The overactive bladder: What is it and what do you do about it?

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Overactive bladder (OAB) is very common in Canada in men and women as they age. It can affect up to 1 in 5 men and women who are 60 years old or more. Even though many people experience OAB, this does not mean that they want or need treatment. But many do. Many people with the symptoms have either never been treated or have abandoned treatment because of side effects or lack of efficacy of the treatments. In this chapter, we'll answer the following questions about OAB:

- What is it and what causes it?
- How can you and your physician make the diagnosis?
- What do you need to know about treating OAB?
- How can you participate in the treatment to achieve a successful result?

What is OAB?

OAB is a group of symptoms that includes urinary urgency. Urgency is the sudden and overwhelming desire to pass urine and get to a bathroom quickly. It may be so difficult to postpone urination that many (more women than men) don't get to the bathroom in time, and have urinary incontinence. Urinary incontinence is uncontrolled leakage of urine; when it comes after urgency, we call this urgency incontinence.

OAB also causes urinary frequency (passing urine too frequently during the day) and nocturia (being awakened from sleep at night with the need to urinate).

People may have OAB symptoms alone or they may have other conditions affecting the bladder or lower urinary tract. (The lower urinary tract refers to the bladder and the urinary passage [urethra] in men and women and the prostate in men.) See Table 1 for a list of conditions that can affect the lower urinary tract and may be associated with OAB symptoms.

Table 1. Lower urinary tract problems that may be associated with OAB

- Benign prostate enlargement (BPH) – an enlarged prostate
- Pelvic floor weakness or prolapse in women
- Exertional or "stress" urinary incontinence
- Atrophic vaginitis in women
- Neurologic conditions that affect the bladder and urethra (spinal cord, injury, multiple sclerosis, Parkinson's disease)
- Urinary tract infection (cystitis)
- Malignancy affecting the lower urinary tract
- Diabetes mellitus affecting the lower urinary tract

What causes OAB?

We don't know what causes OAB, but we have some theories about why it happens. Before we dive into this, let's review the function of our urinary tract.

Take a look at Figure 1 for a diagram of the urinary tract. The blood circulates through the kidneys 24 hours a day and the kidneys filter out waste products and excess fluids. Urine is the filtered product of this blood cleansing. The urine that results is passed from the kidneys down to the bladder on a steady basis throughout the day and night.

1. The bladder receives the urine from the kidneys via the ureters.
2. The bladder fills with urine and when it is full sends a signal to your brain that you have to urinate.
3. You become aware of this, go the bathroom, and sit on or stand at the toilet to urinate.
4. You empty your bladder.
5. You leave the bathroom and the process starts again.

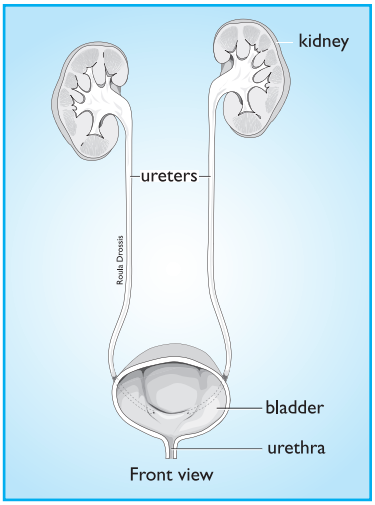

Figure 1. Anatomy of the urinary tract

Ordinarily when your bladder fills with urine from the kidneys, it doesn't make you aware of how much urine is in the bladder until it's full. You will feel a full bladder earlier than usual if you drink a lot of fluids or drink alcoholic or caffeinated drinks. A full bladder gives you a feeling that you have to pass urine. This is a normal urge sensation or a normal desire to void. The normal feeling of urge is not OAB. However, if you have a sudden overwhelming desire to pass urine that is difficult to control or suppress, and if that overwhelming desire to pass urine makes you feel as if you are going to leak urine, that is urgency and is probably OAB. Also, you may get the feeling of urgency when the bladder is not full. And you may leak urine uncontrollably when you feel urgency.

A full bladder does not give you a feeling of urgency. When the bladder fills with urine from the kidneys, the bladder walls remain relaxed. This allows it to hold between 200 and 500 cc before you have to empty it. However, an overactive bladder gives you a sensation of fullness at lower volumes; the feeling is not only stronger than normal, but your bladder muscle is actually trying to squeeze the urine out. That is when you have to tighten your pelvic floor muscles to suppress the urgency feeling; if your pelvic floor muscles are not strong enough, you may experience "urgency incontinence." So, the urgency feeling is from the bladder that is trying to push out the urine *at the wrong time*. Pelvic floor muscle tightening may prevent the leakage and may help you overcome the feeling of urgency. This is something that you can learn to do to improve your symptoms, but more about that later.

So remember, OAB is caused by the bladder trying to squeeze out urine at lower volumes than normal and at times when you want it to hold more. OAB sufferers may also have incontinence at the time. This urgency sensation from the bladder may cause you to go frequently to the washroom during the day and be awakened from sleep at night.

How can you and your doctor make the diagnosis?

Screening for symptoms is one way to diagnose OAB. You are asked whether you suffer from urgency with or without urgency incontinence and whether you have other symptoms of urinating too frequently and or getting up at night to void. A handy screening questionnaire is the OAB-V8 (see Figure 2) on page 82. There are eight questions to answer about your bladder symptoms and then the score is tallied. If you score 8 or more you may have an overactive bladder. This questionnaire seems to be accurate in screening for OAB.

If your score on the OAB-V8 is eight or more and/or you have bladder symptoms that are troublesome, discuss them with your doctor. Your doctor will most likely ask additional questions about other lower urinary tract symptoms or LUTS for short (see Table 2). To explain lower urinary tract symptoms, let's refer to how the bladder works.

Table 2. Lower urinary tract symptoms

Storage symptoms

Frequency (urinating too often)
Causes: bladder not holding enough or too much drinking

Nocturia (wakened from sleep with the need to urinate)
Causes: bladder not holding enough; excess drinking before bed; too much urine output from kidneys; excess fluid in the body.

Urgency (sudden overwhelming desire to urinate that is difficult to control)
Causes: OAB

Types of urinary incontinence
(uncontrolled leakage of urine)

Stress (urine leakage after exertion such as a cough or sneeze)
Causes – Weak pelvic floor muscles and bladder and urethral supports

Urgency (urine leakage associated with urgency)
Causes: OAB

Mixed (urine leakage associated with stress and urgency)
Causes: OAB

Enuresis (nocturnal) (wetting the bed at night during sleep)
Causes: delayed maturing or development; OAB

Continuous (leaking urine 24 hours per day)
Causes: severe OAB with weak urethral sphincter; traumatic or post-surgical fistula (abnormal channel between the bladder and the vagina)

Voiding symptoms

Slow stream (the urinary stream is slower than usual)
Causes: a weak bladder or an outlet that is partially blocked

Splitting or spraying stream (The stream splits or sprays.)
Causes: same as above

Intermittent stream (The urinary stream is not continuous.)
Causes: same as above

Hesitancy (It takes a longer time that usual for the urinary stream to start.)
Causes: same as above

Straining (Having to push, force or strain to initiate or maintain the urinary stream)
Causes: same as above

Terminal dribble (The urinary stream does not end abruptly but tapers to a dribble)
Causes: same as above

How does the bladder work?

1. The storage phase

The bladder fills with urine that is produced in the kidneys during the **storage phase**. Urinary symptoms that occur during the storage phase are **storage symptoms** (see Table 2). It usually takes a few hours until the bladder is filled with volumes of 200 to 500 ml. A full bladder usually gives you a feeling that you have to empty it. This is an urge, but you can get to the washroom in time.

If your bladder does not hold very much and/or you drink a lot of fluids, may need to go to the bathroom more than normal (this is a symptom of frequency). Severe **frequency** may be urinating every 20 minutes. If you experience a sudden overwhelming and uncontrollable urge that may be difficult to control, this is **urgency**. This may be because your bladder is already trying to squeeze out the urine when you are not yet in the washroom. This is abnormal.

Nocturia, or being wakened from sleep with the need to urinate, is another storage symptom. It may be normal if it occurs once or twice. But if it happens more, it may be from a small bladder or OAB. Other causes may be excess fluid intake before bed or excess fluids in the body that are excreted by the kidneys overnight.

Incontinence is uncontrolled urinary leakage. Incontinence may occur at different times and be caused by various factors. **Stress incontinence** may occur when someone sneezes, coughs, laughs, bends or strains and happens when the muscles or supports of the urethra (urinary passage) are weak or damaged. Stress incontinence in women may occur after vaginal deliveries and in men after prostate cancer treatment. **Urgency incontinence** occurs when someone has urgency and cannot get to the washroom before urine leaks. This can occur in patients with OAB. **Mixed incontinence** is seen in people who have both stress incontinence and urgency incontinence. Other types of incontinence are mentioned in Table 2.

2. The voiding phase

When the bladder is full and you feel like you have to urinate, you go to the washroom and either sit or stand to initiate the **voiding phase**. Ordinarily you relax your pelvic floor muscles and unconsciously your brain sends a signal down to the bladder and urethra to expel the urine and relax the urethra. The bladder empties and then you leave the washroom and the storage phase begins again.

If there are problems during this phase, you complain of **voiding symptoms** (Table 2). Voiding symptoms may be a **slow stream** (the speed of the urine flow is reduced), **splitting or spraying stream, intermittent stream, hesitancy** (having to wait longer than normal for the urinary stream to be initiated), **straining** to initiate or maintain the urinary stream, and **terminal dribble** (the urinary stream trickles slowly at the end of urination). Other symptoms may include a **feeling that the bladder does not empty completely**. Voiding symptoms may be caused by a weak bladder that does not push hard enough or partial blockage in the urethra to the flow of urine. An enlarged prostate in men may cause partial blockage to the flow of urine and cause voiding symptoms.

OAB symptoms (urgency, frequency, nocturia, with or without urgency incontinence) occur during the storage phase of bladder function.

What tests would I have to do to confirm OAB?

To make a diagnosis, your doctor will have you go through a series of tests, also called a workup. Your doctor will take a **medical history** and ask you about your storage and voiding symptoms (when they started and how they affect your life). Other important things for your doctor to note are conditions or illnesses that affect you, your medications, allergies, previous pregnancies and surgeries, alcohol and caffeine intake and smoking history. Your doctor may also ask about any bowel or sexual problems.

Your doctor may also examine your abdomen and vagina if you are a woman or rectum (and prostate gland) if you are a man.

Since OAB symptoms can vary with fluid intake, you may need to complete a **3-day Bladder Diary** (see Figure 3 for an example). This is a very important tool because it will show you and your doctor how severe your symptoms are and it may help you improve your symptoms by changing your fluid intake.

Other tests include a urine sample to detect abnormalities (blood or infection). If you also have voiding symptoms, you may need an ultrasound of your bladder to measure how well you empty it after urinating.

Once these tests are done, your doctor will be able to make a diagnosis and recommend treatment. If however, it's still not clear that you have OAB, you may need other treatments or your doctor will refer you to a urologist or other specialist.

What do you need to know about treating OAB?

There are basically two kinds of treatments for OAB that are equally important. Both will work more effectively together than either alone. The first is called "conservative management" or therapy that does not involve medication. To be effective, this treatment requires you to become educated about what will help your bladder function more controllably. The second treatment is medication.

CONSERVATIVE MANAGEMENT

Certain types and amounts of fluids that you take in will make your bladder symptoms worse. Strengthening and using your pelvic floor muscles correctly will make your symptoms better. Conservative management is also called "behaviour therapy" and is based on educating men and women about strategies to improve their bladder symptoms:

1. **Pelvic floor education and rehabilitation:** This can be done by learning from a written instruction sheet, trustworthy website, or by having a nurse or physiotherapist instruct you with or without the use of specialized equipment called biofeedback devices. The purpose is to improve muscle strength and control. Kegel exercises is the common term for pelvic muscle strengthening.

2. **Bladder training/timed voiding:** This is the most common technique for urgency incontinence. Bladder training starts with you voiding on a fixed time interval schedule with the intention that, most of the time, you will urinate before experiencing urgency and urgency incontinence. The interval is gradually increased. For example, you'll be instructed to void every hour for the first week, every hour and 10 minutes for the second week, every hour and 20 minutes for the second week, thereby increasing the intervals by 10 minutes each week until an acceptable interval has been reached. Bladder training must be accompanied by urgency inhibition techniques that require tightening of the pelvic floor muscle to suppress the urgency, or need, or the feeling to void.
3. **Caffeine reduction:** Decreasing caffeine intake improves urinary control.
4. **Adequate fluid intake:** Decreasing fluid intake may improve your urinary symptoms. However, too much reduction may lead to constipation and/or bladder infection. We don't know what constitutes an adequate fluid intake; generally 1.5-2 litres per day is enough. The type of fluid is also important. Caffeinated beverages, acidic juices and alcohol may be bladder irritants and may have to be avoided or decreased.
5. **Healthy diet:** Although some studies support the use of one or other nutrient, it's best to follow established guidelines for overall health with moderation in alcohol use and adequate intake of fruits and vegetables.
6. **Weight loss:** Obesity is a cause of urinary incontinence and weight loss is an effective treatment that also provides many other health benefits.
7. **Exercise:** Moderate exercise helps decrease urinary incontinence in middle aged and older women.

MEDICATIONS

Your doctor may prescribe antimuscarinics or other medication to treat your OAB symptoms. These medications are mostly taken orally and act on the bladder to improve its ability to store more urine, by relaxing the bladder muscle. If successful, the feeling of urgency and leakage of urine are lessened. Some people may experience a big benefit, while others may have little benefit. It's important to realize that conservative or behavioural therapy will improve your response to medication.

You may have to take the medication for two weeks or longer before seeing a response. Some drug plans require your doctor to initially prescribe oxybutynin that you take 3-4 times per day. If this type of oxybutynin is not effective or not tolerable, you may be prescribed a long-acting or once-a-day medication. If your drug plan permits it or you pay for your drugs out-of-pocket, you may be prescribed a long-acting medication initially. All OAB medications approved for OAB in Canada have the highest levels of scientific evidence to support their use. However, they may have side effects. The most common with antimuscarinics are dry mouth and constipation. The major benefit of the once-a-day formulations is that these side effects are generally less common than those seen with short-acting oxybutynin.

See Table 3 for a list of OAB medications used in Canada. You will notice that there are many different types. Although all have similar modes of action, except for the last one on the list, each is slightly different. Some patients may respond better to one than another, and side effects of the drugs may be experienced differently. The goal is to find the drug with the best efficacy and fewest side effects. It's not uncommon for your doctor to have you try more than one drug at a time before recommending long-term therapy.

Table 3. OAB medications used in Canada

Generic name	Trade name	Dose supplied	Recommended dose
Oxybutynin	Generic	2.5 mg, 5 mg, 10 mg	5 mg 2-3 times per day, up to 4 times per day
Transdermal oxybutynin	Oxytrol ®	3.9 mg	3.9 mg per day (twice weekly)
	Gelnique ®	10% solution, 100 mg	1 sachet daily
Oxybutynin ER	Ditropan XL ®	5 mg, 10 mg	Dose escalation from 5 mg to 30 mg once daily
Tolterodine IR	Detrol ®	1 mg, 2 mg	1 or 2 mg twice a day
Tolterodine ER	Detrol LA ®	2 mg, 4 mg	2 or 4 mg once daily
Solifenacin	Vesicare ®	5 mg, 10 mg	Dose escalation from 5 to 10 mg once daily
Darifenacin	Enablex ®	7.5 mg, 15 mg	Dose escalation from 7.5 to 15 mg once daily
Trospium	Trosec ®	20 mg	20 mg twice daily
Fesoterodine	Toviaz ®	4 mg, 8 mg	Dose escalation from 4 to 8 mg once daily
Mirabegron*	Myrbetriq ®	25 mg, 50 mg	Dose escalation from 25 to 50 mg daily

* different mode of action

How long would I have to take the medication?

The answer is complex. If the OAB symptoms are associated with a specific problem (such as an enlarged prostate in a man or a prolapsed bladder in a woman), then symptoms may get better once the prostate problem or the prolapse is treated. However, most of the time we don't know the necessary duration of treatment as the bladder does not change and the symptoms will always require either conservative and/or drug treatment. Even if there is no cure for OAB, many people will learn to control their symptoms by continuing behavioural methods with or without drug therapy indefinitely.

Do I need to see a specialist?

The answer is no if you are satisfied with the management of your symptoms. However, your family physician may refer you to a urologist or other specialist if any of the following situations are encountered:

1. A urine test shows blood under the microscope and there is no urine infection.
2. Your symptoms have not responded to the initial therapy that was recommended.
3. Your symptoms are complicated.
4. Your physician is concerned about another condition that requires an opinion from a urologist or other specialist.

If you are referred to a urologist for your OAB, you may need a similar workup to evaluate your symptoms (as outlined above under **Workup for OAB**). In addition, the urologist may recommend other diagnostic tests, such as cystoscopy and urodynamic studies. A cystoscopy involves insertion of a small telescope through the urethra (urinary passage) and into the bladder. During the exam, the urologist can see the urinary tract on a television monitor. For more information on cystoscopy, go to the Canadian Urological Assocation website at:
http://www.cua.org/userfiles/files/patient_information/03e-cyse0608r.pdf.

Urodynamic studies involve insertion of small tubes into the urinary passage (and rectum). The bladder is filled with fluid through the tubes and the pressure in your bladder is measured while it is being filled and when you asked to void out the fluid. For more, go to:
http://www.cua.org/userfiles/files/patient_information/09e-udye0109r.pdf . These tests will help your specialist understand more about your OAB and may lead to better treatment.

What treatment can the specialist offer?

After you have gone through the specialist workup and the diagnosis of OAB has been confirmed, you may be given information and advice on conservative management. You may be referred to a nurse or physiotherapist who can help you more with various aspects, such as pelvic muscle exercises (Kegel exercises) or behavioural changes to improve your symptoms.

You may be offered other medication. You may also be offered participation in a clinical trial or evaluative study of new medication that is not yet available in Canada. Your urologist may also discuss the option of injecting a medication called Botulinum toxin A (Botox®) into your bladder. This is a new option for people with OAB who have not responded to or cannot take one or more of the medications in Table 3. Although this treatment has been done frequently for patients with OAB, it's not yet approved in Canada.

Other non-drug therapies that your specialist may discuss with you are Percutaneous Tibial Nerve Stimulation (PTNS or UrgentPC) or sacral neuromodulation (SNM or Interstim).

PTNS is a technique of electrically stimulating a nerve near the ankle with a special needle. The stimulated nerve will carry a signal that is transmitted back through the spinal cord to your bladder. The treatment has to be administered weekly for 12 weeks and may improve your bladder symptoms. This treatment is not widely available. It is not covered by the healthcare system, but may be covered by private insurance.

Sacral neuromodulation (SNM or Interstim®) involves a preliminary evaluation test in which a wire is inserted into the lower backbone area (sacrum) and you are shown how to operate an external electrical stimulator that is connected to the wire. The electrical stimulation may influence the pelvic floor muscles and through a series of complex interactions improve the OAB symptoms. If the preliminary test is successful, you may be offered a permanent implant that involves a surgical procedure. Sacral neuromodulation is done in only six or seven highly specialized units across Canada and is covered by the healthcare system.

What can you do to improve the result of treatment?

Successful outcome in OAB treatment depends very much on your involvement and active participation. To help you manage your symptoms, make sure you do the following:

During the workup for OAB

1. Tell your doctor what bladder symptoms you have and how much they are bothering you.
2. Complete any questionnaires that you may be given about your symptoms.
3. Fill out the 3-day Voiding or Bladder Diary as accurately as possible.

During the treatment of OAB

1. Ask your doctor to explain anything that you do not understand.
2. Read the information that you are given about conservative management.
3. Try your best to eliminate caffeine from your diet.
4. Try your best to learn the correct way of doing Kegel exercises and to practice suppressing the urge to void.
5. Try your best to follow the advice of your doctor about other recommendations, such as bladder training, dietary intake, weight loss and exercise.
6. Take the medication as prescribed and note any side effects that are troublesome. If the side effects are troublesome, tell your doctor.
7. If you have actively followed the recommendations for conservative management and have tried one or more medications, ask your doctor for a referral to a specialist.

Above all, remember that OAB treatment usually requires more than just “a pill.” Your active participation is necessary; different medications and other treatments may also be needed. OAB may never be cured, but the symptoms may be improved to the point where you can resume a normal lifestyle.

APPENDIX: THE OAB-V8

The questions below ask about how bothered you may be by some bladder symptoms. Some people are bothered by bladder symptoms and may not realize that there are treatments available for their symptoms. Please circle the number that best describes how much you have been bothered by each symptom. Add the numbers together for a total score and record the score in the box provided at the bottom.

How bothered have you been by...	Not at all	A little bit	Some-what	Quite a bit	A great deal	A very great deal
1. Frequent urination during the daytime hours?	0	1	2	3	4	5
2. An uncomfortable urge to urinate?	0	1	2	3	4	5
3. A sudden urge to urinate with little or no warning?	0	1	2	3	4	5
4. Accidental loss of small amounts of urine?	0	1	2	3	4	5
5. Nighttime urination?	0	1	2	3	4	5
6. Waking up at night because you had to urinate?	0	1	2	3	4	5
7. An uncontrollable urge to urinate?	0	1	2	3	4	5
8. Urine loss associated with a strong desire to urinate?	0	1	2	3	4	5

Are you a male?
❑ If male, add 2 points to your score.

Please add up your responses to the questions above: ☐☐

Please hand this page to your doctor when you see him/her for your visit.

If your score is 8 or greater, you may have an overactive bladder. There are effective treatments for this condition. You may want to talk with a healthcare professional about your symptoms.

Note: You may be asked to give a urine sample. Please ask before going to the bathroom.

Figure 2.

From

Coyne KS, Zyczynski T, Margolis MK, Elinoff V, Roberts RG. Validation of an overactive bladder awareness tool for use in primary care settings. Advances in Therapy, 2005, 22(4):381-394.