

MEditorial September 2013

“Sleepwalking”

Sleep is an essential function. Lack of sleep is related to many health issues and may play a role in others. Besides drowsiness and poor performance during the daytime, sleeplessness is likely associated with cardiovascular, immunological and psychiatric stresses. In a broad sense, sleep is needed for repair of bodily functions, even on a molecular basis—lack of reparation may bring on increased risk of infections, malignancy, rapid aging, and premature death. I suspect the immune system is key here; and that good sleep allows a drained immune system to “refresh” for another day of patrolling against microbes, tumor formation, and its own tendency to mistakenly attack “self” tissues.

As a doctor, I do not like being awoken at night, even though it is “part of the job”. Illness does not respect any time boundaries. Many of my patients are awoken at night by the urge to urinate. Most find themselves “walking in their sleep”, until the problem, in some cases, is so extreme that bedside commodes and containers for elimination are necessary.

Frequent urination, day and night, may be the most common complaint we urologists see, (?) after perhaps urinary infections. Men who need to get up more than once at night may see the urologist, more so if there has been a change in this habit, to resolve anxiety over the possibility of “prostate disease”, or bother or both. Most older men may be unaware that their female counterparts, lacking a prostate gland, are often plagued with similar nocturnal issues. I see many men

assuming the frequent visits to the bathroom at night must be due to prostate enlargement or so-called BPH (benign prostatic hypertrophy).

It is true that men with BPH often have nocturia (frequent night urination) as a symptom, along with the array of poor stream, post-void dribbling, hesitant urination, and urgency (pressure to go which is out-of-line with eventual flow). We know of all these symptoms, nocturia is the least likely to respond to medical or surgical treatment for prostatic obstruction. Ironically, in elderly men, nocturia is the symptom most likely to predict the need for future TURP (transurethral operation on prostate) from urinary retention (man cannot void, needs a catheter, and then will only respond to a surgical solution).

Why would men with BPH need to go more often at night? It could be that chronic obstruction causes bladder muscle overactivity/bladder muscle thickening and a functional reduction in bladder capacity, making the bladder signal the brain at night even when there is not much urine stored in it. In some cases, a large middle lobe of prostate pushes like a fist upward on the bladder base, again making the bladder seem smaller, at least functionally. In the minority of cases, the BPH patient truly does not empty the bladder fully and has high amount of “residual urine” (is urinating only the “tip of the iceberg”), thus forcing repeat trips to the bathroom with minimal further urine production sent to the bladder from the kidneys.

We need to distinguish, and in a sense “split off”, the term “diuresis” from urinary frequency. Diuresis means the kidneys are producing more volume of urine than normal. More volume received by the bladder means more frequent voiding-in most people this would be represented in large volume, easy urinations. The bladder is performing

correctly in this case. Some of the causes of diuresis are excessive fluid intake; intake of chemicals (e.g., caffeine, alcohol, and some heart and blood pressure medicines like Lasix) that prevent the kidneys from concentrating the urine; and medical conditions like poorly controlled diabetes, whereby the high amount of blood sugar cannot be handled/adjusted by the kidneys, causing what is termed an osmotic diuresis (this tends to dehydrate the patient). Certain heart conditions themselves, with poor cardiac pump function, termed congestive heart failure (or cardiomyopathy), can result in edema or swelling in the peripheral tissues and lungs, with a relative decrease in intravascular fluid volume and diminished renal blood flow. A surprising amount of fluid stored in the pelvis and legs can re-enter the bloodstream when lying flat, causing increased renal blood flow, diuresis and increased urination usually at night.

There is intricate hormonal-type messaging in the body that regulates the volume of fluid in the bloodstream, as well as blood pressure. Signaling from the brain to the kidneys in essence tells these remarkable organs whether to preserve or eliminate body water. Any condition that tends to deplete the intravascular volume will cause the pituitary gland (at the base of the brain) to secrete extra ADH (antidiuretic hormone, aka arginine vasopressin). The kidneys are thus “told” by ADH to send water from the urine back into the bloodstream, leading to yellow/concentrated/low volume urine. Those not “sleepwalking” much to the bathroom notice yellow urine upon the 1st morning elimination.

When especially older men and women with excessive nocturia keep a careful tally of their intake and output (we call this a 24 hour “I&O” diary), we often find they are producing too high a percentage of their

24-hour output in the middle of the night. It is normal that less than 25% of the daily urine volume is produced at night. Greater than 33% of the total is certainly abnormal. This form of abnormal diuresis will cause frequent trips to the bathroom at night, male or female, prostatic enlargement or not.

A medicine called DDAVP has been around for a long time. This is also known as desmopressin, a lab-produced relative of the pituitary hormone arginine vasopressin (ADH) discussed above. DDAVP can be in intravenous, intranasal or oral forms; there is now even an oral form that dissolves in the mouth and is absorbed quickly, without the concern for nasal irritation caused by the prior commonly used administrative route. Initially this drug had limited use in treatment of a rare condition caused diabetes insipidus (not regular diabetes), whereby there was inappropriate, sometimes profuse elimination of needed body water due to lack of ADH secretion by the pituitary and in some cases, lack of receptivity of the kidneys to this hormone. In the last 25 years, DDAVP has played an important role in treatment of childhood bedwetting. It even can help some patients who, due to chronic kidney failure, bleed too easily since their platelets (clotting substances produced in the bone marrow) just do not work properly.

Just in the last 5 years, studies have shown that men and women who produce too high a percentage (33+ %) of their urine at night can and often do respond to the drug desmopresin given in relatively low doses. Note women require an even lower dose than men. Men with known BPH and excess nocturia can respond to DDAVP alone or this as an “add-on” drug to other BPH meds such as tamsulosin (same as Flomax, example of an alpha- blocker) and finasteride (same as Proscar, a hormonal drug to shrink the prostate). A good take-home number is

that one-third of such patients will have a dramatic reduction in the number of “sleepwalking” bathroom trips to one-half of the prior number. Plan on two interruptions to sleep instead of four. Since DDAVP artificially signals the kidneys to save water for the body, there comes with this a few warnings: limit oral fluid intake, especially with and after dinnertime; do not take this if there are medical conditions whereby one could easily become “water intoxicated” at night including severe forms of congestive heart failure and some types of chronic kidney disease; and check with lab tests (more so if higher DDAVP doses are needed, as well as in the very elderly) for over dilution by water of the amount of sodium in the blood. So-called hyponatremia (low serum sodium levels) can cause chronic and acute health problems, especially involving the central nervous system.

Getting back to my male patients who are bothered by frequent awakenings to urinate, be assured that medical and surgical treatment of BPH can (an often does) improve the situation, but nocturnal urine production and urination is a subject that cannot be oversimplified—so be happy with improved flow and storage of urine, and “think broadly”, with your doctor, as to all the causes and potential solutions. Better sleep = better quality of life.

Dr. Alan Freedman
401 Old Newport Blvd., Suite 101
Newport Beach, CA 92663
Phone: (949) 645-3434
FAX: (949) 645-0277