Diagnosis and Treatment of Overactive Bladder
Case Study and Commentary, Eric S. Rovner, MD

Abstract
- **Objective:** To review the diagnosis and treatment of overactive bladder (OAB).
- **Methods:** Qualitative assessment of the literature.
- **Results:** OAB syndrome is a highly prevalent disorder that remains vastly underreported. Typical symptoms include urinary frequency, urinary urgency, and urinary urge incontinence. Symptoms can be disruptive and impair quality of life. Behavioral therapy is the cornerstone of treatment and consists of patient education, fluid and dietary management, timed voiding or bladder training, pelvic floor exercises, and voiding diary. Antimuscarinic medication remains the most commonly prescribed drug treatment and results in statistically significant improvement in symptoms. Dry mouth is a common side effect. Combining behavioral and pharmacotherapy appears to give superior symptom relief than either treatment alone.
- **Conclusion:** Most patients with OAB do not seek treatment and are not aware that their condition is treatable. It is important for physicians to be able to identify and treat this disorder.

The overactive bladder (OAB) is a highly prevalent disorder that impacts the lives of millions of people worldwide. Despite its high prevalence, most sufferers do not seek medical attention and are not aware that OAB is treatable. OAB remains vastly underreported and its sufferers untreated. OAB remains a “closet disorder.”

The exact origin of the term “overactive bladder” is unknown but it became widely utilized and popularized in the medical lexicon in the latter half of the 1990s. It is interesting that although much argument was engendered by use of the term overactive bladder, this term was not actually defined or described by the International Continence Society until 2001. Overactive bladder syndrome, urge syndrome, or urgency–frequency syndrome is now defined as “urgency with or without urge incontinence, usually with frequency and nocturia”[1]. Although this definition indicates that these symptoms are suggestive of detrusor overactivity (a term later defined in this document as the observation of involuntary detrusor contractions during the filling phase of cystometry), a urodynamic demonstration of detrusor overactivity is not necessary in all cases. Furthermore, the definition allows that a variety of other conditions of urethro-vesical dysfunction may result in a similar symptom complex. Finally, it is important to note that the use of the term overactive bladder is restricted to those situations in which local pathology, such as infection, and malignancy have been ruled out.

Typical symptoms of the OAB include an increased number of micturitions (urinary frequency, usually > 8 times/day), a strong and sudden desire to void that is difficult to defer (urinary urgency), and if the urgency cannot be suppressed, urinary urge incontinence [2]. People suffering from bladder overactivity typically have to empty their bladders frequently, and when they experience a sensation of urgency they may leak urine if they are unable to reach the toilet quickly. The amount of urine lost may be large, as the bladder may empty completely and involuntarily. Sleep may be disturbed, as the need to void may awaken the patient. Night-time frequency and nocturnal enuresis (bedwetting) is often particularly disruptive. Urinary incontinence occurring shortly after or in concert with the sensation of impending leakage is called urge incontinence.

**CASE STUDY**

**Initial Presentation**

A healthy 58-year-old woman presents to her family doctor with a primary complaint of urinary frequency and incontinence.

**History**

The onset of symptoms was about 5 to 6 years ago and they have become progressively severe and unpredictable. She describes incontinence of urine preceded by and associated with a sense of urgency. The volumes of urine lost are variable at each episode, but often she may soak through her protective pads. She wears 4 to 5 medium thickness pads per day and wears 2 pads at night. The nighttime pads are wet as well. She reports at least 2 to 3 episodes of urinary incontinence per day. In addition, she describes another type of incontinence that she has with heavy coughing and sneezing, but on questioning, this type of incontinence is only a small amount and is not the primary reason for her visit to
the doctor. At baseline, she voids every 1 to 1½ hours through the day and wakes up 4 to 5 times per night. She has not had treatment for her urinary symptoms and has not discussed them with any health care provider. Symptoms are exacerbated by certain food and drink items such as coffee. She consumes 12 to 14 beverages per day because many years ago her mother told it was “good for the bladder.” She denies a recent or remote history of urinary tract infections or interstitial cystitis. She denies a history of back and spine problems, neurologic disease, or neurologic symptoms. She does not have gross hematuria, dysuria, suprapubic pain, or flank pain. Her impetus to void frequently is that if she postpones voiding once the urge begins, then urinary incontinence will precipitously result. These urgency and wetting episodes have occurred in the car, at friends’ and neighbors’ homes, at restaurants, during walks in the park, and at sporting and cultural events. This had led to a “defensive voiding” pattern wherein she will frequently seek out toilets in any location in order to preempt the onset of urgency. She wears dark clothes and avoids social events and family gatherings due to her fear of embarrassing incontinence episodes.

The patient is gravida 2, para 2 with 2 normal spontaneous vaginal deliveries. Her last menstrual period was 4 years ago. She has no other significant gynecologic history, including surgery or sexually transmitted diseases. She has no significant urologic history or surgery. She has never had abdominal or pelvic surgery. Medical history is significant only for well-controlled essential hypertension and hypercholesterolemia. She has no relevant family history. She takes several medications for hypertension and hypercholesteremia but cannot recall their names. She has no allergies. She is married, monogamous, and employed as an elementary school teacher.

Physical Examination

Physical examination reveals no abnormalities of the head, neck, and chest. She ambulates without difficulty. Upon disrobing, her pad is noted to be wet. A cardiopulmonary examination is unremarkable. The abdomen is soft and nontender without masses or hernia. The bladder is not palpable. After being placed in the dorsal lithotomy position, the external genital reveals mildly atrophic labia minora and majora. There is thinning hair over the mons pubis. The vaginal introitus is somewhat widened. There is no skin breakdown or erythema about the introitus. Upon inspection of the urethral meatus, there is no urethral carbuncle or masses. With repeated coughing, there is no urine seen emanating from the urethral meatus. Bimanual pelvic examination reveals no adnexal masses. She is nontender throughout the examination. The anterior and posterior vaginal walls are carefully inspected using a Graves speculum. The vaginal tissues are not well rugated. The cervix is well suspended, small, and atrophic. With a sustained valsalva, the anterior vaginal wall prolapses to the mid vagina. No incontinence is seen. Digital rectal examination demonstrates normal tone and ability to voluntarily contract her pelvic floor. There are no motor or sensory deficits in the lower or upper extremities. Perineal and perianal skin sensation is intact. Pelvic and lower extremity reflexes are unremarkable.

• How common are the symptoms of OAB and what is the differential diagnosis?

It is difficult to estimate the true prevalence of OAB [3]. Despite the considerable impact of bladder storage symptoms on quality of life, many patients never seek medical help and are thus uncounted. Furthermore, there have been very few epidemiologic surveys carried out on the symptoms of urinary urgency and frequency alone without incontinence.

Recently, Milsom et al [4] reported on a study carried out in 6 European countries using a 2-stage telephone questionnaire. Symptoms attributable to an OAB were identified by a positive response to specific questions on frequency, urgency, and urge incontinence. The interviewed population totaled 16,776 subjects over age 40 years. About 19% of all respondents reported current bladder symptoms, but overall, symptoms suggestive of an OAB were reported by 16.6% of respondents: 15.6% of men and 17.4% of women. Of those reporting OAB-related symptomatology, frequency was the most commonly reported symptom (85%), followed by urgency (54%) and urge incontinence (36%) (Table 1).

Table 1. Prevalence of Overactive Bladder Symptoms

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Prevalence, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency alone</td>
<td>4.5</td>
</tr>
<tr>
<td>Urgency alone</td>
<td>1.5</td>
</tr>
<tr>
<td>Urge incontinence alone</td>
<td>1</td>
</tr>
<tr>
<td>Frequency and urgency</td>
<td>7</td>
</tr>
<tr>
<td>Urgency and incontinence</td>
<td>4.5</td>
</tr>
<tr>
<td>Frequency, urgency, and incontinence</td>
<td>3.5</td>
</tr>
</tbody>
</table>

this study, the overall prevalence of OAB was reported as 16.9% in women and 16% in men, increasing with age. The overall prevalence of OAB without incontinence and OAB with incontinence in women was 7.6% and 9.3%, while in men it was 13.6% and 2.6%. In the United States these figures would translate to 33.3 million adults with OAB, 12.2 million of whom had incontinence and 21.2 million of whom did not.

It is important to recognize that symptoms suggestive of OAB can be due to other conditions both within and outside the lower urinary tract (Table 2). With an appropriate initial evaluation, these other conditions can be screened for, identified, and treated. Presumably, in these instances, with proper treatment of the primary condition, the associated lower urinary tract symptoms will often resolve.

### What causes OAB?

Normal bladder emptying is mediated by stimulation and contraction of the detrusor muscle. Symptoms of OAB are presumed to occur because the detrusor muscle is overactive and contracts inappropriately during the bladder filling. The inappropriate and premature muscle activity of the detrusor are collectively referred to as involuntary bladder contractions, and when noted during a urodynamic study, detrusor overactivity. Although the etiology of the overactive detrusor muscle and involuntary bladder contractions is unknown, the mechanism for bladder overactivity is likely either neurogenic or myogenic. These hypotheses have recently been reviewed in depth elsewhere [6,7]. Nevertheless, it is well established that the mechanism of the final common efferent pathway for both normal volitional bladder contraction and involuntary bladder contractions is an activation of postganglionic, parasympathetic, muscarinic receptors on the bladder smooth muscle. Clinically, OAB symptoms may be seen in a number of disparate medical conditions including various neurologic diseases (eg, multiple sclerosis, stroke, spinal cord injury), diabetes, and bladder outlet obstruction.

Classically, the pathogenesis of OAB has been attributed to the release of acetylcholine at efferent parasympathetic motor pathways at the level of the neuromuscular junction. However, emerging investigations have suggested a significant role for the afferent or sensory pathways of the bladder in the pathogenesis of OAB and urinary urgency including that found in urothelial and suburothelial tissues [8–10]. Well described receptors including muscarinic, adrenergic, neurokinin, and others have been characterized in the bladder wall, submucosal, and urothelial tissues. Purinergic, vallinoid, and nitric oxide mechanisms may play a role as well. The exact role of these pathways in the pathogenesis of OAB and urinary urgency have not yet been elucidated but will likely emerge over the coming years.

### What is the natural history of untreated OAB? What complications, complicating factors, and associated conditions are present in patients with untreated OAB?

The natural history of untreated OAB is poorly understood [11]. Although there have been several longitudinal studies in the pediatric population, there is little information on the long-term outcome of OAB in adults. Several studies have looked at incidence and remission rates of urinary incontinence in general but did not categorize by type of incontinence. There have been no longitudinal studies of adult OAB without incontinence.

It is generally well understood that OAB can impair quality of life scores across several domains [5,12,13]. However, it is not widely accepted that this condition can impact affected individuals in several other ways. Recent studies have demonstrated associations between urge urinary incontinence and depressive symptoms in adults older than age 60 years [14], a risk for falls and fractures [15], and recurrent urinary tract infections [16]. Even sexual activity can be affected by OAB symptoms, especially in patients who have urge urinary incontinence [17].

### Table 2. Differential Diagnosis of Overactive Bladder

<table>
<thead>
<tr>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive fluid intake</td>
</tr>
<tr>
<td>Urinary retention (overflow)</td>
</tr>
<tr>
<td>Bacterial cystitis</td>
</tr>
<tr>
<td>Prostatitis</td>
</tr>
<tr>
<td>Radiation cystitis</td>
</tr>
<tr>
<td>Sexually transmitted diseases (eg, gonorrhea, chlamydia)</td>
</tr>
<tr>
<td>Interstitial cystitis, sensory urgency syndromes</td>
</tr>
<tr>
<td>Bladder cancer</td>
</tr>
<tr>
<td>Bladder stones</td>
</tr>
<tr>
<td>Pelvic mass (eg, GI, GU, GYN, vascular aneurysm)</td>
</tr>
<tr>
<td>Gynecologic problem</td>
</tr>
<tr>
<td>Vaginitis, endometriosis, malignancy</td>
</tr>
<tr>
<td>Postmenopausal atrophic vaginitis</td>
</tr>
<tr>
<td>Vaginal prolapse (eg, cystocele, rectocele)</td>
</tr>
<tr>
<td>Severe stress urinary incontinence</td>
</tr>
<tr>
<td>Medical illnesses producing fluid shifts (eg, CHF, cirrhosis)</td>
</tr>
<tr>
<td>Urethral disease (eg, stricture)</td>
</tr>
<tr>
<td>Drugs (eg, diuretics)</td>
</tr>
</tbody>
</table>

CHF = congestive heart failure; GI = gastrointestinal; GU = genitourinary; GYN = gynecologic.
OVERACTIVE BLADDER

- What is the minimal evaluation necessary to begin treatment for a patient with symptoms suggestive of OAB? To what extent are laboratory or radiologic studies necessary in the evaluation of patients with OAB?

An initial evaluation of the patient with OAB should include, at a minimum, (1) an assessment of the patient’s symptoms, (2) physical examination, and (3) urinalysis [18]. A holistic approach should be employed, in which confounding conditions are identified and addressed. Once urinary tract infection has been excluded, it is possible in most cases to establish a working diagnosis based on the patient’s description of symptoms. In some patients being evaluated for OAB, it may be desirable to measure postvoid residual urine by catheterization or ultrasound. Rarely, in the patient with suspected OAB and incontinence, a large postvoid residual urine volume can be diagnostic of poor bladder emptying, urinary retention, and overflow incontinence.

Physical examination should ideally include an abdominal examination to exclude a distended bladder, a neurologic assessment of the perineum and lower extremities, and a pelvic examination (looking especially for evidence of prolapse or hormonal deficiency in the female). A digital rectal examination provides an opportunity to check ambient rectal tone, the integrity of the sacral reflex arc (eg, anal wink), screen for benign and malignant prostate disease in the male, as well as assess the patient’s ability to perform a voluntary pelvic floor muscle contraction (ie, “Kegel” exercise), which may be an important factor in deciding on appropriate therapy.

Urinalysis should be performed in individuals presenting with OAB. Altered bladder sensation during urinary tract infections can cause symptoms similar to those of OAB. Urine microscopy and culture are the diagnostic gold standard, but reagent strip testing of urine is a sensitive and cheaper screening method. Tumors of the lower urinary tract may likewise cause urgency, frequency, and urge incontinence. Hematuria mandates urologic referral and further urologic investigation. OAB symptoms should never be treated empirically in the setting of hematuria without a proper evaluation. Significant glucosuria should prompt further medical evaluation for diabetes.

A frequency volume chart or bladder diary can be helpful in quantifying the patient’s symptoms in an objective fashion. It may also have the dual of effect of providing a powerful tool for behavioral modification as well as monitoring subsequent response to therapy.

As noted previously, patients presenting with OAB-type symptoms may have a variety of urologic and nonurologic conditions (Table 2). However, a thorough history and physical examination in the setting of a negative urinalysis can exclude many of these conditions. Other studies, including radiographic evaluation of the urinary tract, serum laboratory studies, and urodynamics can most often be avoided. Complicating factors such as recurrent urinary tract infections, hematuria, an obvious but unexplained abnormality on physical examination, or neurologic disease that can affect the lower urinary tract may suggest the need for further evaluation.

Diagnosis

This patient’s history is consistent with a diagnosis of OAB. The physical examination is unremarkable except for postmenopausal changes to the vaginal tissues. Urinalysis is completely negative.

- What are the treatment options for a patient with OAB?

Behavioral therapy is the cornerstone of therapy for OAB. It can be effective when administered properly by a qualified individual in a motivated patient [19,20]. In a review of several studies, Fantl concluded that behavioral therapy for what amounted to urge urinary incontinence due to the OAB resulted in complete resolution of symptoms in less than 15% of patients but a 50% to 75% reduction of symptoms in 50% [21]. When behavioral therapy is ineffective, partially effective, or the patient desires more aggressive therapy, pharmacotherapy is initiated and combined with the existing behavioral modification program. Combining behavioral therapy and pharmacotherapy appears to give superior symptom relief than either treatment alone. Burgio reported that the combination of pharmacotherapy and behavioral modification can reduce incontinence episodes over 80% [22]. Rarely, surgery plays a role in the patient refractory to conservative measures who desires additional therapy [23].

- What is behavioral therapy?

Behavioral therapy consists of (1) patient education regarding the function of the lower urinary tract, (2) fluid and dietary management, (3) timed voiding, prompted voiding, or bladder training, (4) pelvic floor or Kegel exercises, and (5) voiding log or diary. For the average community-dwelling individual, the aim of behavioral therapy is to help regain bladder control by increasing the effective capacity of the bladder and thereby reducing the symptoms of the OAB and urge urinary incontinence. For example, in the patient most bothered by nocturia and/or nocturnal incontinence,
simply reducing or eliminating fluid intake in the evening and during the night may reduce symptoms considerably.

Dietary items such as caffeine and alcohol may precipitate symptoms of OAB [24]. Elimination or moderation in the use of these items may improve symptoms considerably. The initiation of pelvic floor exercises (Kegel exercises), which inhibit the micturition reflex, may result in a gradual increase in bladder capacity. These exercises are taught in such a way that patients can use this physiologic mechanism to inhibit an impending or beginning bladder contraction. A properly timed Kegel exercise (voluntary contraction of the striated muscle of the pelvic floor) may have the dual benefit of simultaneously inhibiting an involuntary bladder contraction as well as increasing outlet resistance to prevent the flow of urine through the urethra. Whether the addition of biofeedback can improve the results of a well-structured pelvic floor exercise program is controversial [20].

**Initial Treatment**

The options for therapy are discussed with the patient. She is offered behavioral therapy with pelvic floor exercise. She is instructed in pelvic floor exercises both verbally and during physical examination. She had successfully demonstrated the ability to contract her pelvic floor during physical examination. She is given written directions to perform the exercises 30 times at each meal. She will progressively increase her voiding interval by 15 minutes each week and will reduce her daily fluid intake by 20% to 30% and will attempt to reduce caffeine and alcohol intake as much as possible. She is given a voiding log to fill out prior to her next office visit. The next appointment will be in 3 to 4 months to assess her response to these measures.

**How do we assess treatment success for OAB?**

Although published studies most commonly use voiding diary parameters, such as median or mean reduction in the number of incontinence episodes, voids, or urgency episodes per day, as outcome measures in large, highly selected enrolled populations, these endpoints may have little meaning for individual patients. In practice, successful therapy for non-life-threatening conditions such as OAB is measured on a patient-by-patient basis. Validated quality of life questionnaires may be a reasonable surrogate or proxy for such a measurement. Quantitatively, realistic expectations regarding continence and reduction in voiding frequency must be discussed. Except in rare cases, OAB is not cured. The goal is to rebalance lower urinary tract function to maximally prevent episodes of involuntary bladder contractions and resulting urge urinary incontinence as well as reduce urinary frequency and urgency. Empirically, if the bladder does not reach the volume at which involuntary bladder contractions or the sensation of urgency are triggered, then OAB will not occur. Recently, outcome measures other than voiding diaries, such as patient perception of treatment benefit questionnaires, have been used to assess treatment response [25]. Whether the use of these outcome measures is more accurate than voiding diaries in reflecting the effects of OAB therapy is controversial.

**Follow-up**

The patient returns to the office 3 months after initiating behavioral therapy and pelvic floor exercise. She reports that after making several alterations in her diet, the symptoms of urgency and frequency have improved about 30% to 40%. However, she continues to wake up 2 to 3 times per night to void. This is her most bothersome symptom. When asked to perform a pelvic floor exercise during physical examination she demonstrates improved strength and duration indicating that she has been adhering to her exercise regimen. Review of her voiding log indicates that she voids an average of 11 to 12 times over 24 hours, with a urine output of 1400 mL per day. Her largest void of the day is her first morning void and is approximately 200 mL. Approximately 20% to 25% of her daily urine output occurs at night. This amount of nocturnal urine output, which is normal, may be more indicative of OAB than nocturnal polyuria. Nocturnal polyuria is a condition defined by having more than 30% of the daily urine output occurring at night [26]. The decision is made to add pharmacotherapy.

**What are pharmacologic treatment options for OAB?**

Pharmacotherapy combined with behavioral therapy is the mainstay of treatment for OAB. Although there are multiple central and peripheral sites and mechanisms that can influence bladder function, the pharmacologic manipulation of very few are clinically useful [27]. Multiple categories of drug therapies are potentially useful to decrease bladder contractility and overactivity (Table 3), but antimuscarinic medication remains the most commonly prescribed treatment.

Currently there are many antimuscarinic preparations available for the pharmacologic treatment of the OAB in the United States (Table 4); the most commonly utilized agents, however, are tolterodine and oxybutynin [28]. All of these agents act pharmacologically as competitive antagonists of acetylcholine and presumably exert their favorable effects by blocking the interaction and activation of the muscarinic receptor. In patients with involuntary bladder contractions, antimuscarinic agents will increase the volume to the first
involuntary bladder contraction, decrease the amplitude of that contraction, and increase bladder capacity [29]. Importantly, these agents usually do not eliminate involuntary bladder contractions.

Controlled-release forms of tolterodine and oxybutynin have now been available for several years [30]. These formulations allow the convenience of once-daily dosing which, with respect to patient compliance, is a significant advance. Both drugs in their controlled-release forms appear to have improved efficacy in the treatment of OAB as compared with their immediate-release forms [31–33].

Recently, 3 new antimuscarinic agents have been approved in the United States for the therapy of OAB: trospium, darifenacin, and solifenacin. Whether any of these agents will prove to be superior to existing therapies is unknown.

### Initiation of Pharmacotherapy

The patient is started on tolterodine extended-release 2 mg daily and advised to continue the behavioral therapy program.

- How effective is OAB pharmacotherapy in terms of reducing OAB symptoms and, in those patients with incontinence, curing it?
- How long should patients remain on therapy in order to assess their maximal efficacy?

The most recent (2002) proceedings of the International Consultation on Incontinence graded the various pharmacologic therapies for OAB and urinary incontinence [34]. Using the Oxford system for assessing levels of scientific evidence, the panel gave the highest possible recommendation (“A”) to the following antimuscarinic drugs used in the treatment of detrusor overactivity: tolterodine, oxybutynin, trospium, and propiverine. In clinical studies, median reductions in urinary incontinence episodes from baseline have varied between 70% to 80% with reductions in daily urinary frequency of approximately 20% [33,35,36]. Although statistically significant and well documented reductions in frequency, urgency, and urinary incontinence episodes have been noted in published randomized, double-blind, placebo-controlled OAB pharmacotherapy studies, complete “cure” of OAB is not commonly seen clinically. The cure of incontinence in patients with severe OAB symptoms (> 20 incontinence episodes per week) was recently reported as between 17% and 23%, with the long-acting formulations of tolterodine and oxybutynin, respectively [35]. In fact, recent comprehensive systematic reviews of currently available anticholinergic medications have been published by the Cochrane group [37] and have included the following less than ideal statement in its conclusions: “The use of anticholinergic drugs by people with OAB syndrome results in statistically significant improvement in symptoms. However, the clinical significance of these differences is uncertain. . . . Dry mouth is a common side effect of therapy.”

Although the pharmacologic effects of these agents should be apparent after several days, recent studies suggest that maximal efficacy may not be realized until 4 to 8 weeks [35,38].

### Additional Follow-up

The patient returns for reassessment after 8 weeks of combination therapy. Her diary reveals that the nocturia is now only 1 to 2 episodes. She is voiding 8 to 10 times per day and she reports only 1 to 2 episodes of incontinence. She is tolerating the medications well. The decision is made...
to increase the dose of tolterodine extended-release to 4 mg daily.

- What are the major side effects of OAB pharmacotherapy?
- Why do these side effects occur and how commonly do patients discontinue therapy because of them?

A problem with current antimuscarinic agents has been the incidence of adverse effects. Physicians who have prescribed antimuscarinic preparations of any type would agree that "dry mouth" is one of the most troublesome side effects. None of the currently available antimuscarinic agents are selective for the lower urinary tract [39]. The doses required to obtain the desirable effect of inhibiting bladder activity tend to affect other end organs with muscarinic receptors as well. As a result, potential side effects of antimuscarinic therapy include inhibition of salivary secretion (dry mouth), blockade of the ciliary muscle of the lens to cholinergic stimulation (compromise of visual accommodation), and inhibition of gut motility (constipation). Tachycardia, drowsiness, orthostatic hypotension, and impotence also may occur with the use of these agents. In the elderly, a group disproportionately affected by OAB, cognitive dysfunction may occur with the use of certain antimuscarinic agents. Acetylcholine is an important central nervous system neurotransmitter involved in memory and cognition pathways. Antimuscarinics may exert unfavorable effects in the central nervous system related to their ability to cross the blood–brain barrier [40,41]. Several authors have suggested that oxybutynin, due to its small molecular size and lipophilic properties, may be more likely to cross the blood–brain barrier and cause cognitive dysfunction than other antimuscarinic agents [42]. Finally, antimuscarinic agents are generally contraindicated in patients with narrow-angle glaucoma and should be used with caution in patients with significant bladder outlet obstruction because acute urinary retention may be precipitated.

The symptoms of dry mouth and constipation are sometimes significant enough to cause the patient to discontinue therapy. In one study, it was estimated that only 18% of patients remained on anticholinergic therapy for over 6 months [43]. However, in controlled studies, discontinuation rates due to adverse effects are usually less than 10% [33,35,44].

- When should a patient be referred to a specialist?

There are no universally accepted guidelines that define failure of therapy for OAB. Furthermore, controversy exists as to the optimal role for a specialist in the management of the patient with OAB. In some communities, the specialist will receive the bulk of referrals prior to the initiation of any therapy. However, in most instances, the specialist referral is made after initial behavioral and/or pharmacotherapy measures have failed to provide satisfactory improvement in the patient’s condition. Other instances where complicating factors may exist and a specialist referral may be indicated are outlined in Table 5.

### Resolution

The patient returns to the office 8 weeks later. She now reports only rare episodes of incontinence. The voiding diary reveals only 1 episode of nocturia per night. She is now satisfied and does not desire further intervention.

Corresponding author: Eric S. Rovner, MD, Medical University of South Carolina, 96 Jonathan Lucas St., CSB 644, Charleston, SC 29525.

Financial disclosures: Dr. Rovner has been on the advisory board and/or speakers bureau of Pfizer, Yamanouchi, GlaxoSmithKline, Indevus, Odyssey, and Novartis.

### References


### Table 5. Coexisting Conditions Potentially Warranting Specialist Referral

<table>
<thead>
<tr>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure to respond to therapy</td>
</tr>
<tr>
<td>Elevated postvoid residual</td>
</tr>
<tr>
<td>Recurrent urinary tract infections</td>
</tr>
<tr>
<td>Hematuria</td>
</tr>
<tr>
<td>History of prior bladder surgery</td>
</tr>
<tr>
<td>History of neurologic disease (eg, spinal cord injury, multiple sclerosis, stroke)</td>
</tr>
<tr>
<td>History of radical pelvic surgery (eg, abdominoperineal resection, radical hysterectomy)</td>
</tr>
<tr>
<td>History of pelvic radiation therapy</td>
</tr>
<tr>
<td>Vaginal prolapse (eg, cystocele, rectocele)</td>
</tr>
<tr>
<td>Refractory symptoms of prostatism</td>
</tr>
<tr>
<td>Hydronephrosis</td>
</tr>
<tr>
<td>Skin breakdown due to incontinence</td>
</tr>
</tbody>
</table>

www.turner-white.com


