



## Update on Overactive Bladder

**Overactive bladder (OAB)** is a condition characterized by a sudden, uncomfortable need to urinate with or without urine leakage usually with daytime and nighttime frequency. OAB, which affects 33 million patients in the United States, occurs when smooth muscle of the detrusor muscle of the bladder squeezes or contracts more often than normal and at inappropriate times. Instead of staying at rest as urine fills the bladder, the detrusor contracts while the bladder is filling with urine.

### Cause of OAB

The cause of OAB is unknown. However, identifiable underlying causes can include:

- Drug side effects
- Nerve damage or neurological disease like multiple sclerosis or stroke.

There are also conditions that are associated with urgency and frequency, including bladder cancer and urinary tract infections that must be excluded during an examination. Fibromyalgia and irritable bowel syndrome are conditions seen more often in patients with OAB and interstitial cystitis than the general population. These conditions are associated with an overactive bladder and possibly to depression, which provides a potential link with 5-HT metabolism and OAB.

## Diagnosing OAB

- One of the first steps toward diagnosing OAB is to keep a urination diary.
- Documenting symptoms such as urgency can help your urologist make the proper diagnosis.
- A urinalysis must also be performed to rule out infection and to look for glucose (sugar), blood, white cells or difficulty concentrating the urine (specific gravity).
- After urination, residual urine is also checked.
- In some patients, a cystoscopy may be warranted. It is sometimes useful to perform bladder pressure testing using cystometry to document bladder (detrusor) over activity during filling and exclude obstruction.

## Treating OAB

- Agents that relax the detrusor or prevent a bladder contraction are effective for OAB and urge incontinence. Acetylcholine is a chemical released from nerves supplying the bladder that acts at muscarinic receptors to trigger a bladder muscle contraction, thereby producing urination. The detrusor expresses muscarinic (acetylcholine binding) M3 and M2 receptor subtypes. **Antimuscarinics are used to treat OAB and urge incontinence and they include: darifenacin, hysoscyamine, oxybutynin, solefenacin, tolterodine and trospium.** Although these pharmacologic agents are used as first line treatment options, side effects limit long-term compliance.

In addition, **behavioral regimens** have been shown to reduce incontinence and urinary frequency. These regimens range from simple maneuvers such as timed or prompted urination and fluid management to biofeedback.

- Pelvic muscle exercises (Kegel) are beneficial in appeasing urge incontinence, and can be done alone or in combination with antimuscarinic drugs.
- Also, patients may want to change certain aspects of their diets (e.g., decreasing caffeine or alcohol intake), lose weight and stop smoking.

- **Surgery** to enlarge the bladder - called **augmentation cystoplasty** - can be considered when the bladder is extremely small or generates high pressure. This is major surgery with potential complications and should be attempted as a last resort. Other surgeries such as **neurolysis** to cut the nerves supplying the bladder are rarely performed. In some women with OAB and urinary incontinence who also exhibit vaginal prolapse and stress urinary incontinence, correction of these conditions can improve the overactive bladder.
  
- **Neuromodulation** remains as a vital option.
  - **Electrical stimulation** of nerves or regions of the skin, vagina or rectum innervated by the lower spinal cord can reduce OAB and urge incontinence. Percutaneous tibial nerve stimulation weekly for several weeks has been reported to show encouraging results. The two stage sacral nerve stimulation technique using the InterStimneuromodulation device has been reported to be effective in many patients refractory to medical therapy.
  - A new emerging option for the treatment of refractory cases of OAB is called **biological neuromodulation**. In recent years, reports on the use of Botulinum Toxin injected directly to the bladder wall have been encouraging.
  - In January 2013, the U.S. Food and Drug Administration gave its approval for the use of **Botox against OAB**. The treatment consists of Botox being injected into the bladder at the time of cystoscopy resulting in relaxation of the bladder, an increase in its storage capacity and a decrease in urinary incontinence.

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