

MEditorial April 2012

“Got to Go, Got to Go [Urgency, Overactive Bladder and Neurogenic Bladder]”

A few years ago, I temporarily experienced a symptom I not uncommonly evaluate and treat: urinary urgency. Not being a coffee drinker, I was trying an “energy drink” to help with afternoon mental acuity (post lunch “dwindles”). This compound contained some caffeine but also other “herbal” supplements that are felt to improve alertness, memory, and mood; as well as some amino acids and high doses of water soluble vitamins especially vitamins B6 and B12. In this regard, I think the product worked quite well. However, the urge to void it created, 30-45 minutes after consumption, was so strong, that, let’s say, one would not want to be stuck in the left lane of OC/LA rush hour freeway traffic.

Urgency is a strong uncomfortable feeling of the impending urge to urinate, not infrequently accompanied by some volume of leakage. It can occur with or independent of urinary frequency; the mechanisms of these symptoms are not necessarily the same.

I am convinced urgency results from a combination of things. There are specialized sensory nerve endings in the bladder wall. If these are excitable either due to “no known reason” or localized disease (e.g., inflammation from a bladder infection and rarely some “flat” types of bladder cancers) or pathological conditions in the nerve fibers between the bladder wall and the spinal cord, there will be a reduced brain threshold for the sense of urgency. Combine this with diuresis (a rapid production of urine by the kidneys) and you have urgency and urge incontinence (leakage). If the bladder is like a balloon holding water, overdistention occurring over a short period of time--as opposed to a longer time frame--will excessively stimulate even normal nerve receptors in its wall.

What I have described is considered “sensory urge” in contradistinction to other classifications of urgency more commonly seen in patients with true/known

neurological disease. Urgency can also be due to lack of “inhibition” of actual bladder muscle (known as “detrusor”) contraction. Normally the brain senses bladder contraction when one voluntarily initiates urination at the “socially correct time”. Let’s say the bladder is receiving inappropriate electrical signals from the brain or spinal cord to contract before it is full and in advance of when one wants to commence the urinary act. The detrusor (bladder muscle) pressure may suddenly rise to the point where the brain senses an impending accident—and even a competent urinary sphincter (control valve) cannot stop the leakage. Complicating this is that certain neurological conditions--especially spinal cord injuries and multiple sclerosis--lead to a discoordination between bladder contraction (inhibitable or un-inhibitable) and pelvic floor (“carpet” of muscles across the bottom of the pelvis with openings for the urinary and rectal sphincters) relaxation. As the bladder pressure rises and urination begins, there is a resistance to flow. This results in urgency with poor flow, sometimes low volumes, and a sense or actuality of poor emptying. Spontaneous (unwanted) bladder overactivity together with lack of pelvic floor relaxation is a more worrisome problem, since this disorder more often leads to urinary infections and potential functional and structural damage to the kidneys (via refluxing of urine backwards to the kidneys, obstruction of the kidneys’ drainage tubes, and stone formation). In addition, some patients with neurogenic bladder disorders have brains that cannot really sense what is going on “below”--so accidents and other problems like infections and urinary retention may go underappreciated.

Most people with urgency and urge incontinence do not have neurological disease or a known “neurogenic” bladder. I do not feel neurologic disease can be inferred by looking at bladder function alone. One has to consider the totality of neurologic symptoms and specific exam findings (as well as adjuvant radiographic and other testing) to diagnose neurological illnesses. On the other hand, bladder problems with storage (urgency is more of a dysfunctional storage problem) and emptying (poor flow, inadequate emptying) are a common byproduct of most neurological diseases including stroke, MS, Parkinson’s, and spinal cord diseases causing paralysis. The term “overactive bladder” was coined perhaps 20 years ago to explain patients having “neurogenic bladder” symptoms without clinically

significant neurological disease. Dr. Frank Hinman of San Francisco many decades ago used similar terminology for children with these types of urgency and leakage symptoms--so-called "non-neurogenic neurogenic bladder".

The most common treatable symptom of overactive bladder (OAB) is urgency. Success of treatments is based on reduction both in urgency and incontinent episodes (frequency of this occurring as well as volume leaked). Basic urologic history and physical is often enough to establish the diagnosis. If neurological disease is not known or unlikely, a normal abdominal and pelvic exam with low residual urine (which can be assessed easily in office with an ultrasound-like device called a bladder scanner) and lack of bladder lining disease--especially infections--is enough for a tentative diagnosis. Sometimes other testing of anatomy including cystoscopy (looking inside bladder) and ultrasound/CT are helpful but are often unnecessary. Functional tests of the bladder's storage and emptying functions (urodynamics) are sometimes informative but probably--as often as they are employed-- do not change the treatment plan in many cases.

It is still a good idea to approach "benign" urgency with behavioral modifications before resorting to medications. Reducing fluid intake (to that amount needed to quench thirst) and especially eliminating "drugs" (e.g., caffeine, alcohol and diuretics) which cause rapid bladder filling is prudent. Urinating on a regular "timed" basis, i.e., by the clock and not waiting for a late signal to void is, too, beneficial. When this fails, OAB drugs, of which there are many examples (I like some of the newer ones, e.g., Vesicare and Enablex), often help. They do not necessarily need to be taken indefinitely--since the underlying mechanisms for urgency can improve over time, whether due to the medications or independent of them. Dry mouth and constipation are not uncommon side effects seen with this "cholinolytic" class of medications but especially with the newer drugs used at her lowest possible dose, are less of a problem and are usually outweighed by the benefits.

When significant urgency and urge incontinence persist despite the above reasonable remedies, we sometimes have to resort (more so in the "non-neurologic" context) to other treatments considered more avant garde [and

perhaps a bit experimental, @ least from the perspective of insurance companies that pay the bill]. I will not go into detail now--but these include pelvic neuromodulatory devices such as "Urgent PC" (non-implantable via lower extremity nerve stimulation); and "InterStim" (implantable) electrical simulation which seems to relax the pelvic floor and thus lead to more coordinated voiding and a reduction, versus placebo, in urgency. Another avenue is injection into the bladder of Botox (similar to that used for facial wrinkles). This often helps--but just as wrinkles slowly reappear, so will the sensory or detrusor instability leading to urge and urge incontinence.

The body is an amazing creation. Normal functions, such as bladder urinary storage without undue awareness, should never be taken for granted.

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