses.

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ing frequency of urinary incontinence episodes and a stress pad test.⁵⁰ Also, reviewing bladder diary entries over time will help to identify behavioral changes and evaluate the effect of treatment on OAB symptoms.

Studies assessing the effect of antimuscarinic agents on OAB symptoms have demonstrated a response to treatment as early as 1 week after starting medical therapy. However, this response continues to improve for as long as 4 to 12 weeks of therapy. Thus, it is important to give patients sufficient time on therapy to assess their outcome. Ideally, for a patient who is naïve to antimuscarinic therapy for OAB, a minimum of 4 weeks should be the time frame for evaluating symptom response. In individuals who are not naïve to antimuscarinic therapy, one might consider an earlier assessment. Typically, if a patient has not experienced an adequate response by 4 weeks on medical

Treatment success for the patient may be a reduction of 1 or 2 urinations a day.

therapy, but he or she is tolerating the agent, an increase to a higher dose is warranted—provided the drug is available in multiple dosages.

UROLOGY UNIVERSITY: If a patient fails to respond to one medication or experiences intolerable side effects, is it worth trying another medication? Or should the patient be referred to a urologist?

DR BRUNTON: If a patient does not respond to an agent with only 1 dosage but is tolerating the medication, switching to an antimuscarinic agent with dose flexibility would be recommended.

Individuals who do not respond to 1 antimuscarinic agent may benefit from a trial of another antimuscarinic, particularly an agent with dose flexibility. Before progressing to second-line therapies for the management of OAB, it is recommended that an alternative antimuscarinic agent

be initiated, except when contraindicated.

DR. ROVNER Although referral to a urologist may ultimately be necessary, a switch of agents may be attempted as a reasonable next step. For reasons that are entirely unclear but perhaps are related to pharmacogenomic factors, metabolism differences, or other factors, individuals may respond favorably or unfavorably to a switch of antimuscarinic agents. For example, intolerable dry mouth may result in discontinuation of therapy from 1 agent, but a switch to another agent or a reduction in dosage may result in a reasonable therapeutic index. Alternatively, lack of efficacy from an agent that is available only as a single-dose formulation may not constitute an adequate antimuscarinic trial, and a switch to a flexible-dose agent that allows upward titration may result in a therapeutic success. Thus, failure to respond to 1 of these agents may not necessarily imply that all agents will fail, and a trial of an alternative agent may be warranted.^{51,52}

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Disclosures

In accordance with the disclosure policy of the Warren Alpert Medical School of Brown University as well as standards set forth by the Accreditation Council for Continuing Medical Education, all speakers and individuals in a position to control the content of a CME activity are required to disclose relevant financial relationships with commercial interests (within the past 12 months). Disclosures of this activity's speakers and planning committee have been reviewed and all identified conflicts of interest, if applicable, have been resolved.

Pamela I. Ellsworth, MD, is a consultant for Pfizer Inc and Allergan, Inc.; she is a speaker for Pfizer Inc; she has participated in speaker training for Novartis Pharmaceuticals Corporation; and she has participated in clinical research studies sponsored by Novartis Pharmaceuticals Corporation and Pfizer Inc.

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The Evaluation and Management of Overactive Bladder

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PLEASE CIRCLE OR CHECK THE CORRECT ANSWER TO EACH QUESTION.

- In the evaluation of overactive bladder (OAB), which of the following is false?**
 - The evaluation is hindered by patient and physician barriers
 - A bladder diary is helpful in evaluating severity of symptoms, assessing fluid intake, and monitoring treatment
 - A urinalysis is needed only for those individuals with symptoms of a urinary tract infection (UTI)
 - The evaluation may require further urologic evaluation in select cases such as those individuals with hematuria, a history of recurrent UTIs, or prior pelvic reconstructive surgery
- The initial evaluation of men with OAB should include all of the following except:**
 - Digital rectal examination, with evaluation of prostate size and nodules
 - Postvoid residual determination
 - in those men with obstructive symptoms
 - Offering PSA screening to those men who are interested and would benefit from screening
 - Specialist referral, because evaluation should be performed only by a urologist
- Management of OAB includes all of the following except:**
 - Setting appropriate treatment expectations
 - Proactively managing potential side effects of medical therapy
 - Use of pharmacologic therapy alone, behavioral therapy alone, or a combination as first-line therapies
 - Referral to urologist if trial of a single antimuscarinic agent fails
- With respect to pharmacologic therapies for OAB, which of the following is false?**
 - Differences in dose flexibility exist among the approved agents
 - Extended-release formulations have an advantage over their immediate-release precursors with respect to efficacy and tolerability
 - Efficacy differences among drugs have been demonstrated in multiple head-to-head trials
 - Differences in metabolism exist among the available agents
- Which of the following patients can easily be evaluated and managed in a primary care setting and does not need referral to a urologist?**
 - A 60-year-old woman with a prior history of vaginal prolapse surgery
 - A 47-year-old woman with chronic pelvic pain
 - A 52-year-old man with a history of gross hematuria
 - A 50-year-old woman with OAB symptoms of 2 years duration with no prior therapy



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Diane K. Newman, RCN, MSN, CRNP, FAAN
Co-Director
Penn Center for Continence and Pelvic Health
Division of Urology
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Learning Objectives

- Recognize the foremost challenges in the evaluation and management of OAB
- Ask appropriate screening questions of men and women at risk for OAB
- Describe the role of behavioral therapy in the management of OAB
- Integrate behavioral and pharmacologic therapy to improve health outcomes for patients with OAB

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