The patient described, though not typical, is one among many of those of the aging male population in whom their primary care physicians will increasingly diagnose diseases affecting the prostate gland. Primary care physicians then will offer first-line therapy not only for prostatic diseases but also for concurrent sexual and erectile dysfunction. This brief primer for primary care physicians “unscrambles” the alphabet in a “soup” of initialisms and acronyms for lower urinary tract symptoms, benign prostatic hyperplasia, benign prostatic enlargement, and bladder outlet obstruction.

The following case presentation describes an elderly patient in whom benign prostatic hypertrophy (BPH) was discovered as the result of an emergent medical situation.

**Case Presentation**

“Lewis,” a 78-year-old military retiree, visited his primary care physician to discuss the results of recent laboratory studies. He looked a little peaked and lacked his usual energy. He admitted to having no new medical complaints. The results of his laboratory studies done 3 months earlier, which included a coronary risk evaluation, comprehensive metabolic panel, and prostate-specific antigen (PSA) test, were all within normal ranges considering that the patient was taking a 3-hydroxy-3-methylglutaryl coenzyme A (HMG CoA) reductase inhibitor (statin), an angiotensin-converting enzyme inhibitor, and hydrochlorothiazide. Also, during the previous 2 weeks, he had used an over-the-counter (OTC) cold medicine. Findings of an electrocardiogram (ECG) and ambulatory home monitoring were largely benign, demonstrating only occasional premature ventricular contractions with an otherwise normal sinus rhythm.

On physical examination, the only new finding was an irregular heart rate. An ECG was again done, this time with new findings of atrial fibrillation with short bursts of ventricular tachycardia. A stat basic metabolic panel and complete blood cell count were ordered. The patient’s blood urea nitrogen (BUN) and creatinine levels were significantly elevated at 65 mg/mL and 4.8 mg/mL, respectively. Based on his abnormal renal function and arrhythmia, the patient was transferred to the hospital. There, the truth emerged.

In the past, this patient had routinely refused “a complete physical examination.” Statements such as “I eat healthy, I do not drink alcohol, I never get up at night to urinate, and I get enough exercise playing golf with the boys” reflect his attitude toward life.

On detailed questioning, the patient admitted to increased frequency of urination, nocturia two to three times, slowing of his urinary stream, and occasional loss of urine when coughing or sneezing.

A specimen for urinalysis was requested, but the patient stated, “I can’t go now.”

A distended urinary bladder was found on palpation of the abdomen, and a significantly enlarged clinically benign prostate gland was found on digital rectal examination.

Computed tomography of the abdomen revealed bilateral hydronephrosis, a distended bladder, and a significantly enlarged prostate. Nursing staff could not pass an indwelling catheter, so the primary care physician did it; 1500 mL of urine was obtained.

When informed of the findings, the patient apologized to his primary care physician, stating “I guess we should have done that rectal exam.”

After postobstructive diuresis, his renal function returned to normal. The patient was discharged with the catheter in place to allow the chronically distended bladder to recover and his renal function to stabilize. Interestingly, his cardiac function also returned to normal. One month later, transurethral resection of his prostate was done, resulting in satisfactory voiding with minimal lower urinary tract symptoms (LUTS).

From patients such as Lewis, physicians learn that there really never exists a minor medical problem. Especially when dealing with patients who act as free spirits and believe in their own immortality, physicians must continually “think outside the box” and always “look at the big picture.” It is essential that physicians recognize that anything they do can adversely as well as positively affect their patients.
Role of Primary Care Physicians in Prostate Health

In addition, physicians must be prepared to deal with all aspects of their patients’ lives, including sexuality, erectile dysfunction, libido issues, and the sociologic issues for which colleges of osteopathic medicine have trained them.

Besides thorough histories and physical examinations, there are many patient questionnaires that document symptoms as well as quality-of-life issues.

It is essential that physicians take advantage of all the tools available to them.

Just as primary care physicians have become increasingly involved in the treatment of patients with mental disorders, they are now expanding their role in issues involving male sexuality. Primary care physicians now treat patients for sexual dysfunction, impotence, and male urogenital disease processes that previously had been reserved for urologists.

Vardenafil hydrochloride and tadalafil, two relatively new products for erectile dysfunction, supplement the older products, which include sildenafil citrate, alprostadil for injection, and alprostadil urethral suppositories. Many pharmaceutical agents that can directly affect male urethral flow are also available, including but not limited to α-blockers, nonsteroidal anti-inflammatory drugs, OTC cough preparations and antihistamines, many antispasmodics, and antidepressants.

Family physicians see all disease processes, and today, they can be and are involved with their patients’ prostate health. In 1995, it was estimated that 17% of men aged 50 to 59 years, 27% of those aged 60 to 69 years, and 35% of those aged 70 to 79 years had treatable prostatic disease. These percentages are based on a study in Olmsted County, Minn, in which 1317 white men aged 50 to 79 years participated.1 By applying these percentages to the United States population in 2000, 2010, and 2020, Jacobsen et al estimated that a growing number of men will be eligible for prostate therapy. Specifically, in the year 2000, 6.2 million men were eligible for treatment. In 2010, 8 million men and, in 2020, 11.2 million men will be eligible for treatment.

Epidemiologically, three factors correlate with the development of prostatic hyperplasia:

- most obviously is the aging process,
- cardiac disease, and
- a positive family history.

Physicians have long believed that a lack of sexual activity, smoking, and obesity were all culprits in the development of benign prostatic hypertrophy and enlargement. Currently, the jury is still out. Physical activity and moderate alcohol use are two situations in which the conditions may present or be beneficial in terms of preventing, causing, or having no effect on enlargement or hyperplasia.5,6

Both BPH and LUTS may cause problems with consequences. By itself, BPH may not produce any symptoms; however, BPE and BOO can be associated with severe problems. LUTS can interfere with quality-of-life issues and interfere with the activities of daily living. They could also adversely affect sexual activity.

The term prostatism traditionally has been used to describe a constellation of obstructive and irritative voiding disturbances that occur in men as they age. However, this term implies that these symptoms are specific to the prostate gland, though they may be caused by other organs in the lower urinary tract. Therefore, LUTS has replaced “prostatism” to describe this symptom complex. Such symptoms may be due to a variety of causes, including BPH, BPE, and LUTS.

Unscrambling the “Alphabet Soup” Related to the Prostate Gland

Primary care physicians should know the four abbreviations highlighted in Figure 1.

- Not all prostatic hyperplasia (BPH) is reflected as enlargement (BPE).
- Not all BPE causes bladder outlet obstruction (BOO).
- Lower urinary tract symptoms may or may not be reflected as BPH, BPE, or BOO.

Consequently, primary care physicians need adequate tools to screen their male patient populations at risk and to enable them to recommend a course of treatment.

These data indicate that either urologists are going to be extremely busy or primary care physicians are going to be more involved in the treatment of patients with prostatic disease.2 In February 2000, urologists wrote 67% of all tamsulosin hydrochloride prescriptions and primary care physicians wrote only approximately 29%. In January 2002, urologists and primary care physicians wrote an equal number of prescriptions for the drug. But, by the end of 2002, the number of prescriptions written by primary care physicians exceeded that written by urologists by approximately 5%.

Clearly, primary care physicians have an increasing and predominant role in prostate care.

Hyperplasia occurs first, then enlargement, and then eventually obstruction. Alterations in bladder and urethral function can occur with age. These changes may manifest as lower urinary tract symptoms (LUTS) or as damage to the lower or upper urinary tract or both. The term benign prostatic hyperplasia (BPH) describes the histologic change associated with benign prostatic enlargement (BPE). Benign prostatic enlargement also progresses with age and can cause bladder outlet obstruction (BOO).

Aging and BOO each can trigger changes in the structure and function of the bladder, leading to LUTS.

Silverman • “Alphabet Soup” and the Prostate

Figure 1. Unjumbled “alphabet soup” related to the prostate.
or BPO. However, LUTS may also occur in the absence of these conditions.

LUTS can be divided into two broad categories: obstructive, or emptying-associated, symptoms; and irritative, or storage-related symptoms.

Obstructive symptoms include hesitancy, straining to initiate or continue urination, weak urinary flow, terminal dribbling, prolonged voiding, the sensation of incomplete emptying, urinary retention, and overflow incontinence. Irritative symptoms include frequent urination, urgency, nocturia, urge incontinence, small voided volume, and dysuria.

Benign prostatic hyperplasia can progress to BPE and BOO, which in turn can cause other severe problems besides urinary retention. Possibilities include urinary tract infections, pathophysiologic anatomic bladder changes, renal and bladder stones, overflow urinary incontinence, and bilateral hydronephrosis, which can progress to end-stage renal failure if unchecked as demonstrated in the initial case summary. There is a need for primary care physicians to become actively involved in the evaluation of LUTS and to determine the etiology and severity of the problem.

**Evaluation**

Because primary care physicians may have closer physician-patient relations, they are in an ideal position to evaluate and treat patients with LUTS. They are on the “front line” and listen. The challenge for primary care physicians is to behave as physicians, not as “triage officers.” Patients are more likely to be willing to talk to their family physicians about almost any subject, ranging from medical history that should include medications they are taking, as many drugs such as antihistamines and antidepressants have anticholinergic activity that can affect bladder function.

The AUA-SI comprises seven questions that are used to determine the severity of the disease, to assess the potential response to therapy, and to establish a standard comparison of symptom relief, one valuing the benefits of treatment. The International Prostate Symptom Score (IPSS) is essentially the same as the AUA-SI with one additional question: “If you are to spend the rest of your life with your urinary condition just the way it is now, how would you feel about that?”

**Treatment**

The classification of the severity of prostatic disease is based on the AUA-SI scores as follows:

- 0 to 7 symptom score indicates mild conditions.
- 8 to 19 symptom score indicates moderate disease.
- 20 to 35 symptom score indicates severe disease.

For mild prostatic disease, physicians should offer patients watchful waiting, reassessment, and frequent
reevaluations. For disease in the moderate-to-severe range, physicians should aggressively educate patients and discuss the treatment options in terms of their benefits as well as risks.8,11

The success of treatment of patients with BPH or LUTS is measured by achievement in decreasing the symptom score, increasing urinary flow rates, and decreasing the bothersome score. Although BPH does not progress to cancer, the two often occur together, and therefore, the presence of prostate cancer must be ruled out.

LUTS decrease the quality of life. The problem can be annoying. It not only can interfere with the quality of life and the activities of daily living, but it also can diminish sexual satisfaction.12

Comment
Histologically confirmed BPH is highly prevalent in men older than 50 years. Patients with LUTS resulting from BPH do not require treatment unless the symptoms are bothersome. Because urogenital problems can have an impact on the quality of life and sexual function of male patients, primary care physicians must learn to talk to patients regarding their sexuality and the functions of their sexual organs. The AUA-SI questionnaire and the IPSS supplement traditional diagnostic procedures to aid in the diagnosis.

Screening for prostate cancer with both a PSA test and a digital rectal examination are crucial in the patient at high risk (Figure 2). If the diagnosis is questionable, appropriate referrals need to be made.

References

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Answer sheet to Supplement 2 JAOA February 2004 CME quiz