REVIEW

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Managing urogenital tract disorders: 10 urology pearls for primary care physicians

ABSTRACT

Primary care physicians frequently encounter patients with urogenital diseases. These 10 evidence-based pearls will help physicians to refine the care they provide, avoid some common missteps, and more quickly determine when a referral is appropriate.

KEY POINTS

Attributing microscopic hematuria to a patient's use of an antiplatelet or anticoagulation medication—without an appropriate workup—is imprudent. These 2 drug classes can unmask hematuria, sometimes revealing a sinister etiology; an algorithmic evaluation is warranted.

Gross hematuria requires urgent computed tomography urography and urology referral.

Sodium-glucose cotransporter 2 inhibitors are associated with lower urinary tract symptoms and a small but significantly increased risk of urogenital infections.

Prostate-specific antigen reference ranges based on age have been found to increase the detection of more potentially curable tumors in young men and decrease the detection of less advanced tumors in older men, compared with the standard reference range of 4.0 ng/mL.

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PRIMARY CARE PHYSICIANS commonly encounter diseases of the urogenital tract, and this frequency will likely increase as the population ages. Early identification and appropriate management are, of course, necessary to reduce the morbidity and mortality associated with urologic conditions. However, primary care physicians may not always feel optimally positioned for certain aspects of urologic care.

Researchers note that formal urologic education has dropped over the years. In 1956, 99% of all US medical schools required a clinical rotation in urology, but by 2014, only 5% did.[1] A 2022 study of medical students found that only 4 of the 173 respondents (2%) said that their school required a clinical urology rotation. These students (who had an expressed interest in urology) also reported that they had minimal exposure to certain urologic topics, including bladder drainage, erectile dysfunction, and urologic emergencies.[1]

The 10 urology pearls that follow offer evidence-based guidance on issues that primary care physicians are likely to encounter with some frequency in practice. They provide valuable guidance on why physicians should, among other things, advise older men with benign prostatic hyperplasia to avoid certain antihistamines, avoid dismissing the presence of microscopic hematuria in patients taking anticoagulants, and alert patients who are taking sodium-glucose cotransporter 2 (SGLT-2) inhibitors to an increased risk of urogenital infections.

1. Advise older men with benign prostatic hyperplasia to avoid common anticholinergic and sympathomimetic medications to reduce their risk of developing acute urinary retention.

Older men (age > 60 years) are at higher risk for developing acute urinary retention if they have benign prostatic hyperplasia, obstructive urinary symptoms, or poor bladder emptying. With this in mind, it's wise to educate at-risk patients—notably older men with benign prostatic hyperplasia—to avoid certain medications that can cause acute urinary retention.[2]

Specifically, diphenhydramine and chlorpheniramine, over-the counter antihistamines, are potent anticholinergic medications that can cause acute urinary retention.[2,3] Other common over-the-counter medications associated with acute urinary retention include phenylephrine and pseudoephedrine (alpha-receptor agonists), which are commonly found in cold medications. Prescription medications like baclofen, cyclobenzaprine, and tricyclic antidepressants such as amitriptyline have also been implicated in acute urinary retention.[2]

2. Manage acute urinary retention in male patients with benign prostatic hyperplasia by placing a Foley catheter for bladder decompression, starting them on an alpha-1 adrenergic antagonist, and ordering a voiding trial within 1 to 2 weeks.

Men with significant acute urinary retention are unable to pass urine, and this may be accompanied by suprapubic or abdominal discomfort. The most common underlying reason for acute urinary retention is benign prostatic hyperplasia, but it also can be precipitated by infection, inflammatory prostatitis, urethral stricture, or recent initiation of a medication known to cause urinary retention (see Pearl 1).

Bladder decompression is the first step to address acute urinary retention, which is often accomplished by the placement of a Foley catheter. Bladder rest is critical, especially for patients who have high urine volume at the time of initial catheterization, which may indicate detrusor dysfunction.

Medication initiation is an important next step. An alpha-blocker (eg, tamsulosin, alfuzosin, silodosin) is used to address untreated benign prostatic hyperplasia and lower urinary tract symptoms. A 5-alpha reductase inhibitor (eg, finasteride, dutasteride) can also be started with an alpha-blocker as dual therapy, but it can take months to see its maximum effect.

Finally, refer the patient to a urologist so that a voiding trial can be performed in the next 1 to 2 weeks. Prolonged catheterization is usually not beneficial unless you are waiting for a 5-alpha reductase inhibitor to reach maximum effect.

If medications do not restore bladder emptying, clean intermittent catheterization or surgical intervention may be indicated.[4]

3. Investigate—rather than dismiss—the presence of microscopic hematuria in patients taking an antiplatelet or anticoagulation medication.

Microscopic hematuria—red blood cells greater than or equal to 3 per high-power field[5]—is common, but not normal. In young healthy patients, it may be present after vigorous exercise or as a consequence of menstrual contamination of urine. In other patients, it may be a sign of nephrolithiasis or urinary tract infection. But microscopic hematuria may also signal something more sinister. Malignancy in any part of the genitourinary system is in the differential, and attributing hematuria to a patient's use of an antiplatelet or anticoagulation medication without an appropriate workup is imprudent.[5]

A careful history to identify any nonmalignant causes is the first step of the workup, and urinalysis with microscopic analysis will guide the direction of the evaluation. For example, active sediment with the presence of red blood cells or significant protein suggests a renal etiology. A patient with acute onset of unilateral flank or groin pain and hematuria may have nephrolithiasis and should be evaluated with abdominal noncontrast computed tomography imaging (or ultrasonography if patient is pregnant). A patient with pyuria on urinalysis and symptoms suggestive of a urinary tract infection can be treated with antibiotics and a follow-up urinalysis in 4 to 6 weeks.[6]

For patients without an apparent etiology, risk assessment will guide the evaluation.[5]

In low-risk patients (women < 50 years, men < 40 years, never smoker or < 10 pack-years of smoking, and 3–10 red blood cells per high-power field), a urinalysis should be repeated in 6 months. If normal, the workup is complete.

In intermediate-risk patients (women 50–59 years, men 40–59 years, 10–30 pack-years of smoking, and 11–25 red blood cells per high-power field), renal ultrasonography and referral to urology for cystoscopy are indicated.

In high-risk patients (age ≥ 60 years, > 30 pack-years of smoking, > 25 red blood cells per high-power field, or history of gross hematuria), imaging with computed tomography urography, followed by referral to urology for cystoscopy, is recommended.

4. Know the reasons why urology should be contacted urgently. Red or reddish-brown urine does not always require urgent urology referral.

Several things can mimic gross hematuria.[6] For example, hemoglobin is a potent pigment; as little as 1 mL of blood can cause urine to appear grossly bloody. Myoglobin is often reddish-brown in color and may transiently appear in the urine after vigorous exercise. (The urinalysis in this case will be heme positive, but red blood cells will be absent from urine microscopy.) Eating beets and taking certain medications like phenazopyridine can lead to a transient red color change, in the absence of blood or red blood cells, and usually resolves quickly. Porphyria can also cause a color change in the urine, often with a normal urinalysis.[7]

Myoglobinuria with elevated creatine kinase may indicate rhabdomyolysis, a medical emergency. A large amount of myoglobin in the urine can cause acute kidney injury, and these patients are often admitted for vigorous intravenous hydration.

Gross hematuria requires urgent computed tomography urography and urology referral. Blood clots may obstruct the flow of urine and cause urinary retention. In severe cases, a urologist will need to place a large-bore urinary catheter to allow for bladder irrigation or to intervene with cystoscopy and clot evacuation.

5. Blood in the ejaculate is alarming to patients but is almost always benign—consider infection, medical procedures, and even possible parasite encounters during recent travel as potential causes.

Hematospermia, or gross blood in the ejaculate, often resolves on its own. In younger patients, infection is the most common cause.[8] A urinalysis should be obtained to rule out urinary tract infection and, if negative, a sexually transmitted infection workup should be considered. The patient's history will guide the evaluation.

In older patients, hematospermia is usually attributed to a postprocedure sequalae, such as a prostate biopsy or radiation for prostate cancer. In these cases, it is self-limited. A workup for sexual transmitted infections should also be considered in this population if the sexual history warrants it.

Other causes of hematospermia in adults can include malignancy, but the likelihood of cancer is low.[8] Another rare cause of hematospermia is schistosomiasis, which is caused by a parasitic worm found in infected waters. If a patient reports recent travel, ask whether they have traveled to endemic areas, which include sub-Saharan Africa, southeast Asia, and China.[9]

Patients with persistent hematospermia should be referred to a urologist to rule out other more serious causes.

6. Refer to Bosniak grading and American Urological Association guidelines to inform the management of kidney lesions found incidentally on cross-sectional imaging. Many lesions are cysts that require no further evaluation, but some cysts and all solid masses require further imaging.

Cysts are classified using the Bosniak grading system. Category I and II cysts don't require further evaluation, while category IIF through IV cysts require follow-up or intervention. Hyperdense and hemorrhagic cysts are benign (considered a Bosniak II cyst) and do not require further follow-up. All solid masses and Bosniak III to IV cysts require either intervention or long-term follow-up by a urologist.[10–12]

For masses that require serial follow-up, dedicated kidney imaging with computed tomography or magnetic resonance imaging should be used to distinguish benign from more suspicious masses. Vascular lesions, like aneurysms and fistulas, can also be followed serially by computed tomography or magnetic resonance imaging. Ultrasonography is less sensitive for determining malignant potential.

The urologist or radiologist will provide a recommendation for reimaging intervals. Small size at presentation (< 3 cm) and lack of growth or slow growth are favorable prognostic features.[11]

7. Advise patients taking SGLT-2 inhibitors that the medication is associated with lower urinary tract symptoms and a small but significantly increased risk of urogenital infections.

SGLT-2 inhibitors (eg, empagliflozin, dapagliflozin) are an exciting new class of antihyperglycemic medications used to treat patients with type 2 diabetes and have been shown to have positive effects on glycemic control, blood pressure, heart failure, and chronic kidney disease progression. SGLT-2 inhibitors lower serum blood sugar by inducing glycosuria, which causes patients to pass larger amounts of urine or feel that they have to urinate more often. Men may ascribe these symptoms to benign prostatic hyperplasia, but medications for this condition will not mitigate the symptoms.

In addition, glycosuria, coupled with the impaired immunity of diabetes and the moist environment in the urogenital tract, results in an increased risk in mycotic infections.[13] Uncircumcised men have the greatest risk of complications, which include balanitis or phimosis.

Women taking SGLT-2 inhibitors can have a higher risk of cystitis or vaginal yeast infections.

When starting patients on an SGLT-2 inhibitor, be sure to tell them about the risk of infection and the ways that they can mitigate that risk. Tell patients that it's important to clean and dry the genitals and perineum completely after urination. For patients who are uncircumcised, recommend that they retract the foreskin and ensure they dry the area thoroughly. Advise patients to seek medical attention immediately if they notice any symptoms or signs of infection.

8. Refer patients with Peyronie disease, a condition that is not rare, to a urologist if it impairs their ability to have intercourse.

Peyronie disease is an acquired penile deformity that causes a curvature of the penis; in some patients, it can interfere with the ability to have intercourse. As a type of erectile dysfunction, it may be psychologically and physically distressing to the patient. Patients may be reluctant or embarrassed to mention their symptoms to their doctor. Reported rates of incidental diagnosis are as high as 16%.[14] Peyronie disease may be diagnosed incidentally during evaluation for erectile dysfunction.[14]

The diagnosis is usually straightforward after taking a patient history and performing a penile examination. A fibrous plaque can often be palpated along the penile shaft. If the deformity bothers the patient or impairs their ability to have sex, patients can be referred to a urologist to determine whether medical or surgical treatment is warranted. Treatment may include injections with collagenase *Clostridium histolyticum* to break up the plaque or, in more serious cases, surgical correction.[14] If the deformity is minor or does not bother the patient, referral is unnecessary. Home remedies and folklore treatments are unproven and should be avoided.[14]

9. Avoid treating asymptomatic bacteriuria with antibiotics unless the patient falls into 1 of 3 exceptions to the "do not treat" rule.

In almost all instances, patients with asymptomatic bacteriuria (no dysuria, frequency, or urgency) should not be treated for a urinary tract infection, according to the latest guidelines from the Infectious Diseases Society of America.[15] The presence of bacteria in the urine, a positive urine culture (≥ 100,000 colony-forming units/mL), the presence of pyuria (≥ 10 leukocytes in the urine), or leukocyte esterase positivity without any of the above urinary symptoms does not indicate a urinary tract infection.[15] Even with specific sensitivities, empiric or directed antibiotics should not be prescribed. This particularly includes asymptomatic patients with a chronic indwelling Foley catheter (who frequently have bacterial colonization).

There are 3 exceptions to the "do not treat asymptomatic bacteriuria" rule.[15] They are (1) patients who are pregnant, (2) those undergoing a urologic procedure that may induce mucosal bleeding or pyelovenous backflow, and (3) patients who recently received a transplanted kidney (within 30 days of transplant). The transplant nephrologist should be consulted for the last case.

It's also important to be alert to 2 groups that require special attention and a nuanced response.

Patients with a spinal cord injury may have symptoms that differ from the classic genitourinary symptoms of a urinary tract infection. Signs and symptoms in patients with a spinal cord injury who have a urinary tract infection can include fever, malaise, lethargy or sense of unease, or new or worsening urinary incontinence or leaking around the catheter, spasticity, cloudy urine, malodorous urine, back pain, bladder pain, dysuria, or autonomic dysreflexia.[15] In the absence of these signs and symptoms, asymptomatic bacteriuria should not be treated.

Functionally or cognitively impaired older men and women may also present unique challenges as they may not be able to communicate their symptoms. In the community, these patients with pyuria or bacteriuria often receive empiric antibiotics for suspected urinary tract infection. However, the Infectious Diseases Society of America guidelines[15] strongly recommend against starting empiric antibiotic treatment when these patients develop bacteriuria with no localizing genitourinary symptoms or fever in the context of either delirium (acute mental status changes) or a recent fall. Instead, assess for other causes of delirium or the fall and carefully observe the patient.

The guidelines place a high value on avoiding adverse outcomes, such as antimicrobial resistance or *Clostridioides difficile* infection, in this population. Cloudy or malodorous urine as a sign of a urinary tract infection should only be considered as a proxy symptom in patients with spinal cord injury or dementia. In patients who are intact neurologically, urine odor or cloudiness should not be considered as a substitute for traditional symptoms of a urinary tract infection.

A patient who presents with a symptomatic infection with dysuria or other symptoms and has a positive urine culture should receive targeted therapy based on the bacterial sensitivities. In the absence of the stipulated exceptions, asymptomatic bacteriuria with or without pyuria should not be treated with antibiotics.

10. Refine your approach to prostate-specific antigen (PSA) screening by considering age-specific reference ranges, watching for medications that can alter PSA results, and focusing on a PSA value's "velocity" when considering a referral.

PSA screening has a long and complicated history. In 2012, the US Preventive Services Task Force[16] recommended against using PSA-based screening for prostate cancer. This change in strategy corresponded with an increase in the incidence of advanced prostate cancer cases in the years that followed. In 2018, this recommendation was changed back to a C recommendation, meaning that the decision to undergo PSA screening for men age 55 to 69 years should be individualized based on shared decision-making.[17]

Consider age-specific ranges. Historically, a PSA value of greater than 4.0 ng/mL has been used as an indicator for referral to a specialist for further evaluation and possible biopsy. In a study by Partin et al,[18] reference ranges of 0 to 2.5 ng/mL serum PSA (40–49 years); 0 to 3.5 ng/mL (50–59 years); 0 to 4.5 ng/mL (60–69 years); and 0 to 6.5 ng/mL (70–79 years) were defined to detect fewer (potentially insignificant) prostate cancers in older men and more (potentially curable) cancers in younger men. The researchers found that age-specific PSA reference ranges increased the detection of potentially curable tumors in young men and decreased the detection of less advanced tumors in older men compared with the standard reference range of 4.0 ng/mL.

Watch for certain medications. Medications such as 5-alpha reductase inhibitors (finasteride, dutasteride) lower the PSA by 50%. So, if a patient on this medication has a measured PSA of 2.5 ng/mL, the correction would be 5.0 ng/mL, which can be in the abnormal range, depending on screening strategy. Recent sexual activity, urologic procedures, and recent urinary tract infections can also temporarily increase the PSA value. Repeating the testing in 3 to 4 weeks is prudent. Even in the absence of these features, a single elevated value should be repeated.

Another medication issue related to PSA values merits attention. As part of its participation in the American Board of Internal Medicine's Choosing Wisely campaign, the American Urological Association warns against the practice of prescribing antibiotics to decrease initially raised PSA values and to reduce the need for prostate biopsy: "Don't treat an elevated PSA with antibiotics for patients not experiencing other symptoms."[19–21]

Focus on a PSA value's "velocity." The rate of rise or velocity of a PSA value over time can be helpful in determining which patients to refer to a urologist before the level reaches a screening threshold. It is much more concerning to a urologist for a patient to have a steady PSA increase from 1.0 to 3.0 ng/mL over a 1-year span than to have the same 6.0 ng/mL value over several years. Urologists now are using additional testing to determine which patients should undergo a prostate biopsy. These tests include multiparametric prostate magnetic resonance imaging; serum free PSA, bound PSA, or both; and urinary biomarkers.

DISCLOSURES

Dr. Shirk has disclosed consulting for Ceevra and Procept Biorobotics. Dr. Paige reports no relevant financial relationships which, in the context of their contributions, could be perceived as a potential conflict of interest.

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