Urinary Incontinence and Overactive Bladder: Just Hold On!

Clare Hawkins, MD, MSc, FAAFP

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The content of my material/presentation in this CME activity will include discussion of unapproved or investigational uses of products or devices as indicated:

- Brief discussion of topical estrogen for atrophic vaginitis, which technically doesn’t have an FDA indication for treatment of Stress UI or Urge UI but is mentioned in guidelines.

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Dr. Hawkins practices family medicine in Houston, Texas, where he splits his time between a family medicine residency and a private practice. He also manages a large outpatient palliative care practice as the lead physician for Aspire Health in Texas and is on the board of Renaissance Physicians, a large independent physician association (IPA). He is a recent past president of the Texas Academy of Family Physicians (TAFP), the chair of the Texas AEP Board of Directors, and a member of the AAFP’s Commission on Health of the Public and Science. With 30 years of experience as a family medicine educator and more than 15 years as faculty for the AAFP, Dr. Hawkins has presented on a variety of medical topics. In addition, he has a long-term interest in the physician-patient relationship and physician resilience.

Learning Objectives

1. Incorporate current guidelines for diagnosis in patients presenting with urinary problems.
2. Coordinate referral to an urologist or urogynecologist if initial diagnosis is unclear; or red flags such as hematuria, obstructive symptoms or recurrent urinary tract infections are present.
3. Counsel patients regarding first-line treatment options, including behavioral therapy and lifestyle modifications, emphasizing adherence and follow-up.
4. Prescribe second- or third-line treatment options if first-line therapies are unsuccessful, coordinating referral and follow-up care for surgical treatment as necessary.

Audience Engagement System

Step 1
Step 2
Step 3
Prevalence

- 13 million women in the US
- Associated with profound adverse effects on quality of life
- 17% of women and 16% of men over 18 years old have overactive bladder (OAB)
- Estimated 12.2 million adults have urge incontinence

Impact

- High medical spend
  - $16 billion to $26 billion each year, placing the cost burden on par with that associated with depression or Alzheimer’s disease
  - Plus increases risk of falls, fractures
  - Is the reason for 6% of nursing home admissions for elderly women (3 billion)

Incontinence Prevalence

- Women: Increased prevalence with age
  - 40-60 postmenopausal = 44-57%
  - >75 = 75%
  - One study: 70% of nursing home residents
- OAB 16% Men, 17% Women
  - Over age 75: 42% Men, 31% Women

Risk Factors

- Pelvic floor trauma with SVD
- Menopause
- Hysterectomy
- Obesity
- UTI
- Chronic cough
- Constipation
- Functional/cognitive impairment

Lower Urinary Tract Conditions - OAB

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mechanism</th>
<th>Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>UTI</td>
<td>Information</td>
<td>Antibiotic</td>
</tr>
<tr>
<td>Obstruction</td>
<td>Detractor over activity</td>
<td>Surgical intervention</td>
</tr>
<tr>
<td>Impaired Bladder Contraction</td>
<td>Urinary retention and Bladder capacity</td>
<td>Drug review, Bladder training</td>
</tr>
<tr>
<td>Bladder Abnormalities</td>
<td>Intervernet blockage</td>
<td>Sterile hematuria prompt cystoscopy</td>
</tr>
<tr>
<td>F. Estrogen Deficiency</td>
<td>Atrophic vaginitis</td>
<td>Topical Estrogen</td>
</tr>
<tr>
<td>S. Sphincter Weakness</td>
<td>Leakage into urethra</td>
<td>Topical Estrogen, pelvic exercises</td>
</tr>
<tr>
<td>M. Prostatic Enlargement</td>
<td>BPH or Cancer</td>
<td>Alpha blocker, 5 alpha reductase inh. or Surgery</td>
</tr>
</tbody>
</table>

Neurologic Conditions Causing OAB

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mechanism</th>
<th>Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke, Parkinson’s, Alzheimer’s MS</td>
<td>Cortical inhibition of bladder impaired Neurogenic OAB</td>
<td>Compensation techniques for impaired cognition or mobility</td>
</tr>
<tr>
<td>Spinal Cond, MS, stenosis, disc herniation</td>
<td>Neurogenic detrusor over activity or retention</td>
<td>Neurologic evaluation, urodynamic testing</td>
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<tr>
<td>Peripheral Innervation: DM neuropathy or nerve injury</td>
<td>Low functional bladder capacity or retention</td>
<td>Neurologic evaluation</td>
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Systemic & Functional Conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mechanism</th>
<th>Implication</th>
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</thead>
<tbody>
<tr>
<td>CHF, Venous Insufficiency</td>
<td>Volume overload</td>
<td>AM dosing, salt restriction, support hose, leg elevation</td>
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<tr>
<td>DM</td>
<td>Osmotic diuresis/polyuria</td>
<td>Glycosuria</td>
</tr>
<tr>
<td>Sleep disorders</td>
<td>Nicturia</td>
<td>Polysonomography</td>
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<tr>
<td>Abnormal arginine vasopressin</td>
<td>Impaired secretion</td>
<td>Selected desmopressin therapy</td>
</tr>
<tr>
<td>Caffeine, alcohol</td>
<td>Polyuria</td>
<td>Moderation of intake</td>
</tr>
<tr>
<td>Constipation</td>
<td>Fecal impaction</td>
<td>Bowel regimen</td>
</tr>
<tr>
<td>Impaired mobility</td>
<td>Interver with toileting</td>
<td>Address environment</td>
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<tr>
<td>Psychological</td>
<td>Anxiety &amp; learned voiding dysfunction</td>
<td>Therapy &amp; psychopharmacology</td>
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Urinary Incontinence ICD 10

<table>
<thead>
<tr>
<th>Name</th>
<th>Code</th>
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<tbody>
<tr>
<td>Unspecified Urinary Incontinence</td>
<td>N39.4-</td>
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<tr>
<td>Stress Incontinence (M &amp; F)</td>
<td>N39.3</td>
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<td>OAB</td>
<td>N32.81</td>
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<td>Mixed Incontinence</td>
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Urinary Incontinence ICD 10 contd

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<td>Incontinence without sensory awareness</td>
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<td>Post-void dribbling</td>
<td>N39.43</td>
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<td>Nocturnal Enuresis</td>
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Miscellaneous ICD 10 - CPT

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<td>Persons encountering health services for other counseling and medical advice, not elsewhere classified</td>
<td>Z71.-</td>
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<td>Other symptoms and signs involving the genitourinary system</td>
<td>R39.8-</td>
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<td>CPT</td>
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<td>Nutritional Therapy</td>
<td>97802-97804</td>
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<td>Time Based face-to-face / &gt;50% counseling / coordinating</td>
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Clinical Case - Ms. Hobson

- A 62 yo F comes to see you for a check up. Mammography, colorectal screening, vaccination and Pap testing (once every 5 years), and smoking cessation are performed.
- Although she doesn't volunteer a problem with continence, you note that she has responded “yes” to incontinence on your admission questionnaire.

AES Question 1

You should do the following;
A. Refer to Uro-gynecologist
B. Order Urodynamic Studies
C. Pelvic Ultrasound
D. Get more history
More History

- She had three children born SVD, began with progressive urine leakage with activity starting at age 50, managed with exercise restriction and pads
- She has not sought help for this in the past
- A friend had successful surgery and she requests a referral to this doctor for the same procedure
- She has gained several pounds per year and current BMI 33

AES Question 2

Her incontinence diagnosis is:
A. Stress Urinary Incontinence (Stress UI)
B. Urgency Incontinence (Urgency UI)
C. Mixed Incontinence
D. Overactive Bladder

AES Question 3

The next appropriate step is:
A. Refer to her friend’s specialist
B. Weight loss and Pelvic Floor Training exercises
C. Pharmacotherapy with an antimuscarinic
D. Vaginal estrogen replacement

SVD and Incontinence

- Stress UI during pregnancy affects up to 32% of primiparous women
- 30% of premenopausal women and 50% of postmenopausal women have had pelvic floor disorder like anal or urinary incontinence or prolapsed uterus
- Does Cesarean prevent it? (very minimally)


Definitions

- Stress Urinary Incontinence (Stress UI):
  - Urethral sphincter failure associated with intra-abdominal pressure and results in inability to retain urine when laughing, coughing, or sneezing
- Urge Urinary Incontinence (Urge UI):
  - Involuntary loss of urine associated with a sudden & compelling urge to void
- Mixed Incontinence (Mixed UI)
- Overactive Bladder (OAB):
  - Constellation of sx that includes urinary urgency (with or without UI), usually accompanied by frequency, & nocturia

Other

- Overflow Incontinence
  - Incontinence due to the bladder being full (retention)
- Functional Incontinence
  - Cognitive or physical barriers
Goal 1: Guideline Implementation: ACP

1. PFMT for Stress UI first line (strong rec / high quality evidence)
2. PFMT & Bladder Training for Mixed (strong/high)
3. Bladder Training for Urgency UI (weak/low)


ACP Guideline continued

4. Recommend against pharmacotherapy for stress UI (strong/low)
5. Recommend pharmacotherapy for Urgency UI if bladder training unsuccessful (strong/high)
   - Tolerability, SE, ease of use, and cost
6. Weight loss & exercise for obese women with UI (strong/moderate)

Nonpharmacologic Treatments for UI

• PFMT (Pelvic Floor Muscle Training): Kegel, voluntary contraction of pelvic floor muscles
• PFMT with biofeedback using vaginal EMG: visual feedback when properly contracting muscles
• Bladder Training: Behavioral Therapy that includes extending time between voiding
• Continence Service: Treatment program with nurses and clinicians trained in identifying, dx and treating patients with UI

Evidence Review for Stress UI

<table>
<thead>
<tr>
<th>Treatment/Outcome</th>
<th>Studies</th>
<th>Patients</th>
<th>Outcome/Effect</th>
<th>Absolute RR</th>
<th>NNT</th>
<th>Evidence Quality</th>
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</thead>
<tbody>
<tr>
<td>PFMT to achieve continence</td>
<td>10</td>
<td>959</td>
<td>Improve</td>
<td>0.30</td>
<td>3</td>
<td>High</td>
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<td>PFMT to improve UI</td>
<td>6</td>
<td>510</td>
<td>Improve</td>
<td>0.41</td>
<td>2</td>
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<td>PFMT with probe biofeedback continence</td>
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<td>185</td>
<td>Improve/NS</td>
<td>0.49 (-1.1-1.08)</td>
<td>NA</td>
<td>Low</td>
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<td>PFMT &amp; probe to improve UI</td>
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<td>383</td>
<td>Improve</td>
<td>0.39</td>
<td>3</td>
<td>High</td>
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Evidence Review for Stress UI Comparative

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<th>Treatment/Outcome</th>
<th>Studies</th>
<th>Patients</th>
<th>Outcome/Effect</th>
<th>Absolute RR</th>
<th>NNT</th>
<th>Evidence Quality</th>
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</thead>
<tbody>
<tr>
<td>Supervised vs self PFMT Continence</td>
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<td>300</td>
<td>NS</td>
<td>0.20</td>
<td>NA</td>
<td>High</td>
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<tr>
<td>Improved</td>
<td>4</td>
<td>283</td>
<td>NS</td>
<td>0.14</td>
<td>NA</td>
<td>Mod</td>
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<tr>
<td>PFMT &amp; Probe vs PFMT Continence</td>
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<td>542</td>
<td>NS</td>
<td>0.08</td>
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<td>PFMT &amp; Cones: continence</td>
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<td>320</td>
<td>NS</td>
<td>-0.11</td>
<td>NA</td>
<td>Mod</td>
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<tr>
<td>PFMT &amp; Cones: improved</td>
<td>4</td>
<td>440</td>
<td>NS</td>
<td>0.01</td>
<td>NA</td>
<td>Mod</td>
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Evidence Review for Urge UI

<table>
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<th>Treatment/Outcome</th>
<th>Studies</th>
<th>Patients</th>
<th>Outcome/Effect</th>
<th>Absolute RR</th>
<th>NNT</th>
<th>Evidence Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bladder training, improved</td>
<td>2</td>
<td>283</td>
<td>Improved</td>
<td>.43</td>
<td>2</td>
<td>Low</td>
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<tr>
<td>PFMT &amp; bladder training vs bladder training</td>
<td>2</td>
<td>271</td>
<td>NS</td>
<td>.001</td>
<td>NA</td>
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</table>
Evidence Review for Mixed UI

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<tr>
<th>Treatment/Outcome</th>
<th>Studies</th>
<th>Patients</th>
<th>Outcome/Effect</th>
<th>Absolute RR</th>
<th>NNT</th>
<th>Evidence Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFMT &amp; Bladder Training Continence</td>
<td>5</td>
<td>1369</td>
<td>Improved</td>
<td>0.17</td>
<td>6</td>
<td>High</td>
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<td>PFMT &amp; Training Improved</td>
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<td>Improved</td>
<td>0.39</td>
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<tr>
<td>Continence Service</td>
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<td>3939</td>
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<td>0.30</td>
<td>NA</td>
<td>Moderate</td>
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<tr>
<td>Weight Loss</td>
<td>2</td>
<td>386</td>
<td>Improved</td>
<td>0.27</td>
<td>4</td>
<td>Moderate</td>
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</table>

Weight Loss

- Weight loss of more than 5% had a reduction of at least 50% in the frequency of incontinence
- All incontinence episodes, urge-incontinence episodes, and stress-incontinence episodes

Physical Activity

- In addition to specific bladder floor exercises, activity provides overall benefit
- Must overcome the fear of “going out” and not being near a bathroom
- Benefit is in addition to weight loss

A Hidden Symptom

- Most do not tell their doctor

Questions

- Focused history and ask specific questions, such as the time of onset, symptoms, and frequency
- “Do you have a problem with urinary incontinence (of your bladder) that is bothersome enough that you would like to know more about how it could be treated?” – Increases appropriate care by 15%

HEDIS Measures H.O.S. Survey

- Medicare Health Outcomes Survey
  - Survey question to Medicare members
  - Management of Urinary Incontinence in Older Adults
- Will your patients remember to answer that you’ve discussed this?
Physical Exam

- "Above the waist"
  - CV exam: signs of volume overload
  - Abd exam: masses, tenderness
  - Neuro exam
- Genital Exam
  - Atrophy, cystocele, rectocele, pelvic masses
- Rectal Exam
  - Prostate enlargement, rectal mass, stool impaction

Laboratory Testing

- Urinalysis (with culture if infection suspected)
- Renal function
- Fasting glucose

Office Testing - Post Void Residual

- Controversial in primary care setting at first presentation
- Catheter or Ultrasound
- <50mls complete voiding
- >200mls suggests obstruction/detrusor under-activity

Micturition

Low vesicular pressure until 300-400 mls
Coordinated detrusor contraction & reduced urethral resistance

Involuntary bladder contractions can cause urgency and may precipitate urine loss, depending on the response of the sphincter

Bladder Innervation

- Acetylcholine is predominant
- Interacts with M3 muscarinic receptors
- Stimulation of β3-adrenergic receptors relaxation of bladder smooth muscle

Autonomic Innervation

- Interacts with the sympathetic and parasympathetic nervous system
- M3 muscarinic receptors stimulation
- β3-adrenergic receptors stimulation
- Detrusor muscle relaxation

Urodynamic Testing

- Routine testing is **not** recommended
- "Gold Standard"
- Expensive, invasive, specialized equipment

Urinary Obstruction / Overflow

- Calcium channel blockers
- (NSAIDs)
- α-adrenergic agonists
- β-adrenergic antagonists
- Opioids
- Sedative-hypnotics
- Antipsychotics
- Antiparkinsonian agents
- Anesthetics

Bladder Training

- Remain stationary when urgency occurs
- Concentrate on decreasing the sense of urgency through rapid successive pelvic muscle contractions, mental distraction (e.g., mathematical problem solving), and relaxation techniques (e.g., deep breathing)
- After controlling the sense of urgency, walk slowly to the bathroom and void
- After mastering this, attempt to extend the time that urination can be postponed; aim to extend the interval by 30 to 60 minutes
- Continue this process until voiding occurs every three to four hours without incontinence

Hersh L, Slawson R. Clinical Management of Urinary Incontinence in Women. AFP 2013;87(9):634-640

Habit Training

- Check for wetness at intervals to determine when the patient urinates
- Bring the patient to the toilet, or provide commode or bedpan at intervals slightly shorter than the patient’s normal voiding interval

Pelvic Floor Training

- Assist the patient in isolating pelvic floor muscles by instructing her to hold urine during urination and to feel pelvic muscle floor contraction (while avoiding buttock, abdomen, or thigh muscle contraction)
- Ask the patient to perform three sets of eight to 10 contractions (held for six to eight seconds) three to four times weekly; extend contraction time to 10 seconds, if possible
- Continue regimen for at least 15 to 20 weeks

Getting Ahead of Incontinence

- Prompted Voiding
  - Remind the patient to use the toilet at regular intervals, ideally timed to the patient's normal voiding intervals
- Scheduled Voiding
  - Bring the patient to the toilet at regular intervals
  - (e.g., every two to three hours)
Pharmacologic Treatments

• Duloxetine:
  – Worsens or did not achieve continence in 2 studies, but improved UI in 4 but with a high cost of adverse effects (9 studies NNH 8)
• Intravaginal Estriol: (Not FDA approved)
  – One study improved ARR=.7 NNT 1 (quality low)

Pharmacological Antimuscarinic
NNT 7-13

• Darifenacin (ENABLEX) $73-140 /month
• Fesoterodine (TOVIAZ) $280/month
• Oxybutynin (DITROPAN) $10-15, (ER = $30-60)
• Tolterodine (DETROL or DETROL LA) $50-100
• Trospium (SANCTURA) ($40-100)
• Solifenacin (not available in US)
• Propiverine (not available in US)

Comparing Antimuscarinic

• SE common: dry mouth, constipation, blurred vision. NNT harm 6-12
• Dizziness more frequent for trospium
• Dry mouth and insomnia for oxybutynin
• Tolterodine has some risk for hallucinations
• More d/c with fesoterodine than tolterodine NNTH = 58

Comparisons

• Solifenacin had lowest risk for d/c where oxybutynin was highest
• Tolterodine and oxybutynin had same benefits, but tolterodine caused fewer harms
• Only darifenacin and tolterodine had d/c risk = placebo

B-Adrenergic Receptor Agonist

• Mirabegron (MYRBETRIQ) acts on beta3-adrenergic receptors to relax the detrusor
• One to two fewer incontinence episodes per day
• S/E = nausea, diarrhea, constipation, dizziness, and headache
• Increased blood pressure occasionally
• Urinary retention risk increases when used with an anticholinergic

Mirabegron

• (goodrx = > $300/mo)
• NNT 12 to achieve continence
• NNT 9 to improve
  – Few d/c due to SE, but some nasopharyngitis and gastrointestinal disorders
ACP guidelines 2014 Endorsed AAFP 2015


ACP Guidelines 2014 Endorsed AAFP 2015

1. Pelvic floor muscle training should be first-line treatment for women with stress urinary incontinence (UI)
2. Bladder training should be first-line treatment for women with urgency UI
3. Women with mixed UI should be treated with pelvic floor training combined with bladder training
4. Systemic pharmacologic therapy should not be prescribed for stress UI
5. Pharmacologic treatment should be prescribed to women with urgency UI if bladder training was unsuccessful
6. Choice of pharmacologic agent should be based on tolerability, adverse effect profile, ease of use, and cost
7. Weight loss and exercise should be recommended for obese women with UI

AUA Guidelines 2012

- First-line behavioral therapy treatments
- Oral antimuscarinics second-line treatments
- Surgical or intradetrusor botulinum toxin A as potential third-line treatments

AES Case #1

A 67 y.o. WF c/o 3 episodes of urinary incontinence. Each time she didn’t make it to the bathroom. One happened while shopping, one driving and one at church. She is now hesitant to go out. The most likely cause of her problem is:

1. Stress
2. Urge
3. Overflow
4. Functional

AES Case #2

A 75 y.o. female nursing home resident consistently urinates in her bed. This frustrates the nursing staff who ask for an indwelling foley. Because of recent surgery she is unable to walk to the bathroom and has side-rails up. What is the most likely diagnosis?

1. Urge
2. Stress
3. Functional
4. Overflow

AES Case #3

A 58 y.o. man presents to your clinic c/o “Leaking Urine”. The most appropriate next step in the evaluation of this patient is to:

1. Obtain a post void residual
2. Conduct urodynamic testing
3. History and physical exam
4. Obtain a urinalysis
AES Case # 4

A 62 y.o. male has recently begun therapy with antihistamine therapy for allergies and already takes amitriptyline 50 mg at H.S. for sleep and chronic pain. He now finds himself leaking urine. This is most likely:
1. Urge
2. Stress
3. Functional
4. Overflow

AES Case #5

A 42 y.o. AA woman states she has had several episodes of leaking urine, mostly with coughing or sneezing and has had to begin wearing absorbent undergarments. She has 2 children, both SVD with long second stage. The best first-line treatment option for this patient is:
1. Tolterodine ER 4mg daily
2. Pessary placement
3. Oxybutynin 5mg tid
4. Kegel exercises

Summary

• Non-pharmacologic rx effective at managing UI with large benefit and low risk
• PFMT alone and/or in combination with bladder training, biofeedback and weight loss with exercise for obese women were effective
• No good head-to-head evidence comparison to recommend one antimuscarinic over another

High-Risk / Alarm Symptoms

• Previous urinary incontinence surgery
• Persistent UTI
• Constitutional sx
• Poor renal function
• Saddle anesthesia
• Recent back trauma
• Pelvic surgery (especially recent)

Other Treatments

• Pessary
• Incontinent tampons
• Vaginal inserts
• Urethral plug
• Injection of filler around urethra
• Augment urethral closure
• Support and stabilize the bladder neck and urethra
  – Midurethral slings
  – Pubovaginal slings
  – Needle urethropexy
  – Retropubic urethropexy
  – Burch
  – Marshall- Marchetti-Krantz

BOTOX?

• RCT of OnabotulinumtoxinA
  • 249 women
  • Anticholinergic therapy 5/d to 3.4/d
  • Botox 5/d to 3.3/d
• Less dry mouth, more complete resolution but higher urinary retention and UTI
Pessary

Surgical Procedures

Questions

Contact

• Clare Hawkins MD
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Reference List

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