

Overactive Bladder

Background

1. Definition
 - Overactive bladder
 - Syndrome causing urinary urgency and frequency >8 micturitions in 24 hr
 - It may or may not be associated with incontinence¹
2. General info
 - Prevalence is increasing
 - More common in women than men
 - In European population studies
 - Prevalence in >40 yo was 15.6% in men and 17.4% in women
 - 17 million people in United States and 50-100 million people worldwide suffer from overactive bladder
 - Most commonly reported symptoms
 - Frequency (85%)
 - Urgency (54%)
 - Urge incontinence (36%)
 - Increased risk of falls, fractures, UTIs, skin infections, sleep disturbances and depression^{2,4,7}
 - Profound impact on quality of life¹⁻³
 - Work
 - Travel
 - Interpersonal activities
 - Physical activities
 - Sexual function
 - Sleep^{1,2,4,5,6}

Pathophysiology

1. Causes
 - Urologic causes
 - Urinary tract infection
 - Obstruction
 - Impaired bladder contractility
 - Calculi / interstitial cystitis
 - Neoplasm³
 - Hormonal causes
 - Estrogen deficiency in women
 - Neurologic causes
 - Multiple sclerosis
 - Cervical or lumbar stenosis
 - Disk herniation
 - Spinal cord injury
 - Systemic causes
 - Congestive heart failure
 - Venous insufficiency
 - Diabetes mellitus

- Sleep disorders
 - Pharmacologic causes
 - Diuretics, anticholinergics, narcotics, CCBs, antipsychotics, ACEIs, NSAIDs^{4,7,8,9}
- 2. Additional risk factors
 - Age
 - Caffeine
 - Alcohol
 - Obesity
- 3. Morbidity
 - UTI / urosepsis
 - Perineal infections
 - Cellulitis
 - Orthostatic hypotension 2° to volume loss
 - Falls / fractures
- 4. Mortality
 - Not associated with increased mortality⁶⁻⁸

Diagnostics

1. History / onset and course of symptoms
2. Past genitourinary disorders
 - BPH
 - UTI
 - Worsening status of other medical conditions
 - DM, CHF, multiple sclerosis, interstitial cystitis
 - Causative medications
 - Degree to which symptoms impact life aids in assessing severity of condition
 - Bladder diary
 - Frequency of urination (>8 micturitions)
 - Voiding volumes (<200 mL)
 - Pattern of voiding (urgency with / without incontinence)
 - Lifestyle factors that may contribute to symptoms like caffeine and alcohol consumption
3. Physical exam - findings that may assist evaluation
 - General exam
 - Level of alertness and functional status
 - Vital signs
 - Orthostatic blood pressure and heart rate
 - Cardiovascular
 - Evidence for volume overload
 - Abdominal exam
 - Palpate for masses, tenderness and bladder distension
 - Back exam
 - Point tenderness, evidence of disc herniation and spinal cord injury
 - Extremities
 - Evidence of edema
 - Neurological exam

- Evaluation of cognitive status, motor strength, tone, vibration, sensations and evidence of peripheral neuropathy
 - Genital exam
 - Women
 - Inspection for vaginal atrophy or inflammation
 - Bimanual exam for masses
 - Rectal exam for masses
 - Men
 - Rectal exam for masses
 - Consistency and symmetry of prostate
- 4. Diagnostic testing
 - Laboratory evaluation
 - Clean catch urine specimen for blood, glucose and infection
 - Urine culture if indicated
 - Sterile in and out catheterization can be used to measure post void residual urine
 - Imaging
 - Ultrasound to measure post void residual bladder volume
 - Cystoscopy targeted for patients with unexplained hematuria, recurrent UTI, or risk factors for cancer
 - Urodynamic testing
 - More complex and invasive and is controversial in diagnostic workup of overactive bladder (only indicated if primary therapy fails or unclear etiology of overactive bladder)^{1,2,5}
 - Indicated in older adults with incontinence when the underlying etiology remains unclear

Differential Diagnosis

1. Key differential diagnosis
 - Painful bladder syndrome
 - Stress incontinence
 - Urge incontinence
 - Anxiety
 - Idiopathic urge incontinence
2. Extensive differential diagnosis
 - Urinary tract infection
 - Cystocele
 - Diabetes mellitus
 - Congestive heart failure
 - Prostatic enlargement, benign or malignant
 - Stroke

Therapeutics

1. Optimal therapy depends on thorough evaluation followed by treatment of likely causes and contributing factors
 - Causes are multifactorial and multimodal therapy includes non-pharmacologic and pharmacologic agents

2. Nonpharmacologic intervention
 - Pelvic floor muscle exercises (PFME) and pelvic floor electrical stimulation (PFES)
 - Effective treatments for urinary incontinence in women
 - Educate about
 - Bladder function
 - Avoidance of caffeine
 - Timing of fluid intake - limited intake in the evening or varied by other social activities
 - Managing constipation
 - Pelvic floor muscle exercises
 - Bladder retraining
 - Prompted voiding
 - Habit training
 - Scheduled (timed) voiding
 - Good perineal hygiene
3. Drug therapy
 - Anticholinergics
 - Highest level of evidence and efficacy
 - No consistent evidence to suggest one more efficacious or better tolerated than others
 - Common agents
 - Tolterodine / oxybutynin / propiverine (not available in USA)
 - Oxybutynin
 - Good for short term control of social situations
 - Transdermal patch
 - Immediate and extended release
 - Tolterodine
 - Newer agents
 - Trospium
 - Darifenacin
4. Invasive intervention
 - Electrical stimulation delivered by vaginal or rectal probes may augment pelvic muscle contractions and/or modulate detrusor contractions and can be helpful in some patients
 - Magnetic stimulation may have similar effects
 - Surgical procedures including motor nerve ablation and augmentation used in severe symptoms
 - Surgical repair of incompetent sphincter may be helpful as well^{1,6,10}

Follow-Up

1. Return to office
 - Every 3-6 months
2. Refer to specialist
 - Persistent symptoms after adequate trial of medical therapy
 - Neurologic conditions
 - Uncertain diagnosis

- Tumors
 - Urologic obstruction
 - Need for invasive intervention
3. Admit to hospital
 - Urosepsis
 - Fever
 - Other symptoms suggesting worsening of urologic status not amenable to timely outpatient management

Prognosis

1. Good with medical and behavioral therapy

Prevention

1. Screening questionnaire for those with¹
 - Recurrent UTI
 - Diabetes
 - Neurologic dz
 - Age >65 years
2. Avoid caffeine and alcohol
3. Lose weight if indicated
4. Manage constipation if indicated
5. Educational handouts (overactive bladder and incontinence)
 - <http://www.patient.co.uk/showdoc/27001041>
 - <http://familydoctor.org/online/famdocen/home/women/gen-health/189.html>
 - <http://www.aafp.org/afp/20001201/2447ph.html>

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Evidence-Based Inquiry

1. What are the indications for urodynamic testing in older adults with incontinence?
2. What are the most effective nonpharmacologic therapies for urinary incontinence in women?

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