URINARY INCONTINENCE: EVALUATION AND CURRENT TREATMENT OPTIONS

Lisa S Pair, MSN, CRNP
Division of Urogynecology and Pelvic Reconstructive Surgery
Department of Obstetrics and Gynecology
University of Alabama at Birmingham

Objectives

At the end of this talk, the participant:
• Will gain knowledge with respect to risk factors for urinary incontinence (UI)
• Will understand a simple approach for evaluation of UI
• Will appreciate that there is a spectrum of treatment modalities for UI

Prevalence of Urinary Incontinence

• Age 15 to 64
  1.5 - 5% men
  10-30% women
• Noninstitutionalized >60 years old
  15-35%
  Twice as high in women
• Homebound elderly
  50%
• Nursing home residents
  3 50% (two thirds if catheterized population included)

1
2
3
Reasons for Under-reporting

- Less than half of those with bladder control problems report it to their health care provider
- Embarrassment
- Low expectations of benefit of reporting
- Lack of information regarding management options and their success rates
- Availability of absorbent products

Risk Factors for UI

- Pregnancy, Vaginal Delivery and Episiotomy, Forceps
- Smoking
- Fecal Impaction
- Environmental Barriers
- High Impact Physical Activities
- Medical Conditions (Diabetes, Stroke, Estrogen Depletion, Pelvic Muscle Weakness)
- Immobility Associated with Chronic Degenerative Disease
- Diminished Cognitive Status and Delirium
- Medications, Including Diuretics

URINARY INCONTINENCE
ETIOLOGY

- Stress incontinence
- Detrusor instability/Urgo Incontinence
- Mixed Incontinence
- Overflow incontinence
- Fistula
- Congenital or acquired anatomical defects
**Stress Incontinence**
Pressure in urethra falls below bladder pressure

**Signs**
- Small losses of urine when coughing, laughing, sneezing, straining
- Usually dry at night

**Urge Incontinence**
Pressure in bladder exceeds pressure in urethra

**Signs**
- Strong urge to urinate
- Urinating more frequently
- Urinating a lot at night
- Low volume urination

**International Continence Society Definition of “Overactive Bladder”**
- A disorder of filling/storage with symptoms of urgency, frequency, urge incontinence and nocturia
- Involuntary bladder contractions
  - Idiopathic detrusor instability: no neurologic disease or unknown cause
  - Detrusor hyperreflexia: due to neurologic disease (spinal cord injury, MS, Parkinson’s Disease)
Mixed Incontinence

- Patients typically have symptoms of both SUI and UUI
- Most impact on QOL

Overflow Incontinence
Bladder pressure overcomes urethral pressure only at very high bladder volume

Signs
- Swollen bladder
- Tenderness above pubic region
- Reduced urine flow

Functional Incontinence
Not due to urinary tract problems; otherwise continent people with difficulty getting to the bathroom

Signs
- Early morning incontinence
- Accidents on the way to the bathroom
Question to Initiate Screening

“Do you have bladder problems that are bothersome, or do you ever leak urine?”

EVALUATION OF URINARY INCONTINENCE

- Focused medical, neurologic and genitourinary history
- Assessment of risk factors
- Review meds
- Detailed exploration of the symptoms of the UI and associated symptoms and factors (should include intakes utilizing validated assessment measures i.e. MESA, PFDI)

Evaluation cont.

- Characteristics of leakage
- Severity of problem (intake, output, leakage chart helpful, bladder diary, pad test)
- Potential exacerbating factors
- General health and expectations of patient
Physical Examination

• General examination
  – edema
  – neurologic abnormalities

• Pelvic Examination
  – skin irritation
  – genital atrophy
  – pelvic organ prolapse
  – pelvic masses
  – paravaginal muscle tone
  – neurologic exam

BASIC BLADDER AND URETHRAL EVALUATION

• Q tip test or POPQ point Aa (measure of urethral mobility)
• Residual urine
• Urine dip or Urinalysis and culture as indicated
• Bladder fill
• Stress test
URODYNAMICS

- Tests for the presence of detrusor instability
- Documents stress incontinence; helps to quantify severity
- Tests micturition function
- Evaluates intrinsic urethral sphincter function
- Can assess neurological functions of the filling and emptying phases (Valsalva vs. Detrusor voiding)

TREATMENT OF STRESS INCONTINENCE

- Behavioral therapy including PME’s, fluid and voiding strategies
- Pharmacologic – alpha agonists, duloxetine, estrogen
- Support devices
- Barrier devices
- Surgery
- Urethral bulking agents

Comprehensive Behavioral Therapy

- Pelvic muscle exercises (combined with attention to fluid intake, bladder training and stress/urge strategies)
- ±Biofeedback
- ±Electrical stimulation
Pharmacologic Basis of Drug Therapy:  
Postmenopausal Estrogen Deficiency

Symptoms
• Urinary incontinence increased
• Frequency, nocturia, urgency, dysuria increased
• Recurrent urinary tract infections increased
• Urogenital atrophy increased


Pharmacologic Basis of Drug Therapy:  
Estrogen Therapy

May improve other symptoms by:
• Increasing urethral resistance
• Raising sensory threshold of bladder
• Increasing alpha-adrenoceptor sensitivity in urethral smooth muscle
• Correcting underlying urogenital atrophy

Antimuscarinics for OAB Treatment

• Antimuscarinics are active during the filling phase when there is no activity in the cholinergic nerves
• Acetylcholine (ACh) can be generated and released from the urothelium and may also “leak” from cholinergic nerves during filling of the bladder

**M₂ and M₃ Receptors**

- Human bladder smooth muscle contains primarily M₂ (66%) and M₃ (33%) subtypes
- Activation of M₃ receptors evokes direct smooth muscle contraction (primary stimulus for bladder contraction)
- Stimulation of M₂ receptors may cause contractions — Reverse sympathetically mediated smooth muscle relaxation
- M₂ receptors may have a more important functional role in the pathologic bladder
  - Neurogenic bladders
  - Aging
  - Hypotony


---

**Bladder Effects of Antimuscarinics During Storage**

- Leak of ACh from nerves and release from urothelium
- Enhancement of myogenic activity
- Increased afferent nerve activity
- Urgency, frequency +/− UUI

USI = urge urinary incontinence


---

**Antimuscarinics**

- Nonselective (M₂/M₃)
- Primarily M₃ selective
- Primarily M₂ selective

*Animal models. Please see full prescribing information.

Side Effects of Anticholinergics (Antimuscarinics)

- Dry mouth
- Difficulty in accommodation
- Increase in heart rate
- Constipation

Refractory OAB

- PTNS - Percutaneous Tibial Nerve Stimulation
- Interstim - Sacral Neuromodulation
- Botox

Pessary

- Physically supports the bladder neck
- Can also support other pelvic organ prolapse defects
Surgery

- Provides support to the bladder neck or mid urethra
- Retropubic urethropexy (Burch, MMK)
- Pubovaginal sling
- Midurethral sling

Conclusions

- Evaluation and correct diagnosis of UI type is important; transient etiologies important to diagnose
- Numerous treatments exist to treat stress and urge incontinence
- Optimize urogenital tissue health
- Individualization of therapy
- Ultimate Goal: Improved QOL!!!