Updates in Urinary Incontinence
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Impact of Incontinence: Quality of Life

- Relationships:
  - Social
  - Interpersonal
  - Sexual
- Activities of Daily Living
- Work
- Mood
  - Depression
  - Self-concept
  - Self-assessed health status
  - Sleep
- Cost of continence supplies, laundry, time


Lecture Outline

- Definitions of incontinence
- Work up with focused examination
- Management
- Treatment
- Surgical Options

Types of Urinary Incontinence

IC=Interstitial Cystitis
MS=Multiple sclerosis

Overflow
Stress
Urge
Functional
No Leak
Leak

Neuro
Obstruction

Medications
Diabetic Neph
Sp Cord Injury
Pelvic Surgery
Bladder CA

Urethral Stones
Prolapse
Prior Surgery

Pain
Mobility
Dexterity

UTI
IC
Detrusor Overactivity
Neurologic
Definitions of Incontinence

- **Stress**
  - Involuntary leakage of urine with effort or increased intra-abdominal pressure
  - Triggers
    - Cough
    - Sneeze
    - Laugh
    - Exercise

- **Urge**
  - Urgent, involuntary need to urinate
  - Cannot be deterred
  - Triggers
    - Running water
    - Key in the door
    - Hand washing
    - Going into the cold
    - Drops to soaking

- **Mixed**
  - Involuntary leakage of urine with a sense of urgency and exertion
  - Predominance of urgency or exertion may vary
  - Most common kind of incontinence in women

- **Overflow**
  - Involuntary leakage of urine that is continuous slow leak
  - “Overflow Incontinence”
  - “Incomplete emptying”
  - Symptoms
    - Dribbling
    - Intermittent or continuous
    - Weak stream
    - Hesitancy
    - Nocturia
    - Frequency
Etiology of Overflow Incontinence
- Who: older women, 5-10% of incontinence
- Detrusor underactivity
- Bladder outlet obstruction (uncommon in women)
  - Scarring from previous anti-incontinence surgery
  - Bladder neck distortion due to pelvic organ prolapse
  - Suprasacral spinal cord injury that creates bladder contraction with sphincter contraction

Definitions of Incontinence
- Functional
- Involuntary leakage of urine that is worsened by mobility or access
- Etiology
  - Joint pain
  - Use of canes, walkers or wheelchairs
  - Coordination
  - Habitus
  - Home environment
  - Access to toilet

Physical Exam-1
- CV: gallop, murmur, rales, pedal edema
- Abd: masses, tenderness (not sensitive for bladder distension)
- Extremities: ROM, joints, edema
- Neuro:
  - Perineal sensation, rectal tone, anal wink, bulbocavernosus reflex (sacral nerve integrity)
  - Vibratory sense, sensation in extremities (peripheral neuropathy), DTRs

Physical Exam-2
- GYN:
  - Vaginal mucosa atrophy, infection or inflammation
  - Introtis: narrowing, posterior synechia, vault narrowing
  - Urethral obstruction like a caruncle
  - Urethral swing with cough (urethral hypermobility)
  - Bladder prolapse or cystocele anteriorly
  - Rectocele posteriorly
  - Bimanual exam for masses, organomegaly, or tenderness
  - Rectal exam for occult lesions, tone, impaction
Laboratory Testing
- Urinalysis-infection, hematuria
- Urine culture-sx, bleeding, UA suspicious
- Post void residual-sx of urinary retention
- Urine cytology-if hematuria, pelvic pain
- Vitamin B12-if suspected neuropathy
- Glucose/a1c-if suspected diabetes

Consider Referral to Urogynecology
- Persistent symptoms despite adequate therapeutic trial, especially severe urge incontinence unresponsive to several anti-muscarinic medication trials
- Uncertainty in diagnosis and inability to develop a reasonable treatment plan based on the evaluation
- Significantly elevated PVR that does not resolve after treatment of possible precipitants
- Prior pelvic surgery, pelvic cancer, or pelvic irradiation
- Evaluation for surgical treatment for bothersome stress incontinence

Immediate Referral to Urogynecology
- Incontinence with abdominal and/or pelvic pain
- Hematuria with no UTI or suspected fistula
- Complex neurological conditions
  - Parkinson disease
  - Spinal cord injury
  - Suspect normal pressure hydrocephalus
- Abnormal exam findings
  - Pelvic mass
  - Symptomatic organ prolapse beyond the hymen

Treatment for Urinary Incontinence
- Surgery
- Medication
  - Estrogen
- Behavioral
- Lifestyle
**Lifestyle Interventions**

- Weight loss and stress incontinence
- 338 overweight and obese women
- Reduction in clinically relevant incontinence defined as a 70% reduction in episodes
  - ↓ in stress-incontinent episodes (p=0.009)
  - ↓ in urge-incontinent episodes (p=0.04)

<table>
<thead>
<tr>
<th>Groups</th>
<th>Group Activity</th>
<th>Mean Weight Loss (kg)</th>
<th>Incidence of Weekly Incontinence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention</td>
<td>6 month intensive weight loss program</td>
<td>7.8 kg</td>
<td>-47%</td>
</tr>
<tr>
<td>Control</td>
<td>Group education</td>
<td>1.5 kg</td>
<td>-28% (p=0.01)</td>
</tr>
</tbody>
</table>


**Weight loss and stress incontinence**

- ~2000 women with DM
- Average age 50 years, BMI 35 kg/m²
- 3 year follow-up

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean Weight Change</th>
<th>Odds of Weekly Incontinence*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifestyle</td>
<td>-3.4 kg</td>
<td>0.76 (95% CI 0.61-0.95)</td>
</tr>
<tr>
<td>Metformin</td>
<td>-1.5 kg</td>
<td>1.09 (95% CI 0.87-1.36)</td>
</tr>
<tr>
<td>Placebo</td>
<td>-0.5 kg</td>
<td>X</td>
</tr>
</tbody>
</table>

*Adjusted for hormone use, age, race/ethnicity, BMI, and physical activity.


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**Behavioral Interventions: Dietary Triggers for Urge Incontinence**

- Coffee & tea
- Alcohol
- Carbonated beverages
- Citrus fruit & juices
- Tomato products
- Chocolate
- Artificial sweeteners

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**Behavioral Interventions for Urge Incontinence**

- Use of incontinence pads
- Reduce volume and type of fluid intake
- Voiding interval change
  - Decreased interval (stress)
  - Increased interval (urge)
- Scheduled voiding (urge and mixed)
- Voiding diaries
Behavioral Interventions - Kegel’s

1. Turn off flow: Quick repetitions of fast fibers
2. Sphincter tone: Hold 10 seconds, 20 reps, twice a day, 3 months

Medication: Estrogen for Prevention of Urge Incontinence

- HERS
  - 1208 women without urge incontinence at baseline
  - Sub-group of HERS
  - Mean age 67 years
  - All had heart disease, all had uterus
  - Oral estrogen and progesterone

  - Higher rate of NEW Stress Incontinence and Urge Incontinence in women taking HT


Behavioral Interventions - Kegel’s

- Kegel’s
  - 38% cure for pure stress incontinence
  - 3 months of exercises
  - Intervention is patient education handouts
- Kegel’s with weighted cone
  - Biofeedback with increasingly heavy weights
- Electrical stim of pelvic floor
  - Cure or improvement in 48% of women

Medication: Estrogen for Prevention of Urge Incontinence

- WHI
  - Women with no incontinence at baseline
  - Sub-group analysis of WHI
  - 9180 women
  - Estrogen/Progesterin and Estrogen Only arms

  - In E/P arm more likely to develop stress incontinence
  - In E Only arm more likely to develop both stress and urge incontinence

Medication: Vaginal Estrogen for Treatment of Urge Incontinence

<table>
<thead>
<tr>
<th>Study Year</th>
<th>Sample</th>
<th>Type</th>
<th>Hormone Tx</th>
<th>Tx Length</th>
<th>Tx Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>26</td>
<td>SI/UI</td>
<td>Premarin Cream</td>
<td>6 mo</td>
<td>No effect</td>
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<tr>
<td>1991</td>
<td>40</td>
<td>SI/UI</td>
<td>Estradiol Cream</td>
<td>4 mo</td>
<td>No effect</td>
</tr>
<tr>
<td>1992</td>
<td>105</td>
<td>SI/UI</td>
<td>Vagifem</td>
<td>12 mo</td>
<td>No effect</td>
</tr>
<tr>
<td>2003</td>
<td>220</td>
<td>SI/UI</td>
<td>Estring</td>
<td>3 mo</td>
<td>No effect</td>
</tr>
</tbody>
</table>

Treatments for Urge Incontinence

- Anticholinergics
  - Oxybutinin (dilatant)
  - Tolterodine (Detrol)
  - Solifenacin (Vesicare)
  - Darifenacin (Enablex)
  - Trospium (Sanctura)
- TCAs
  - Imipramine for mixed incontinence
- Botox

Tibial Nerve Stimulation

- Which patients?
  - Overactive bladder
  - Detrusor overactivity
  - Urge incontinence
  - Non-obstructive non-neurogenic bladder (MS, Parkinson’s)
- Needle electrodes placed above the ankle
- 1-3 30 minute sessions a week
- 12 weeks of therapy
- Efficacy equal to tolterodine in non-blinded study of 100 people
Posterior Tibial Nerve Stimulation—Evidence

- 2001, Netherlands\textsuperscript{10}
  - 37 women with urge incontinence
  - Percutaneous nerve simulation over 12 weeks
  - Voiding diaries and QOL measures
  - Decrease leakage episodes
  - Decrease number of pads used
  - Decrease voiding frequency and nocturia

- 2006, Netherlands/Italy\textsuperscript{11}
  - 35 women
  - Transcutaneous stimulation
  - Frequency & volume charts and QOL and SF-36 questionnaires at 0 and 12 weeks
  - 63% (n=22) reported a subjective success
  - 70% (n=24) showed a $\geq 50\%$ reduction in total leakage episodes
  - 46% (n=16) no leakage episodes after 12 sessions
  - Quality of life measures improved significantly

Treating Stress Incontinence

- Pessaries
  - Occlusive pressure supports bladder neck
  - May unmask other incontinence
  - Underused in primary care
- SNRIs
  - Duloxetine (Cymbalta)
  - Not FDA approved, but some efficacy
Mid-Urethral Sling Procedure for Stress Incontinence

- Less morbidity than a Burch
- Less voiding dysfunction de novo urinary retention
- Less de novo urgency or urge incontinence
- Shorter operative time than Burch or other surgeries
- Shorter hospital stay by ½ a day
- More cost-effective
- Equal efficacy as a Burch & other procedures
- Lifespan of 10-15 years

Surgery-Burch Procedure for Stress Incontinence

- Adds a sling under the bladder neck
- May be modified
  - Abdominal approach
  - Laproscopically
- Up to 25% failure rate at 5 years, but lower than other procedures
  - Less post operative catheterization time
  - May also fix anterior wall defects
- Reserved for women with contraindications to or failure of mid-urethral sling procedures

Bulking Agents

- Methods
  - Materials injected around the urethra
    - Beads-carbon-based beads
    - Bulking agents-cow derived collagen
  - Reserved for women who cannot tolerate pelvic surgery or anesthesia
  - Symptoms controlled for up to 12 months
  - Usually repeated treatments to achieve outcomes

Summary

- Invest early in Lifestyle and Behavioral Interventions
  - Weight loss
  - Kegel’s
  - Biofeedback and electrical stimulation
- Hormone Therapy-consider vaginal estrogen but evidence does not support use of oral HT
- Surgical options are narrowing based on evidence of efficacy and longevity for stress urinary incontinence.
References