Urinary Incontinence

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Urinary Incontinence (UI)

- Involuntary loss of urine

- Not normal aging but more common with aging

- 3x more common in women than men until age 80yrs when 50% men report UI

- 50 - 75% of incontinent persons never voluntary describe their symptoms to physicians
3 Incontinence Questions (3IQ)-help distinguish urge from stress UI with sensitivity of 75% and specificity of 77%
3 IQ incontinence screener

During the last 3 months, have you leaked urine (even a small amount)? Yes or No

During the past 3 months, did you leak urine most often:
A. When you were performing a physical activity such as coughing, sneezing, lifting, or exercising?
B. When you had the urge or the feeling that you needed to empty your bladder, but could not get to the toilet fast enough?
C. Without physical activity and without a sense of urgency?
D. About equally as often with physical activity as with a sense of urgency?

A = stress predominant; B = urge predominant; C = other cause predominant; D = mixed.
68 yo woman comes into the office c/o urgency and frequency of urination with occasional involuntary loss of urine.

What other information would you want to know?
Risk Factors Associated with UI

- Forceps delivery/vaginal delivery > C-section
- Hysterectomy
- Benign Prostatic Hyperplasia (BPH)
- Obesity
- Diabetes, stroke, COPD, CHF, neurologic disorders,
- Estrogen depletion
- Impaired functional, cognitive and/or mobility status
- Medications (e.g., estrogen, diuretics)
- Environmental barriers
Evaluation

- Duration, frequency, severity, timing
- Associated symptoms, precipitants
- Bowel and sexual function, parity, status of other medical conditions, medications, functional status
- GU history (e.g. previous anti-incontinence surgery)
Evaluation

- Bladder record
  - timing and volume (drops, small, medium and soaking) of continent and incontinent episodes
  - associated activities (coffee drinking, exercise)
  - hours of sleep
### Medications that May Affect Continence

#### Types of Medication

- **Sedative/hypnotics**
- **Alcohol**
- **Anticholinergics**
  - antipsychotics
  - antidepressants
  - antihistamines
- **Narcotic analgesics**

#### Potential Effects on Continence

- Sedation, delirium, immobility
- Frequency, urgency, sedation
- Urinary retention, overflow incontinence, fecal impaction, delirium
- Urinary retention, sedation, fecal impaction
## Medications that May Affect Continence

<table>
<thead>
<tr>
<th>Types of Medication</th>
<th>Potential Effects on Continence</th>
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<tbody>
<tr>
<td>$\alpha$ - Adrenergic antagonists</td>
<td>Urethral relaxation $\rightarrow$ stress UI</td>
</tr>
<tr>
<td>$\alpha$ - Adrenergic agonists</td>
<td>Urinary retention</td>
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<tr>
<td>Calcium channel blockers</td>
<td>Nocturnal incontinence</td>
</tr>
<tr>
<td>Potent diuretics</td>
<td>Polyuria, frequency, urgency</td>
</tr>
<tr>
<td>ACE inhibitors</td>
<td>Drug-induced cough</td>
</tr>
<tr>
<td>Cholinesterase inhibitors</td>
<td>Urinary urgency and UI</td>
</tr>
</tbody>
</table>
Case

- She is G3P3, has a BMI 32, and drinks 3 cups of coffee a day.
- She notes occasional dysuria and has nocturia x2. She has had loss of urine w/coughing. She denies any constipation.
- She has Type 2 DM and takes metformin and lisinopril. No pelvic surgeries.

What are some type(s) of urinary incontinence she could have?
Lower Urinary Tract Dysfunction

Failure to store
- Hyperactive or overactive bladder
- Incompetent sphincter

Failure to empty
- Underactive bladder

Obstruction
Types of Persistent Incontinence

- **Urge**
  - more common in older women
- **Stress**
  - more common in younger women
- **Mixed**
  - most common overall in women
- **Overflow**
  - most common in men
Potentially Reversible Causes of Incontinence*

- Delirium
- Infection, urinary (symptomatic)
- Atrophic urethritis/vaginitis
- Pharmaceuticals
- Psychological disorders
- Endocrine disorders/excessive urine production
- Restricted mobility
- Stool impaction

Urge Incontinence
“I can’t get to the bathroom on time.”

- An abrupt desire to void (urgency) that cannot be suppressed
- Usually thought to be idiopathic
- Other causes - bacterial cystitis, bladder tumor, bladder stones, atrophic vaginitis/urethritis, stroke, Parkinson’s disease, dementia
- Especially in frail elderly, may have detrusor hyperactivity with impaired contractility (DHIC)
Stress Incontinence

“I leak urine when I cough, laugh, sneeze or when running.”

- Increases in intra-abdominal pressure overwhelm urethral sphincter
- Hypermobility of bladder neck and urethra (85% cases) - aging, hormonal changes, multiple childbirths, hysterectomy, pelvic surgery
- Intrinsic sphincter deficiency (15% cases) - previous pelvic/anti-incontinence surgery, pelvic radiation, trauma, neurogenic disorders
Functional Incontinence

- Does **not** involve lower urinary tract
- Result of physical (e.g. arthritis, stroke) and/or cognitive impairment
Overflow Incontinence
“I dribble urine most of the time.”

- Overdistension of the bladder caused by:
  - Bladder outlet obstruction –
    - Stricture, pelvic prolapse, BPH, cystocele, fecal impaction
  - Impaired detrusor contractility –
    - Diabetes, MS, lumbar spinal stenosis, spinal cord injury, medications
Case

- What do you look for on Physical Exam?
Physical Examination

- Mental status
- Mobility
- Evidence of volume overload
- Neurologic - evaluation of lumbosacral nerves, focal findings, peripheral neuropathy
- Pelvic exam - atrophic vaginitis, urethral hypermobility, cystocele, uterine prolapse, rectocele, masses
- Rectal - sphincter tone (active/resting) to assess integrity of sacral plexus (S₂-S₄), perineal sensation, fecal impaction, masses
Stress Test

- Best done when bladder is relatively full, in standing position with relaxed perineum
- Patient asked to vigorously cough once while a pad is held underneath perineum or on the floor
- In women, positive test sensitive but not specific for impaired sphincter function
Post-void Residual Volume (PVR)

- Perform within 5 minutes of voiding
- Catheterization or bladder ultrasound
  - PVR < 50cc - adequate bladder emptying
  - PVR < 100cc - adequate bladder emptying > 65 years
  - PVR 100-200cc - inadequate emptying vs normal
  - PVR > 200cc - refer
Basic Laboratory Evaluation for UI

- Calcium, glucose
- BUN/Cr - especially if PVR > 200cc
- Urinalysis and culture
Urodynamic Testing

- Not routinely recommended
- Mainly used when surgery is being considered
Case

- She has no mobility or mental status abnormalities.
- Monofilament testing is normal.
- Pelvic exam reveals vaginal atrophy, bulging of the anterior vaginal wall when asked to cough, no leakage.
- Rectal sphincter tone is intact.
- PVR - 65cc.
- Fasting blood sugar level of 87 with HgbA1C 6.5%. Urinalysis was normal.

What is your assessment?
Case

- Overweight
- Vaginal atrophy
- Pelvic prolapse
- Mixed UI-urge>stress

What is your treatment plan?
Management of UI Overview

- Behavioral therapies
- Pharmacological therapies
- Surgery
- Pessaries
- Periurethral bulking agents
- Garments and pads
- Catheters
Behavioral Interventions

- Reduce amount and timing of fluid intake (e.g. stop at 7pm)
- Avoid bladder stimulants such as caffeine, ETOH
- Use diuretics judiciously and not before bedtime
- Elevate legs before bedtime in patients with edema
- Make toilet easier to get to - suggest bedside commode
- Lose weight if obese
## Patient Dependent Behavioral Interventions for Incontinence

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Definition</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bladder retraining</td>
<td>Progressive lengthening of the voiding interval</td>
<td>20% “dry” rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75% with 50% reduction</td>
</tr>
<tr>
<td>Biofeedback</td>
<td>Rectal or vaginal pressure recording to train patients to contract pelvic floor and relax bladder</td>
<td>50-87%</td>
</tr>
<tr>
<td>Pelvic muscle (Kegel) exercises:</td>
<td>Repetitive contraction of pelvic floor muscles</td>
<td>56-95% (Stress UI)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80% (Urge UI)</td>
</tr>
</tbody>
</table>

*3-4 x per week x 15 weeks minimum*
# Caregiver Dependent Behavioral Interventions for Incontinence

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<tr>
<td>Scheduled Toileting</td>
<td>Fixed toilet schedule</td>
<td>29-85%</td>
</tr>
<tr>
<td>Habit Training</td>
<td>Toileting based on individual pattern</td>
<td>86%</td>
</tr>
<tr>
<td>Prompted voiding</td>
<td>Regular opportunities to toilet (useful in NH setting)</td>
<td>↓ 0.5-1.5 incontinent episodes</td>
</tr>
</tbody>
</table>
Anticholinergic Therapy for Urge UI-Overactive Bladder Syndrome (OAB)

- **Oxybutynin** *(Ditropan®)*
  - Immediate release
  - Extended release *(Ditropan XL®)*
  - Transdermal patch *(OXYTROL®)*
  - Topical gel *(GenInique®)*
- **Tolterodine** *(Detrol®)*
  - Immediate release
  - Long acting *(Detrol® LA)*
- **Trospium** *(Sanctura®)*
- **Darifenacin** *(Enablex®)*
- **Solifenacin** *(VESIcare®)*
- **Fesoterodine** *(Toviaz®)*
Potential Adverse Effects of Antimuscarinic Drugs

Iris/Ciliary Body = Blurred Vision
Lacrimal Gland = Dry Eyes
Salivary Glands = Dry Mouth
Heart = Tachycardia
Stomach = Dyspepsia
Colon = Constipation
Bladder = Retention

CNS
Dizziness
Somnolence
Impaired Cognition

Beta 3 adrenergic agonist

- Mirabegron (Myrbetriq) improves bladder storage capacity
- 25-50mg/day
- Side effects: tachycardia, increased BP, constipation
- Not for use w/ESRD, uncontrolled hypertension
# Medications to Treat Stress Incontinence

<table>
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<tr>
<th>Medication</th>
<th>Improvement</th>
</tr>
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<tr>
<td>Pseudoephedrine (Sudafed)</td>
<td>11% (ARR)</td>
</tr>
<tr>
<td>Duloxetine *</td>
<td>Up to 25 %</td>
</tr>
<tr>
<td>Estrogen (topical cream, Estring®)</td>
<td></td>
</tr>
<tr>
<td>Imipramine **</td>
<td>?</td>
</tr>
</tbody>
</table>

* not FDA approved for this indication
** dual alpha agonist/anticholinergic activity
Case

- **Lifestyle modifications**
  Wt loss, Reduce/eliminate caffeine

- **Behavioral therapies**
  Kegel exercises, bladder retraining, scheduled toileting

- **Pharmacological therapies**
  Topical estrogen cream, oxybutynin, discontinue lisinopril
Case

- She comes back reporting that she got a dry mouth from the oxybutynin and stopped it. She is losing weight and the topical estrogen cream is helping.

What other options can you give her?
Percutaneous Tibial Nerve Stimulation (PTNS)

- Used for urge incontinence, OAB, nonobstructive urinary retention
- Electrode placed at medial aspect of ankle leads to neuromodulation thru tibial nerve to S2-S4 plexus
- Cochrane review of 1-3 times/wk x 12wks
  - 55% improvement vs 21% sham
Botulinum toxins A and B

- Direct injection into the urethral and bladder skeletal and smooth muscle results in reversible chemical denervation
- Treatment for overactive bladder due spinal cord injury, MS
- Studies have shown complete continence in 32% to 86% of patients with mean duration of 6 months
InterStim System
(Sacral Neuromodulation)

- Useful for patients with intractable symptoms of urge incontinence, urgency-frequency, or retention.
- Temporary, percutaneous sacral nerve test stimulation (S 3) and if > 50% improvement over 1-4 weeks--permanent device with implanted lead and neurostimulator, hand held programmer
- 50% improvement in symptoms and QOL
# Stress Incontinence

## Procedural Interventions

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<thead>
<tr>
<th>Procedure</th>
<th>Indication</th>
<th>Imp Rates</th>
</tr>
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<tbody>
<tr>
<td>Retropubic (e.g., Burch)</td>
<td>Urethral hypermobility</td>
<td>80-84%</td>
</tr>
<tr>
<td>Sling procedure</td>
<td>Urethral hypermobility/ Intrinsic sphincter deficiency</td>
<td>80%</td>
</tr>
<tr>
<td>Periurethral bulking injections</td>
<td>Urethral hypermobility / Intrinsic sphincter deficiency</td>
<td>50-67%</td>
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Periurethral Bulking Agents – Stress Incontinence

- Injection of glutaraldehyde cross-linked bovine collagen or carbon-coated beads under cystoscopic guidance into an incompetent periurethral area
- UTI and transient urethral irritation are most common side effects
- Complications - urgency, UI, urinary retention

Pessary Use

- Genital prolapse (uterine or vaginal), cystocele
- Stress incontinence
- Older women who are at risk for surgery
- Women who have had previous surgery for stress incontinence
Criteria for Further Evaluation

- 2 or more UTI’s within 12 months
- History of previous anti-incontinence surgery or radical pelvic surgery
- Symptomatic pelvic prolapse, pelvic pain
- Abnormal PVR > 200cc*
- Hematuria in the absence of infection
- Failure to respond to an adequate therapeutic trial or uncertainty in diagnosis

*except in known BPH and those taking relevant meds
Conclusions

- Urinary incontinence is common, especially with increasing age
- Usually multifactorial causes
- Persistent types include failure to store (urge/stress) and/or failure to empty (overflow) and mixed
- Once type(s) identified then choose appropriate intervention(s)
- Improvement rates with intervention are high with nonsurgical management
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Partners in Care would like to acknowledge our clinic partners:

[Logos: Chapcare, Southside Coalition of Community Health Centers]

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