

Male Reproductive System Disorders

Vaunette Fay, PhD, RN, FNP-BC, GNP-BC

GERIATRIC APPROACH

Normal Changes of Aging

Male Reproductive System

- Decreased testosterone level leads to increased estrogen-to-androgen ratio
- Testicular atrophy
- Decreased sperm motility; fertility reduced but extant
- Increased incidence of gynecomastia

Sexual Function

- Slowed arousal—increased time to achieve erection
- Erection less firm, shorter lasting
- Delayed ejaculation and decreased forcefulness at ejaculation
- Longer interval to achieving subsequent erection

Prostate

- By fourth decade of life, stromal fibrous elements and glandular tissue hypertrophy, stimulated by dihydrotestosterone (DHT, the active androgen within the prostate); hyperplastic nodules enlarge in size, ultimately leading to urethral obstruction

Clinical Implications

History

- Many men are overly sensitive about complaints of the male genitourinary system; men are often not inclined to initiate discussion, seek help; important to take active role in screening with an approach that is open, trustworthy, and nonjudgmental
- Sexual function remains important to many men, even at ages over 80
- Lack of an available partner, poor health, erectile dysfunction, medication adverse effects, and lack of desire are the main reasons men do not continue to have sex
- Acute and chronic alcohol use can lead to impotence in men
- Nocturia is reported in 66% of patients over 65
 - Due to impaired ability to concentrate urine, reduced in bladder capacity or BPH
 - Frequent cause of insomnia

Physical

- Digital rectal exam (DRE) is almost universally dreaded by men; provide privacy, allow for dignity

Assessment

- In men diagnosed with benign prostatic hyperplasia (BPH), periodic evaluation for prostate cancer must continue

Treatment

- A man may not want treatment for BPH because of fear of erectile dysfunction

PROSTATE GLAND DISORDERS

Prostatitis

Description

- Acute or chronic inflammation of the prostate gland secondary to bacterial or nonbacterial causes

Etiology

- Various causes: allergic, autoimmune response; infectious, related to instrumentation, UTIs, prostatic abscess, or stone
- Acute infection: generally Gram-negative bacilli; primarily *E. coli*; may also be *Enterobacter* organisms, *Klebsiella* organisms, *Proteus* organisms, *Staphylococcus aureus*
- Infectious causes usually occur by direct invasion from the urethra, typically UTI

Incidence and Demographics

- Chronic bacterial prostatitis occurs primarily in older men
- Acute bacterial prostatitis is uncommon

Risk Factors

- Age over 50
- Instrumentation of urinary tract
- Abscess elsewhere in the body
- Recurrent UTIs

Prevention and Screening

- Avoidance of unnecessary procedures

Assessment (see Table 13-1)**History**

- Symptoms of dysuria due to compression of the urethra by the inflamed prostate
- Chronic bacterial prostatitis characterized by remissions and exacerbations with recurrent UTIs
- Acute bacterial prostatitis characterized by acute onset with systemic symptoms and pattern of pain and dysuria
- Current medications (such as anticholinergics), other medical illness, and sexual history to assess risk of infection

Physical

- Abdominal exam: check for tenderness or distended bladder from urinary retention
- Genitalia: urethral discharge
- CVA tenderness to assess kidneys
- Rectal exam
- **Warning regarding prostate examinations:** examining the prostate is a part of this exam; however, because of exquisite tenderness and risk for bacteremia, it is to be done very gently or, in the case of suspected acute prostatitis, perhaps not at all until treatment has been initiated
- In the nonacute patient, prostatic massage is indicated for carrying out the three-step urinalysis and culture for evaluation of prostatic secretions, and as part of therapeutic treatment

Table 13-1. Clinical Presentation of Prostatitis

Assess	Acute Bacterial	Chronic Bacterial
Symptoms	Chills, fever, malaise Dysuria Urgency Burning Frequency Hematuria Pain: pelvis, perineum, lower back, scrotum, with defecation, with intercourse	+/- low grade fever Dysuria Hesitancy Hematuria Hematospermia Pain mild: perineal, scrotal, abdominal, with ejaculation
Physical Findings	Fever Prostate very tender, boggy, warm Urethral discharge	No systemic findings Prostate may be normal, indurated, mildly tender, boggy, or irregular +/- Prostatic stones Scrotum +/- edema, erythema, and tenderness

Diagnostic Studies

- Urinalysis and culture/sensitivity: If pyuria on initial clean-catch wet prep and positive urine culture, adequate diagnosis for acute bacterial prostatitis
- If initial clean-catch wet prep is negative for bacteria, proceed to prostatic massage and collect postmassage urine for wet prep and culture
- If prostatic massage wet prep has at least 10 to 15 WBC, culture will usually yield gram-negative organisms indicative of chronic prostatitis

- Negative culture with WBC indicates nonbacterial prostatitis; if no WBC and negative culture, suspect prostatodynia and refer
- Chronic prostatitis is additionally evaluated with CBC, serum BUN and creatinine, and possible IV pyelogram and/or transrectal ultrasound
- Bladder cancer screening via urine cytology

Differential Diagnosis

- BPH
- Prostatodynia
- Urethral stricture
- Nonbacterial prostatitis
- Cancer of the bladder or prostate
- Renal colic
- Other infections: abscess, epididymitis, cystitis, urethritis

Management

Nonpharmacologic Treatment

- Avoidance of known irritants: caffeine, alcohol, OTC antihistamine or decongestants
- Hydration maintenance (force fluids)
- Rest and sitz baths 20 minutes 2 to 3 times a day for pain as needed

Pharmacologic Treatment

- Prostate gland difficult to penetrate with antibiotics; first-line treatment with trimethoprim-sulfamethoxazole (Bactrim) or fluoroquinolones
- NSAIDs recommended for both anti-inflammatory effects and pain relief; choice of medications may be limited because of intolerance/side effects of NSAIDs.
- Stool softeners as needed

Table 13–2. Antibiotic Management of Infections—Based on Gram Stain and Culture

Treatment	Acute Bacterial	Chronic Bacterial
Antibiotics	Ciprofloxacin 500 mg PO b.i.d. Levofloxacin 500 qd Trimethoprim/ sulfamethoxazole (Bactrim) DS b.i.d. Ofloxacin 400 mg p.o. once, then 300 mg every 12 hours for 10 days Other antibiotic appropriate to the organism	Cipro 500 mg PO b.i.d. Trimethoprim/ sulfamethoxazole (Bactrim) DS b.i.d. Ofloxacin 200 mg every 12 hours for 3 months
How long to treat	2 to 6 weeks	1 to 4 months

When to Consult, Refer, Hospitalize

- Hospitalization indicated for all patients with systemic involvement for IV antibiotics, treatment of possible septicemia
- Refer to a urologist if no improvement within 48 hours of treatment
- Refer to a urologist older patients (> 50) who are symptomatic, have recurrent prostatitis, or have acute bacterial prostatitis, as BPH may be a compounding problem

Follow-up**Expected Course**

- Chronic prostatitis: follow-up appointments with urinalysis, culture and sensitivity every 30 days; sooner as indicated based on response to treatment and changes in symptoms
- Acute prostatitis: reevaluation in 48 to 72 hours, then 2 to 4 weeks later for urinalysis, urine and prostatic secretion cultures to monitor treatment effectiveness and assess for complications; repeat one month after completion of antibiotic course

Complications

- Potential for serious sequelae including development of prostatic abscess, stones, ascending or recurrent UTIs, epididymitis, urinary retention, renal infection

Benign Prostatic Hyperplasia**Description**

- Benign, gradual enlargement of the periurethral prostate gland in which the enlargement mechanically obstructs urination by compressing the urethra
- Differentiate between BPH and prostate cancer

Etiology

- Combination of hormonal changes, growth factors—stromal and epithelial cell hyperplasia
- Begins in the periurethral zone of prostate
- Medications known to increase symptoms: alpha-adrenergic agonists, anticholinergics, antihistamines, opioids, tricyclics, sedative hypnotics, alcohol

Incidence and Demographics

- Approximately half of 50-year-old men, 70% of 70-year-olds, 90% of those 85+
- Initially asymptomatic, many develop urinary symptoms by age 60

Risk Factors

- Age
- Presence of androgens

Prevention and Screening

- Most organizations recommend annual DRE examination after the age of 40
- Use of the PSA for screening remains controversial; PSA should be drawn prior to doing the DRE
- Early screening starting in the 40s may allow for earlier treatment, slowing of the progression of hyperplasia, and possible reduction of symptoms

Assessment**History**

- Assess degree of impairment using the American Urological Association BPH Symptom Index
 - Not emptying bladder completely, urinary frequency, repeated stopping and starting, urgency, weak stream, pushing or straining to begin urination, nocturia
- Obstructive symptoms: difficulty starting/stopping stream, hesitancy, dribbling, weakening force/size of stream, sensation of full bladder after voiding, urinary retention
- Irritative symptoms: urgency, frequency, nocturia, urge incontinence, dysuria, suprapubic discomfort

- Medications: anticholinergics (decongestants, antihistamines, tricyclic antidepressants, tranquilizers) impair bladder contractility; sympathomimetics increase outflow resistance
- Past medical history: explore for other conditions that may be associated with these symptoms—surgery, diabetes, neuromuscular disease (multiple sclerosis), psychogenic disorder, cardiovascular disease (CHF), and hypercalcemia
- General: fever, malaise, back pain, hematuria, and pain with voiding indicate possible complication of BPH

Physical

- Abdomen: possible distended bladder on percussion or palpation; costovertebral angle tenderness if renal sequelae
- Neurologic: screening exam to note nonprostate etiology for symptoms of neurogenic or myogenic etiology, detrusor muscle impairment, compression of nerves
- Digital rectal exam (DRE): intact anal sphincter tone; prostate nontender, firm, smooth, and rubbery consistency with blunting or obliteration of midline median sulcus
- Enlargement may be symmetric, nodular or asymmetric; any nodules should be considered possibly malignant

Diagnostic Studies

- Urinalysis: hematuria, glycosuria, or infection
- Urine culture and sensitivity if evidence of infection
- Serum creatinine to assess renal function: may be abnormal if urinary retention or obstruction has affected upper urinary tract, as well as with underlying renal disease
- Urine culture and sensitivity if evidence of infection
- Prostate specific antigen (PSA): controversial if patient is asymptomatic, normal is 4 to 7 ng/mL for the older adult; > 10 ng/mL may indicate cancer or prostatitis
- Urinary flowmetry studies (flow rate), postresidual urine, and urodynamic studies, transrectal ultrasound (to guide needle biopsy), and abdominal ultrasound done by urologist

Differential Diagnosis

- | | | |
|---------------------------|--|---|
| • Prostate cancer | • Bladder neck contracture or cancer | • Diseases associated with increased urination (CHF, DM, hypercalcemia) |
| • Prostatitis | • Infectious or inflammatory disease (prostatitis, cystitis, urethritis) | • Neurologic disease |
| • Urethral stricture | | |
| • Urinary tract infection | | |

Management

Nonpharmacologic Treatment

MILD SYMPTOMS

- Watchful waiting, monitoring of symptoms
- Avoidance of bladder irritants: coffee, alcohol, medications listed in Etiology
- Limit intake of fluids in the evening, avoid large quantities in short time

MODERATE

- Treatment initiated when symptoms interfere with quality of life (such as frequent nocturia disrupting sleep, incontinence) or recurrent UTI

SEVERE

- Treatment required if patient has refractory retention, recurrent urinary tract infections, recurrent or persistent gross hematuria, bladder stones, or renal insufficiency due to BPH
- Surgical options include transurethral resection of prostate (TURP), transurethral incision of prostate (TUIP), and open prostatectomy via abdominal incision (rarely used)
- Laser surgery and coagulation necrosis techniques performed under ultrasound guidance are newer techniques that are minimally invasive

Pharmacologic Treatment

- Aggravating medications should be discontinued when feasible

MILD TO MODERATE

- Two classes of medications are available (see Table 13–3)
- Alpha-adrenergic blockers: reduce muscle tone through effect on alpha-adrenergic nerves in both bladder neck and prostatic urethra, so there is decreased resistance to urine flow
- 5-alpha-reductase inhibitors block conversion of testosterone to DHT, decreasing hormonal (androgen) effect on prostate, shrinking prostate size and symptoms, resulting in increased peak urinary flow rate
- Less commonly used drugs include GnRH agonists, progestational antiandrogens, flutamide, and testolactone
- Saw palmetto is an alternative therapy that is controversial but commonly used
- Treat UTI if present

How Long to Treat

- Depends on type and severity of symptoms and impact on daily functioning
- Medications may be prescribed until symptoms are no longer manageable and nonpharmacologic treatment may be needed

Table 13–3. Pharmacologic Management of BPH

Drugs	Dosage	Comment
α_1-Adrenergic Blockers		
Terazosin (Hytrin)	Always begin with 1mg PO QHS, may increase to 2 mg, then 5 mg up to 10 mg/day to achieve symptom relief or desired flow rate	Drugs of choice for smaller prostate and acute irritative symptoms Improvement dose dependent; 4 to 6 weeks for maximal therapeutic effect May cause postural hypotension, dizziness, palpitations, or syncope
Doxazosin (Cardura)	1 mg q.d. HS, may double every 1 to 2 weeks to max of 8 mg/day	First-dose syncope requires first pill be taken while patient is in bed May be beneficial for those with concomitant BPH and HTN, can reduce number of medications needed
Prazosin (Minipress)	1 mg q.d. HS or every 12 hours with a max of 20 mg/day	
Alfuzosin (Uroxatral)	10-mg extended-release tablet taken at the same time daily after a meal	

continued

Table 13–3. Pharmacologic Management of BPH (cont.)

Drugs	Dosage	Comment
Tamsulosin HCL (Flomax)	0.4 mg q.d. 30 min before meal at same time each day. May increase to 0.8 mg after 2 to 4 weeks	No cardiovascular side effects; postural hypotension not common May cause dizziness, abnormal ejaculation, rhinitis
5 α-Reductase Inhibitor		
Finasteride (Proscar)	5 mg q.d. no titration needed	Drug of choice for large prostate and those with contraindications or failed treatment with α -adrenergics
Dutasteride (Avodart)	0.5 mg/day	Improvement not noted for up to 6 to 12 months Must be used indefinitely to sustain effect Decreases PSA by up to 50%, blocking effectiveness of PSA as screening tool for CA

Special Considerations

- In presence of concomitant diseases (diabetes mellitus; CV or neurologic disease), care should be coordinated with regard to medications, ability for self care, and recommendations for procedural or surgical treatment
- Must always rule out prostate cancer

When to Consult, Refer, Hospitalize

- Referral to a urologist is indicated for AUA index score of 8 or more, symptoms not responsive to medications, infections (epididymitis, repeat UTIs), obstruction or acute urinary retention, renal disease, or suspicion of malignancy
- Refer if surgical procedure may be indicated

Follow-up

- Annual evaluation with DRE indicated for asymptomatic or minor symptoms, sooner if symptoms warrant

Expected Course

- Without intervention, prostate gland will continue to increase in size, ultimately causing symptoms of obstruction
- Depending on response to medication, may have prolonged course of milder symptoms, slowing of hyperplasia
- Follow up initially every 2 to 4 weeks until stable
- Individuals on finasteride need follow-up in 6 months

Complications

- Recurrent UTI/sepsis
- Obstruction of urinary flow with urinary retention
- Incontinence
- Azotemia
- Chronic renal failure

Prostate Cancer**Description**

- Malignant neoplasm of the prostate gland

Etiology

- Unknown

Incidence and Demographics

- 190,000 new cases per year
- Second most common cause of cancer deaths in men
- One in five men develop prostate cancer; average age at diagnosis is 72 years
- About 85% of all clinically diagnosed cases of prostate cancer are men > age 65
- 40% greater incidence in Black men; at all ages, Black men are diagnosed with prostate cancer at later stages and are 2.5 times more likely to die of the disease than White men

Risk Factors

- Age
- Exposure to chemical carcinogens, history of STIs
- Family history
- Possibly related to prior vasectomy
- Diet high in fat and meat or low intake of fruit
- More common in Blacks
- Low vitamin D levels
- Sun exposure
- History of agricultural work

Prevention and Screening

- Annual digital rectal exam (DRE) beginning between age 40 and 50
- Annual PSA test from age 50 is recommended for screening and early detection by some groups; U.S. Preventive Health Services Task Force suggests research does not support this practice because of high number of both false positives and false negatives
- Avoid use of androgen supplements

Assessment**History**

- Asymptomatic initially
- May include any or all BPH symptoms described above
- With enlargement, frequency, nocturia, and dribbling develop
- Bone pain in hips, pelvis, or back occurs with advanced metastatic cancer

Physical

- Depending upon stage of the cancer, the prostate on DRE may be normal on the palpable lateral and posterior portion of the gland or may be asymmetrical, and generally firmer with hard induration, localized nodules, and obliterated median sulcus
- Hematuria may be present
- Examine back for spinous process tenderness and lower extremities for neurological abnormalities if metastatic disease is suspected

Diagnostic Studies

- PSA level > 4 ng/mL indicates possible cancer
- Normal PSA in 40% of patients with cancer; PSA discredited as good screening examination
- CBC, urinalysis, urine C&S for study of urinary symptoms
- Acid phosphatase increased with late stage (metastatic) disease in bone

Differential Diagnosis

- BPH
- Prostatitis
- UTI
- Proximal urethral stone
- Bladder or renal cancer
- Urethral stricture

Management by the Urologist

- Treatment choice based on stage of disease

Nonpharmacologic Treatment

- Asymptomatic with life expectancy < 10 years, watchful waiting is option
- If localized, treatment options include watchful waiting, radical prostatectomy and external beam radiation therapy, brachytherapy (radioactive seed implant)
- Disseminated disease treated with surgical or chemical castration (hormonal therapy) or chemotherapy

Pharmacologic Treatment

- LHRH agonist: leuprolide (Lupron) monthly injection
- Antiestrogen: flutamide 250 mg t.i.d.

How Long to Treat

- Follow-up exam and PSA every 3 months first year, then every 6 months for 1 year
- Chest x-ray and bone scan every 6 months for 1 year then as indicated by changes in PSA
- Early stage may be cured with no further treatment needed if localized and surgically removed
- Hormonal treatment is maintained throughout the course of the advanced stages
- Radiation, chemotherapy treatments vary depending upon staging

When to Consult, Refer, Hospitalize

- All patients with PSA > 10, sudden increase in serial PSA even if still within normal limits, abnormalities on DRE, or symptomatic are referred to urologist

Follow-up**Expected Course**

- PSA should be undetectable after prostatectomy, negligible after radiation
- Rise in PSA after treatment indicates recurrence
- Concurrent with treatment of the cancer is the need to address the effects of the diagnosis, sequelae of the disease, and side effects of treatments
 - Coping with a chronic or terminal illness
 - Loss of self-image or self-esteem
 - Transient or permanent incontinence (2% to 5%)
 - Loss of libido and impotence

Complications

- Incontinence, erectile dysfunction, pain, pathologic fractures related to bone metastases to regional lymph nodes and bone (axial skeleton most common site), death

- Impotence occurs in 40% postoperatively and 25% to 35% postradiation; hormonal treatment may additionally result in gynecomastia, cardiovascular complications, or hot flashes

PENILE DISORDERS

Phimosis

Description

- Inability to retract the foreskin of uncircumcised penis that had formerly been retractable

Etiology

- Occurs when orifice of the prepuce is too small to allow retraction of the foreskin
- Acquired from trauma, prior infection, or poor hygiene (retained smegma and dirt) that results in inflammation and development of adhesions
- Geriatric patients may develop phimosis with use of condom catheters

Incidence and Demographics

- Elderly at increased risk because of inability to care for self

Risk Factors

- Poor hygiene
- In diabetics, levels of glucose in the urine are higher than normal—increased risk of bacteria infection
- Trauma

Prevention and Screening

- Hygiene of the genitalia with retraction of the foreskin during washing
- Make sure to replace foreskin after washing.

Assessment

History

- May be asymptomatic, with phimosis discovered on examination
- When related to an infectious or inflamed process, patients complain of irritation and tenderness of the glans, discomfort with voiding, or pain on erection
- If severe enough, outflow of urine may be compromised by an opening that is too small, presenting as a **urological emergency**

Physical

- Glans nonretractable, prepuce pallid, striated, and thickened
- If actively infected: erythema, smegma, and/or exudate and tenderness

Differential Diagnosis

- Penile lymphedema associated with trauma, allergic reaction, insect bite

Management

Nonpharmacologic Treatment

- Treatment of the underlying cause such as infection or inflammation with good hygiene, sitz baths, and warm compresses
- Surgical release or circumcision

Pharmacologic Treatment

- If concurrent infection or inflammation, treatment with topical antifungals or steroids may be sufficient to allow for retraction

How Long to Treat

- Topical treatment for underlying infection or inflammation for 1 to 2 weeks

When to Consult, Refer, Hospitalize

- Refer to urologist for surgical release or circumcision if nonresponsive to topical treatment and hygiene, urinary flow compromised, or asymptomatic phimosis remains

Follow-up**Expected Course**

- Resolves with treatment

Complications

- Inflamed prepuce
- Meatal stenosis
- UTI
- Premalignant changes

Erectile Dysfunction**Description**

- Inability to achieve or maintain a satisfactory erection more than 25% to 50% of the time
- May be defined by patients as loss of orgasm, premature ejaculation, or loss of emission, libido, or erections

Etiology

- Classified as either psychological or organic
- Psychological origin is likely with loss of orgasm when libido and erection are intact and with premature ejaculation concurrent with anxiety, depression, relationship problems, new partner, or emotional disorders
- If patient has nocturnal erections, problem is probably psychological, not organic
- Gradual loss of erections over time is indicative of organic causes
- Libido problems more associated with low testosterone level
- Medications such as anabolic steroids, digoxin (Lanoxin), antihypertensives, especially centrally acting (reserpine, clonidine, methyldopa); beta-blockers; and spironolactone (loss of libido); anti-depressants (MAOI, tricyclics, SSRI)
- Lifestyle issues of alcohol, drug, and cigarette (or other nicotine) use
- Hormonal and endocrine disorders of the thyroid, kidney, pituitary gland; or testicular function, Addison's disease and Cushing syndrome
- Vascular disorders such as arterial insufficiency, venous disease, atherosclerosis
- Neurologic disorders: cortical, brainstem, and spinal cord disorders; peripheral neuropathies; Parkinson's disease
- Posttreatment of prostate disorders
- Diabetes mellitus, increased with poor glucose control
- Renal failure
- Pain
- Arthritis

Incidence and Demographics

- Widely unreported; estimated that 10% of the male population and 35% of men over 60 affected
- 20 to 30 million men in the United States; increases with age

Risk Factors

- See Etiology

Prevention and Screening

- Maintaining a healthy relationship, seeking support or counseling
- Avoidance of known stressors that affect sexual relationships
- Close management of chronic diseases, especially diabetes

Assessment

History

- Determine the patient's perception or definition of erectile dysfunction to clarify the problem and symptoms, as well as the timing, circumstances, frequency of occurrence
- Complaints include any of the following: reduced size and strength of erection, lack of ability to achieve or maintain erections adequate for intercourse, rapid loss of erection with penetration, or lack of libido
- Determine nature of patient's relationship, sexual partners, lifestyle, and stress
- Inquire about nocturnal or morning erections: presence reflects intact blood supply, nervous system, and sexual apparatus; reduced likelihood of organic cause
- Associated symptoms indicative of underlying disease: decreased body hair; gynecomastia; neuropathies; anxiety; headaches; vision changes; decreased circulation; excessive skin dryness or skin changes; changes in testicles' size, consistency, or shape; and changes in penis such as rash, discharge, or phimosis
- Review past medical history for other diseases, testicular infections or insults, medications (prescription, OTC, and herbal), and history of smoking, drug, alcohol use

Physical

- Complete screening physical noting general appearance, generalized anxiety or hyperactivity, vital signs for postural hypotension, dry hair, loss of secondary sex characteristics, spider angiomas, hyperpigmentation, palmar erythema, or goiter
- Chest, abdomen, and extremities for cardiac abnormalities, gynecomastia, aortic or femoral bruits, peripheral vascular deficits
- Genital examination for penile circulation, discharge, fibrosis, or lesions; testicles for size, masses, varicoceles, or atrophy; DRE for prostate abnormalities, sphincter tone
- Neurologic screening for cortical, brainstem, spinal, or peripheral neuropathies, noting especially bulbocavernosi reflex, cremasteric reflex, pinprick, or light touch to genital and perianal area, focal tenderness of spine

Diagnostic Studies

- Key studies to screen for underlying etiology begin with plasma glucose, prolactin, and free testosterone, CBC, UA, and lipid profile
- Ultrasound to check for blood flow to penis
- Other tests dependent on findings of history/physical and results of preliminary tests
- For libido problems check total testosterone, luteinizing hormone, TSH, prolactin

- Urologist may include nocturnal penile tumescence and rigidity testing, duplex ultrasonography, penile angiography, nerve conduction studies, or a trial injection of prostaglandin E₁, phentolamine, and papaverine intracorporeally to assess vascular integrity, noting penile response

Differential Diagnosis

- See Etiology

Management

Nonpharmacologic Treatment

- Modify lifestyle: stress reduction techniques; stop alcohol, drugs, and cigarettes
- Use of a vacuum constriction device for those with venous disorders of the penis or nonresponsiveness to vasoactive injections
- Surgical treatment—penile implants

Pharmacologic Treatment

- Substitute or discontinue medications known to cause erectile dysfunction
- Some antihypertensives that are less likely to cause ED are calcium-channel blockers (nifedipine), angiotensin-converting enzyme blockers (lisinopril), selective beta-blockers (atenolol)
- Alternative antidepressants instead of SSRI (fluoxetine [Prozac], sertraline [Zoloft], paroxetine [Paxil], citalopram [Celexa])
- Some antidepressants less likely to cause ED are bupropion (Wellbutrin) and venlafaxine (Effexor)
- Treat hormonal abnormalities as follows
 - Insufficient testosterone treated with a 3-month testosterone trial (if indicated by androgen deficiency, without prostatic cancer) using testosterone injections 200 mg IM every 3 weeks or topical patches of 2.5 to 6 mg/day
 - Hyperprolactinemia treated with bromocriptine initially 2.5 mg b.i.d., up to 40 mg/d
- Phosphodiesterase type 5 inhibitor—do not give if patient on nitroglycerin
 - Sildenafil (Viagra) 25 to 50 mg 1 hour prior to desired erection (works within 30 min to 4 hours)
 - Tadalafil (Cialis) 2 to 20 mg
 - Vardenafil (Levitra) 2.5 to 20 mg
- Controversial oral agents include yohimbine, trazodone, and ginkgo biloba
- Penile injections such as alprostadil (Caverject), first dose in office setting, 1.25 to 2.5 mcg with repeat dose after 1 hour if no response; patient to remain in office until detumescence completed; partial response may have second injection within 24 hours
- Use of injections or oral agents requires thorough patient teaching on proper use, frequency of use, side effects and risk of priapism, and when to seek medical help, such as erection lasting more than 6 hours
- Alternatives to alprostadil are papaverine or phentolamine
- Urethral suppository of alprostadil (Muse) in various strength pellets

How Long to Treat

- Variable depending upon treatment methods

Special Considerations

- Age 70+: rarely seek help; most likely have physical problems

When to Consult, Refer, Hospitalize

- Psychotherapist for individual or couples therapy, sex therapy
- Urologist, endocrinologist, cardiologist, neurologist referrals as indicated by diagnosis and requirements for further evaluation or advanced treatment

Follow-up

- Follow-up is varied depending upon diagnosis, underlying etiology, response to treatment, and need for therapy; patients should be seen initially at shorter intervals to adjust and monitor responsiveness to treatment, then every 3 months

Expected Course

- Improvement in many patients with oral medications, vacuum devices, suppository and penile implants; 15% spontaneously improve
- 20% failure rate with vacuum device; 10% to 30% dissatisfaction with penile implant
- Alprostadil injections have an 85% to 90% response rate, while the urethral pellet method rates are 40% to 60%
- Phosphodiesterase type 5 inhibitors are effective for 70% of patients at maximal dose

Complications

- Variable depending upon underlying etiology and treatment method side effects
- Phosphodiesterase type 5 inhibitors cause hypotension, headache, flushing, nausea, nasal congestion, abnormal vision, cardiovascular events, priapism, prolonged erections

CASE STUDIES

Case 1. An 83-year-old man complains of urinary hesitancy, dribbling, urinary frequency of small amounts, nocturia 4x/night. This has been gradually getting worse of past few months.

1. What is the most likely diagnosis?
2. What physical exam is required?
3. If the symptoms are not troublesome, what is the usual approach?
4. What symptoms would require referral for treatment?
5. What nonpharmacologic treatment may be helpful?
6. Which medications would you consider starting the patient on? What are their main disadvantages?

Case 2. A 78-year-old Black man comes to you feeling poorly. He complains of fatigue and low back pain, which has been gradually increasing for the past few months. He has had urinary symptoms, which he attributed to BPH for the past 6 years, gradually worsening so that he is now having hesitancy, dribbling, and a feeling of not emptying his bladder completely. He has never sought treatment for the BPH symptoms because he thought it was an inevitable consequence of aging.

PMH: 50 pack/year smoking, COPD, osteoarthritis, hypertension, and hyperlipidemia.

Medications: ipratropium/albuterol (Combivent) inhaler, acetaminophen (Tylenol) p.r.n. pain, hydrochlorothiazide 25 mg p.o. q.d., atorvastatin (Lipitor) 40 mg p.o. q.d.

1. What do his urinary symptoms indicate?
2. What are the most likely possibilities for a differential diagnosis?
3. What lab work would you order?
4. Which would be most useful for deciding between the differential?
5. What risk factors does he have?
6. What would you do?
7. What follow-up is required?

Case 3. A 68-year-old man comes to your office with the complaint of insomnia. Says he is having some problems with his wife. She is not too happy with him. Patient seems reluctant to say what is really bothering him

1. How would you approach this situation?
2. What normal changes of aging affect sexual function?

History: Patient tells you he has a gradual loss of the ability to maintain an erection for the past year or so. His wife is upset about this and has been nagging him to do something about it. The problem became worse recently, after an argument with his wife.

3. Is this ED psychological or organic?

PMH: Patient has hypertension, diabetes, lipid disorder, osteoarthritis

4. How do these diseases affect ED?
5. What would be your initial approach?

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