The Role of Primary Care Physicians in the Management of Bladder Dysfunction

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Introduction

• Incontinence is a major health challenge
• Majority remain untreated
• PCP ideally positioned to screen and manage
Goals

• Understand a basic knowledge of voiding physiology
• Identify the cause of incontinence
• Identify and implement the correct treatment course
Prevalence and Impact

• Increases with age
• Women more than men
• 15-30% elderly living at home
• 1/3 of those in acute care setting
• 1/2 living in nursing homes
Comorbidities

• Cellulitis
• UTI
• Falls/Fracture
• Loss of sleep
• Social withdrawal
• Depression
• Sexual dysfunction
Anatomy and Physiology
Lower Urinary Tract

• Bladder
• Urethra
• Internal sphincter (proximal urethra/bladder neck)- smooth muscle
• External sphincter (distally at UG diaphragm)-striated muscle
Innervation

• Parasympathetic S2-S4
• Sympathetic T11-L2
• Somatic S2-S4 (Voluntary)
Parasympathetic

• Facilitates emptying
• Innervates the detrusor (Acetylcholine)
• + M₃ receptor- increases contractility
Sympathetic

• Innervates Detrusor and Urethra
• + B adrenergic receptor- relaxes bladder (bladder-body)
• + A adrenergic- bladder base & proximal urethra; stimulation contracts
• Facilitates storage
Somatic

Primary source of innervation of the external sphincter.
Etiology

Incontinence occurs:

• Outlet is open when it should be closed
• Outlet is closed when it should be open
• Detrusor fails to contract
• Detrusor contracts when it should not
Transient Incontinence

Related to a medical condition or medication
Transient Incontinence

Causes of Transient Incontinence

DIAPPERS

- Delirium/dementia
- Infection
- Atrophic vaginitis/urethritis
- Pharmaceuticals
- Psychiatric causes
- Endocrine causes
- Restricted mobility
- Stool impaction

From Resnick NM, Yalla SV. N Engl J Med. 1985;313:800-805. 16
<table>
<thead>
<tr>
<th>AGENT</th>
<th>EFFECT</th>
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<tbody>
<tr>
<td>Alcohol</td>
<td>Polyuria, delirium, sedation</td>
</tr>
<tr>
<td>Sedatives, hypnotics</td>
<td>Sedation, confusion</td>
</tr>
<tr>
<td>Opiates</td>
<td>Fecal impaction, sedation, detrusor dysfunction</td>
</tr>
<tr>
<td>Diuretics</td>
<td>Polyuria, urgency, frequency</td>
</tr>
<tr>
<td>Calcium channel blockers</td>
<td>Detrusor relaxation</td>
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<tr>
<td>Anticholinergics</td>
<td>Urinary retention, overflow incontinence</td>
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<tr>
<td>Antipsychotics</td>
<td>Urinary retention, overflow incontinence</td>
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<td>Tricyclic antidepressants</td>
<td>Urinary retention, overflow incontinence</td>
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<tr>
<td>( \alpha )-Adrenergic blockers</td>
<td>Stress incontinence</td>
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<tr>
<td>( \alpha )-Adrenergic agonists</td>
<td>Urinary retention</td>
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<tr>
<td>( \beta )-Agonists</td>
<td>Urinary retention</td>
</tr>
</tbody>
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Urge Incontinence (most common)

- Detrusor over-activity
- The exact cause is often unknown
- Likely multifactorial
- Manifested by sudden urge
- Followed by unwanted loss of urine
Causes

- Neurologic disorders- Parkinson’s, MS, stroke
- Elevated urine production
- Medications
- UTI
- Constipation
- Excess caffeine / ETOH
- Chronic obstruction (BPH/Cystocele)
- Bladder cancer
Stress Incontinence

- Outlet is open when it should be closed
- Failure of the bladder outlet
- Increase in abdominal pressure
- Absence of bladder contraction
Causes

• **Sphincter deficiency**
  - Trauma (childbirth)
  - scarring from prior surgery
  - Prostatectomy

**NOTE:** Stress related urge incontinence

• **Functional Incontinence**
  - Not related to bladder dysfunction
  - Impairment of physical or cognitive function
  - Arthritis, Immobility, etc.
Overflow Incontinence

• Outlet closed when it should be open

• Outlet obstruction
  - BPH, Cystocele
  - Urethral scarring
  - Pelvic mass
  - Cancer
Cont’d

• Atonic or weak detrusor
  - Neurologic cause
  - Diabetes
  - Pelvic surgery damage to sacral plexus

NOTE: Anticholinnergics can make this worse
EVALUATION

• History
• PE
• PVR
• Labs
HISTORY

• Focus on identifying Transient incontinence

• Determine if stress, urge, or possible overflow
Transient Incontinence

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PE

- Stress test (Valsalva)- cystocele/pelvic prolapse
- Atrophic vaginitis, pelvic mass
- Rectal exam- fecal impaction, resting tone
- Neurologic exam
PVR Measurement

- Ultrasound, bladder scanner
- 5 minutes after voiding
Labs

- UA C&S (UTI, Hematuria)
- BUN/Creatinine
- Serum electrolytes
- Fasting blood glucose
Basic Evaluation:
   History
   PE
   PVR
   Urinalysis

Reversible causes

Assess probable type of incontinence

Overflow:
   Frequent dribbling of urine
   - α-Blockers
   - Intermittent catheterization
   - Urologic referral

Urge:
   Frequency/urgency
   - PVR<75 mL: anticholinergics
   - PVR>100 mL: urologic referral

Stress:
   Leakage of urine during times of increased abdominal pressure
   - Pelvic floor exercises
   - Sympathomimetics
   - Topical estrogen

Functional:
   Physical or mental limitations
   - Assistive devices
   - Behavioral therapy

Incontinence resolved?

NO

Reversible causes

Treat reversible causes

YES

No further intervention
Underactive Detrusor

- Reduce residual volume
- Eliminate hydronephrosis
- Prevent Urosepsis
- Fecal impaction, drugs (anticholinergics, calcium channel blockers, anti-depressants, Antipsychotics)
- CIC, foley
- Cholinergic drugs- efficacy is equivocal
Conclusion

• Urinary incontinence remains a major health challenge
• Primary Care Physicians are well positioned to manage incontinence
• Majority remain untreated
• Following a step-wise approach to the work-up and management of incontinence will greatly help PCP’s tackle this challenge
• Greatly improve the quality of life of your patients