Urinary Incontinence
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Conflict of Interest

• None

Objectives

• Acquire knowledge of A & P of micturition, as well as pertinent pathologies for male and female incontinence
• Identify urinary incontinence risk factors including irritants
• Discuss types and causes of urinary incontinence
• Identify components of an incontinence assessment
• Identify interventions to treat urinary incontinence
Statistics

• More than 13 million people in the United States—male and female, young and old—experience incontinence
• Women experience incontinence twice as often as men, pregnancy and childbirth, menopause, and the structure of the female urinary tract account for the difference
• Underdiagnosed and underreported problem that increases with age with 50-84% of elderly affected

Anatomy

• Relevant lower urinary tract
• Urethra
• Bladder

Pathophysiology

• Micturition requires coordination of several physiological processes
• Somatic and autonomic nerves carry bladder volume input to the spinal cord
• Motor output innervating the detrusor, sphincter, and bladder musculature is adjusted accordingly
• Cerebral cortex exerts a inhibitory influence
• Brainstem facilitates urination by coordinating urethral sphincter relaxation and detrusor muscle contraction
• As bladder fills, sympathetic tone contributes to closure of the bladder neck and relaxation of the dome of the bladder, inhibiting parasympathetic tone.
Pathophysiology Continued

- With urination sympathetic and somatic tones in the bladder and periurethral muscles diminish resulting in decreased urethral resistance.
- Cholinergic parasympathetic tone increases, resulting in bladder contraction.
- Urine flow results when bladder pressure exceeds urethral resistance.
- Bladder capacity is 300-500 ml, and the first urge to urinate generally occurs between bladder volumes of 150-300 ml.
- Incontinence occurs when micturition physiology, functional toileting ability, or both have been disrupted.

Pathologies

- Urinary incontinence (UI) is a multifactorial syndrome produced by a combination of genitourinary pathology, age-related changes, and comorbid conditions that impair normal micturition or the functional ability to toilet oneself, or both.

Risk Factors

- Age
- Gender
- Race
- Obesity
- Surgery
- Diet
Bladder Irritants

- Too much or too little water intake
- Alcoholic beverages
- Caffeine containing drinks and foods
- Acidic foods and drinks
- Carbonated drinks
- Spicy foods
- Sugar, honey and artificial sweeteners

Types and Causes

- Stress Incontinence
- Urge Incontinence
- Mixed Incontinence
- Overflow Incontinence
- Functional Incontinence

Urinary Incontinence: the accidental leakage of urine

Stress Incontinence

Can happen when there is an increase in abdominal pressure, urine leaks due to weakened pelvic floor muscles and tissue.

Increased intra-abdominal pressure raises pressure within the bladder to the point it exceeds the urethra's resistance to urinary flow.

- Exercise
- Laugh
- Sneeze
- Cough
Causes

- Major cause is urethral hypermobility due to impaired support from pelvic floor.
- Less common cause is an intrinsic sphincter deficiency, usually secondary to pelvic surgeries.
- Pregnancy & Childbirth
- Overweight or obese
- Prostate surgery
- Certain medications: anti-hypertensive, anti-depressant, diuretics, sleeping pills, muscle relaxants

Urge Incontinence

- Often referred to as overactive bladder. Urgent need to urinate but may leak if unable to get to bathroom in time.
- Gotta go Gotta go
- Involuntary urine loss associated with the feeling of urgency (detrusor overactivity)
- Urinary urgency, usually accompanied by frequency and nocturia, with or without urgency urinary incontinence, in the absence of UTI or other obvious pathology.
- Unclear etiology and incompletely understood pathophysiology.

Causes

- Damage to bladder nerves
- Damage to nervous system
- Damage to muscles
- Interstitial cystitis
- MS, Parkinson’s, DM, stroke
- Bladder infection
- Bladder stones
- Medications: decongestants, estrogen, NSAIDs plus previous discussed
Mixed Incontinence

- A combination of stress incontinence and urge incontinence
- Approximately 40-60% of females with incontinence have this condition
- Generally defined as detrusor over activity and impaired urethral function, the actual pathophysiology of mixed urinary incontinence is still unknown.
- Bladder outlet is weak and the detrusor is overservice

Overflow Incontinence

- Insufficient emptying of bladder causing leakage when bladder is full
- More common in men causing symptoms of dribbling of urine

Causes

- Weak bladder muscles
- Blockage of urethra by prostate enlargement
- Tumors that cause obstruction of urine flow
- Constipation
Functional Incontinence

- Physical problems or cognitive problems prevent successful access to bathroom in time.
- DIAPPERS: delirium, infection, atrophic urethritis or vaginitis, pharmacologic agents, psychiatric illness, endocrine disorders, reduced mobility or dexterity, stool impaction
- Arthritis
- Dementia

Incontinence Assessment

- Basic evaluation including history, physical exam, and urinalysis
- Voiding diary
- Cotton swab test
- Cough stress test
- Post void residual measurement
- Cystoscopy
- Urodynamics studies

History

- Antecedent and precipitating events and frequency of incontinence episodes
- Relevant past medical history
- Medications or neurologic agents
- Current and past incarceration
- Mental status examination
- Review of systems: fatigue, depression, hyperactive bladder
- Current medications or treatment: overactive bladder
- Current environmental or psychosocial stressors
- Current or recent infection: CVA, metastasis
- History of diabetes
- History of stroke
- History of pelvic surgery
- History of pelvic radiation
- History of endometriosis
- History of incontinence
- History of sexual dysfunction
- History of intake
- History of voiding
- History of injury
Additional Diagnosis

- Patients with urinary incontinence should undergo a basic evaluation that includes a history, physical examination, and urinalysis. In selected patients, the following may also be needed:
  - Voiding diary
  - Cotton swab test
  - Cough stress test
  - Measurement of postvoid residual (PVR) urine volume
  - Cystoscopy
  - Urodynamic studies

Treatment Interventions

- Estrogen - transvaginal
- Antimuscarinics
- B2 Adrenergic Agonist
- Anticholinergic agents
- Antispasmodic drugs
- Tricyclic antidepressants
- Botulinum toxin

ACP Guideline
Non-Pharmaceutical Interventions

- Removal bladder irritants
- Bladder retraining
- Pelvic floor exercises- Kegel
- Biofeedback
- Devices- pessary, electrical stimulation
- Injections & Surgery
- Herbs/supplements

Herbs/Supplements

Most of the herbal preparations contain several herbs combined rather than a single herb. This offers a synergistic effect, addressing the urinary problem from several different angles at once.

- **Gosha-jinki-gan:** improves urinary urgency, frequency, and nocturnal enuresis (increases bladder capacity and reduces bladder contractions via effects on the nervous system).
- **Bucha:** used for bladder and kidney infections. Has anti-inflammatory, antibacterial, and diuretic properties (nourishes the bladder mucosa).
- **Cleavers:** diuretic effects, coats along bladder wall that protects against irritation (irritation is a cause of overactive bladder).
- **Horsetail:** acts as a diuretic, anti-inflammatory, and antioxidant (used to treat kidney and bladder stones, UTIs, and incontinence).
- **Saw palmetto:** may have anti-inflammatory properties, and testosterone effects (enlarged prostate).

*(caution with herbal usage is recommended: drug interactions, ingredients not always accurate)*

References

References


