Gotta go, gotta go, gotta go

What to do about the overactive bladder

By Marshall Godwin, MD, BMedSc, MSc, FCFP

Overactive bladder (OAB) is a clinical diagnosis. It is defined as "a chronic condition comprised of symptoms of frequency, urgency, or urge incontinence that occur singly or in combination, which are not explained by local pathology or metabolic factors."[1] Table 1 outlines the definitions of the overactive bladder.[2]

Table 1

Definitions of the overactive bladder

1. **Frequency:** emptying the bladder more often than 8 times per day.
2. **Urgency:** a sudden, strong desire to urinate.
3. **Urge incontinence:** incontinence that occurs after the sensation of impending leakage of urine. It occurs after that sudden strong desire to urinate.
4. **Stress incontinence:** occurs as a result of increased intra-abdominal pressure, such as sneezing, lifting, or running. Stress incontinence is generally a result of an anatomical problem with the perineum or bladder. It may occur in combination with overactive bladder symptoms.
5. **Reflex incontinence:** occurs without warning or sensation, as in a person with a spinal cord injury.

In this article:

Conditions which may be mistaken for OAB, such as urinary tract infection (UTI) and bladder outlet obstruction, can generally be ruled out clinically. As such, the diagnosis of OAB can be based on clinical findings alone. Some patients remain difficult to diagnose or fail to respond to therapy. A urodynamic definition of OAB exists to provide a means of making a definitive diagnosis in such difficult cases.[1]

What causes OAB?

The immediate cause of OAB is probably involuntary and unpredictable contractions of the detrusor muscle during bladder filling. The underlying etiology of

The Overactive Bladder

Mary's case

Mary, 48, has had increasing bladder symptoms for about 7 years (started 3 years after her last baby).

- She has no dysuria generally. At times she gets sore from being wet so much.
- She has no hesitancy, no problems with the strength of the urine stream, and no blood in her urine.
- About 10-12 times a day, she gets a sudden, strong urge to void.
- Unless she gets to a bathroom fast, she will wet her underclothes, losing a substantial amount of urine. This happens about 3 times a day.
- She has started wearing urinary pads.
- She times her travel to be near bathrooms. Often she avoids going out.
- She gets up about 3-4 times at night to urinate.
- She avoids sex, as it often triggers an urge to void.
- There is no incontinence with coughing, sneezing, or other things that increase intra-abdominal pressure.

For a followup on Mary, go to page 59.

Mary's history

General Information

- 2 children, born vaginally, no instrumentation.
- She is not taking any medication.
- She had a tubal ligation (after last baby).
- Pap Smear 6 months ago was normal.

Lifestyle

- She drinks about 3 cups of coffee daily and drinks alcohol occasionally.

Medical History

- She has no past major medical history.
- She denies any pelvic fractures or abdominal injury; and no back injury or back problems, except for a short period after her first child.
- She has had no neurologic symptoms or conditions.
- She has no polydipsia or any other symptoms suggestive of diabetes.
- There is no family history of diabetes.
- She has a normal abdominal and pelvic exam.
- The urine dip is completely normal.

these involuntary contractions, however, is unclear and may be due to a combination of factors locally and centrally. In men, OAB may occur during the initial stages of benign prostatic hypertrophy (BPH) when the symptoms are irritative rather than obstructive.

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How many people suffer?

The SIFO study randomly surveyed 16,000 adults over age 40 from six European countries and asked them about symptoms of frequency, urgency, and urge incontinence.[3,4] Seventeen per cent of respondents reported symptoms of OAB. Individual symptoms rates were 14% for frequency, 9% for urgency, and 6% for urge incontinence. Prevalence for both men and women increased with age (Table 2).

Overall, OAB symptoms were more common in women than in men; however, with increasing age, symptoms are more predominant in men.

John's case

John, 49, urinates frequently and symptoms have gradually become noticeable over the last 2 years.

- He denies symptoms suggestive of urinary obstruction.
- His symptoms suggest the possibility of "irritable" type symptoms of benign prostatic hypertrophy.
- He started to "bathroom map" at home and at work.
- He admits that once or twice, he didn't get to the bathroom on time, and was incontinent of urine.
- He denies dysuria or hematuria. There has never been any pain.
- He does not experience problems with constipation.

For a followup on John, please go to page 59.

John's history

Lifestyle

- John is a non-smoker, in excellent general health.
- He drinks 3-4 cups of coffee daily, never after 5 p.m.
- He is not taking any type of medication.
- He drinks a glass of wine with dinner once or twice a week, and 1-2 "beers with the boys."

Medical History

- He has no significant past medical history.
- His father died of a ruptured undiagnosed abdominal aortic aneurysm at age 78.
- His father "ran into prostate problems" in his 60s, but never had prostate cancer.
- There is no known cancer or diabetes in the family.

Physical Examination

- There is nothing to suggest diabetes, congestive heart failure, or any neurologic basis for his problems.
- Blood pressure is 125/80 mmHg, and pulse is regular.
- Cardiovascular exam is normal.
- He has a normal screening neurologic.
- Digital rectal exam reveals a normal prostate.
- He is not impacted with stool.
- Urinalysis is negative for blood, white cells, glucose, and protein. He is asymptomatic for symptoms of urinary tract infection and there is no need to do a urine culture.
- His fasting glucose is 5.6 mmol/L, his creatinine is 67 mmol/L, and his prostate specific antigen is 2.8.

How does OAB affect quality of life?

The symptoms of OAB are associated with social, psychological, occupational, domestic, and physical stigmas. Patients who suffer from OAB may be preoccupied with looking for the closest bathroom and aisle seating, and estimating the amount of time until their next work break. OAB affects daily activities, such as travel, physical activity, relationships, sexual function, and nocturnal bladder control.

For a good move see page 120

In the SIFO study, 65% of respondents said OAB adversely affected their lives and 60% sought medical advice.[3] Frequency and urgency were nearly as common as urge incontinence as a reason for seeking help.

Patients with OAB were found to have lower quality of life in the social and functional

domains of the Short Form 36 scale than patients with diabetes. Women with urge incontinence report a poorer quality of life than women with stress incontinence.[5,6] The symptoms of OAB and urge incontinence are generally reported as more bothersome than stress incontinence. This may be the result of the greater predictability of the leakage in stress incontinence compared to urge incontinence.

Table 2
Age/sex related overactive bladder symptom rates

Age	Men	Women
40-44	1% to 2.5%	2.5% to 7%
60-64	3.5% to 16.5%	8% to 14.5%
> 75	15% to 38%	12.5% to 27.5%

The lower limit of the range represents the rate of urge incontinence was reported; the upper limit of the range represents the rate of frequency reported; the rate that urgency was reported was generally about at the midpoint of the range.

Adapted from: Milsom I, Stewart W, Thuroff J: The prevalence of overactive bladder. Am J Manag Care 2000; 6(Suppl 11):565-73.

Table 3
The diagnosis of overactive bladder

Symptoms	Overactive Bladder	Stress Incontinence	Mixed Pattern
Urgency: strong, sudden desire to void	Yes	No	Yes
Frequency: 8 or more times daily	Yes	No	Yes
Incontinence	Maybe	Yes	Yes
If incontinent, the amount of urinary leakage with each episode	Large	Usually small	Variable
Leaking during physical activity	No	Yes	Yes
Ability to reach the toilet in time following an urge to void	No or just	Yes	Usually no
Nocturia (waking to pass urine at night)	Usually	Variable	Variable

How is OAB diagnosed?

OAB is a clinical diagnosis that can be made in the General Practitioner's office. Local causes should be ruled out. To rule out UTI, use a dipstick urinalysis and/or culture. To rule out problems with pelvic floor support, BPH, pelvic mass, and urogenital atrophy, conduct a pelvic and rectal examination.

Consider other causes, such as diabetes; the use of diuretics, caffeine, and alcohol; underlying neurologic disease; previous pelvic or back injury; interstitial cystitis (generally pain is a symptom); and bladder cancer.

OAB and stress incontinence may co-exist with a UTI, an anatomical abnormality or a metabolic factor. An analysis of the patient's symptoms will differentiate the diagnosis (Table 3).

Table 4
Drugs used for overactive bladder

Drug	Effectiveness	Drug Interactions
IR Tolterodine (Detrol)	52% of people have clinically significant reduction in symptoms	Tolterodine is metabolized by the P450 cytochrome system in the liver. Patients who are on P450 inhibitors (*e.g.,* erythromycin, clarithromycin, ketoconazle, miconazole) should not use a dose of tolterodine < 1 mg twice daily. Safety in pregnancy and nursing not established. Should be avoided.
ER Tolterodine (Unidet)	66% reduction in incontinence episodes	Tolterodine is metabolized by the P450 cytochrome system in the liver. Patients who are on P450 inhibitors (*e.g.,* erythromycin, clarithromycin, ketoconazle, miconazole) should not use a dose of long-acting tolterodine higher than 2 mg daily. Safety in pregnancy and nursing not established. Should be avoided.
IR Oxybutynin (Ditropan)	50% of people have clinically significant reduction in symptoms	Oxybutynin is metabolized by the P450 cytochrome system in the liver. Patients who are on P450 inhibitors (*e.g.,* erythromycin, clarithromycin, ketoconazle, miconazole) should not use half usual dosages. Safety in pregnancy and nursing not established. Should be avoided.
ER Oxybutynin (Ditropan XL)	75% reduction in incontinence episodes	Oxybutynin is metabolized by the P450 cytochrome system in the liver. Patients who are on P450 inhibitors (e.g., erythromycin, clarithromycin, ketoconazle, miconazole should not use half usual dosages. Safety in pregnancy and nursing not established. Should be avoided
Imipramine Tofranil®	30% reduction in symptoms	Concomitant use of tricyclic antidepressants with drugs that can inhibit cytochrome P450 2D6. May require lower doses than usually prescribed.
Doxepin Sinequan®	30% reduction in symptoms	Concomitant use of tricyclic antidepressants with drugs that can inhibit cytochrome P450 2D6. May require lower doses than usually prescribed.

The common side effects for these medications are anti-cholinergic side effects (dry mouth, constipation, blurred vision, and drowsiness). Tolterodine may have slightly fewer side effects than oxybutynin.

How is OAB managed?

The mainstay of treatment of OAB in the primary-care setting is muscarinic receptor antagonists (Table 4) and behavioural therapy (Table 5). Tricyclic antidepressants have been shown to be of some value in reducing symptoms of OAB. Oral or local estrogen therapy continues to be used in women with urogenital atrophy, although the evidence for its effectiveness is inconclusive.

There is no significant evidence of benefit from controlled trials for the use of flavoxate, dicyclomine, or propantheline.

Pelvic floor muscle training has not been shown to be of much value with overactive bladder, although it is of value with stress incontinence.

Table 5
Bladder training routines

Setting a schedule

1. Encourage patients to gradually stretch the time between bathroom trips. If they experience leakage, they should try to figure out how long they're generally able to hold their urine.
2. Patients should be encouraged to track their schedule in writing (bladder diary-Table 7).
3. After maintaining their new schedule (without accidents), they should try to increase the amount of time between visits by another 15 minutes. In the weeks or months ahead, increase the time gradually, adding another 15 minutes or eventually adding a half-hour, until they reach an interval that seems right for them.

Fighting the urge

1. Rushing to the bathroom can put more pressure on the bladder. Instead, patients should walk slowly to the bathroom. This may give the bladder muscle contraction a chance to stop and the feeling of urgency may subside.
2. Patients should concentrate on something else, such as deep breathing or counting backwards from 100.
3. Encourage your patients to do pelvic muscle exercises while they feel the urge.

It may take several months to train the bladder. You may want to also recommend a combination therapy program, including bladder retraining along with drug therapy, pelvic muscle exercises, and/or dietary changes.

Table 6
Other circumstances for referral to a specialist

1. Hematuria not reversible by treatment of urinary tract infection (and not due to menses).
2. Poor bladder emptying (hesitancy, poor stream, terminal dribbling) if initial primary-care management of this is unsuccessful.
3. Unexplained neurologic or metabolic disease.
4. Pelvic floor/prostate abnormalities possibly requiring specialist intervention.

What happened with Mary?

You make a diagnosis of OAB, then:

- You review the patient education material with her to ensure she understands it. You then review the micturition charts, which confirm the degree of urgency, frequency, and incontinence she had described.
- You describe the various choices of therapy: bladder training regimen, avoidance of irritants, and medications. She chooses to start with the bladder training exercises and to give up coffee.
- She returns in 12 weeks. The frequency has decreased to about 8 times per day and twice per night. She has 1-2 episodes of incontinence every day instead of three. While the bladder training has helped, she is still frustrated.
- Mary has had some positive results with the bladder regimen. It is possible that with more time the bladder training will lead to continued improvement.
- Behavioural therapy is unlikely to lead to the degree of improvement that she desires. It is probably best to recommend a muscarinic receptor blocker.
- You discuss the options with Mary and she decides to start tolterodine, 2 mg, twice daily, and to continue with the bladder training.
- She returns in 12 weeks and the frequency has decreased to 5-6 times per day with much improvement in the urgency. She has not had an incontinence episode in two weeks although she still wears a pad just in case. She still gets up once at night. She has some dry mouth and slight slowing of her bowels, but no other significant side effects.

Mary is happy and wishes to stay on the tolterodine for now. It is important to see her regularly to support her behavioural modification regimen, monitor side effects and compliance, and to reiterate that OAB is chronic and the treatment is not curative.

What happened with John?

His symptoms are most compatible with OAB.

- You decide to give him oxybutynin, for immediate relief. You advise him to remain hydrated.
- He is to see you in 6 weeks for followup, with a voiding diary done daily in the interim.
- After 6 weeks John is pleased with his results. He returns to clinic 9 months later.
- At first, he was happy with the results of the oxybutynin, especially because his urgency was improved, he got up fewer times at night, and he had no further episodes of incontinence.
- He recalls that you had asked him about straining to start his stream, and dribbling. His most bothersome symptom is that he has a slower stream, and it takes longer to void.
- A repeat digital rectal exam reveals a normal prostate.
- John needs to be reassured that this may be a side effect of the medication. Alternatively, he may have had a certain amount of obstructive symptoms from his prostate.

His options are:

1. Carry on as is, and tolerate a bit of a slower stream.
2. Stop the oxybutynin, and start terazosin, to address obstructive components.
3. A combination of terazosin (for the obstructive component symptoms) and oxybutynin for the OAB. These medications do not interact and using both is an option in the appropriate case.

John does not want to take any more medications. The slower stream is not worrisome. He asks about taking oxybutynin before meetings and hockey games, when the urgency symptom is the most annoying. This is not an option, it must be taken daily as directed. He could discontinue the medication and can always opt to take it again, should symptoms return.

When is a referral needed?

If these treatments fail to provide sufficient relief of symptoms, referral to a urologist or gynecologist is appropriate. The specialist may wish to further investigate to clearly define the nature of the condition and/or may choose to use other therapies, including other oral medications, intravesicular medications via catheter, or surgery, if indicated.

In addition to failure of initial primary-care therapy, other circumstances may warrant referral to a specialist (Table 6). CME

Table 7
Bladder control diary

Encourage your patients to keep track of their bladder control:

Fluids
1. What did you drink?
2. How much?

Urination
1. How many times?
2. How much? Small, moderate, or large?
3. Did you feel a strong sudden urge to urinate? Yes or no?
4. What activity did this interrupt?

Accidents
1. Did you have an accident?
2. How much urine did you leak? Small, moderate, or large?
3. What were you doing at the time? (for example, walking, lifting, sneezing, laughing, *etc.*)

Acknowledgements

Dr. Godwin would like to acknowledge the contributions of Dr. Susan MacDonald, Dr. Jeffrey Sloan, Dr. Glenn Brown, Dr. Lewis Tomalty, Dr. Shawna Johnston, Dr. James Wilson, and Dr. Marnie McCall.

Take-home message

1. OAB can be diagnosed in the GP's office.
2. Rule out local causes of OAB.
3. Effective treatments include behavioural therapy, and muscarinic receptor antagonists (e.g. tolterodine and oxybutynin).
4. If therapy fails, refer patient to a specialist.
5. Treatment depends on the patient, as seen in Mary's and John's cases.

References

1. Wein AJ: Overactive bladder: Defining the disease. Am J Manag Care 2000; 6(Suppl 11):559-64.
2. Abrams P, Wein AJ: Introduction: Overactive bladder and its treatments. Urology 2000; 55(Suppl 5A):1-2.
3. Milsom I, Abrams P, Cardozo L, et al: How widespread are the symptoms of an overactive bladder and how are they managed? A population-based prevalence study. BJU Int 2001; 87(9):760-6.
4. Milsom I, Stewart W, Thuroff J: The prevalence of overactive bladder. Am J Manag Care 2000; 6(Suppl 11):565-73.
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6. Kelleher CJ, Cardozo LD, Khuller V, et al: A new questionnaire to assess the quality of life of urinary incontinent women. Br J Obstet Gynaecol 1997;104(12):1374-9.

For a quick-take on this article, go to our Frequently Asked Questions department on page 23.

Suggested Readings

1. Fantl JA: Behavioural interventions for community-dwelling individuals with urinary incontinence. Urology 1998; 51(Suppl 2A):30-4.
2. Burgio KL, Locher JL, Goode PS, et al: Behavioural vs drug treatment for urge urinary incontinence in older women: A randomized control trial. JAMA 1998; 280(23):1995-2000.
3. Wein AJ, Rovner ES: The overactive bladder: an overview for primary care health providers. Int J Fertil 1999; 44(2):56-66.
4. Burgio KL, Locher JL, Goode PS: Combined behavioural and drug therapy for urge incontinence in older women. J Am Geriatr Soc 2000; 48(4):370-4.

Web sites

1. www.continence-foundation.org.uk
   Continence Foundation from the U.K.
2. www.cua.org/
   Canadian Urological Association
3. meds.queensu.ca/medicine/urology/resources/index.html
   List of resources collected by the department of urology at Queen's University.

Overactive Bladder: What to do?

1. Do I need to do cystometric studies to diagnose overactive bladder?

No. The diagnosis of overactive bladder (OAB) is a clinical one.

2. Is OAB primarily a problem in women?

Overall, OAB symptoms are more common in women than in men; however, with increasing age, symptoms are more predominant in men.

3. How much of a problem is this really?

The symptoms of OAB are associated with social, psychological, occupational, domestic, and physical stigmas. OAB affects daily activities such as travel, physical activity, relationships, sexual function, and nocturnal bladder control.

In a recent study, 65% of respondents said OAB adversely affected their lives and 60% sought medical advice.

As presented at Queen's University

Presented at a CME course on the Overactive Bladder, October 2002

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4. Do the anti-cholinergic drugs really work to relieve symptoms?

Yes. On average, they work to relieve the symptoms in 50% of the cases.

5. When should I refer an OAB patient to a urologist?

If treatments fail to provide sufficient relief of symptoms, then referral to a urologist or gynecologist is appropriate.

In addition to failure of initial primary care therapy, circumstances that would warrant referral to a specialist include:

- Hematuria not reversible by treatment of urinary tract infection (and not due to menses)
- Poor bladder emptying
- Unexplained neurologic or metabolic disease
- Pelvic floor/prostate abnormalities

For an in-depth article on Overactive Bladder, please go to page 49.