Lower Urinary Tract Problems in the Geriatric Population
T Sreedharan Unny
Urologist
Malabar Hospitals
Kozhikode
Lower Urinary Tract conditions in elderly.

- As population ages, more patients present to primary care physicians with urological complaints.
- Third most common complaint in persons 65 years or older.
- Half of OPD visits for urological complaints.
Lower Urinary Tract Symptoms (LUTS)

Most common

- Urinary retention
- Urinary incontinence
Definition

• UI is the involuntary loss of urine that is objectively demonstrable and a social or hygienic problem.

International Continence Society
Urinary Incontinence (UI)

Prevalence

• Major problem in elderly
• 15% to 30% affected
  – Women more than men
  – Many take it as normal aging problem
  – Not reported
  – Has to ask for it
Implications of UI

• Medical
  – Decubitus ulcer, uti, sepsis, renal failure, increased mortality, falls and fractures

• Psychosocial
  – Embarrassment, stigma, isolation, depression, institutionalisation

• Economic
Physiology of Micturition

Two mechanisms

Detrusor

Sphincter
Detrusor mechanism

- Detrusor muscle,
- pelvic nerves,
- spinal cord,
- sub cortical and cortical cerebral centers
  - Predominantly cholinergic
  - Has prostaglandin receptors
  - Calcium channel dependent
Sphincter mechanism

- Alpha adrenergic activity contracts urethral sphincter
- Beta adrenergic activity relaxes urethral sphincters.
  
  Other important component of sphincter mechanism
  
  anatomical relationship of urethra to bladder and abdominal cavity
Basic mechanisms of UI

Detrusor over activity leading to urge incontinence

Poor urethral sphincter function leading to stress incontinence

Overflow incontinence because of obstruction to urine flow, overfilling of bladder.
Incontinence is never normal
Urinary Incontinence

AGEING BLADDER CHANGES

- Bladder capacity decreases
- Bladder compliance decreases
- Ability to postpone voiding decreases
- Urethral closing pressure decreases in women
- Prostate enlarges in men
- Involuntary bladder contractions increase
- Post-voiding residual volume increases (50-100ml)

*Also:*

- Increased fluid excretion at night
- Age associated sleep disorders
- Detrusor muscle changes
Urinary Incontinence

Incontinence is a Geriatric syndrome:

i.e. Predisposed by above factors

Precipitated usually by disease outside the urinary tract.

Frequent adverse drug reactions that affect the urinary tract

It is these factors OUTSIDE the urinary tract that are amenable to intervention e.g. arthritis/immobility
Evaluation of incontinence

In most patients, only basic evaluation needed.

Proper history
Thorough physical examination
Urine analysis
Measurement of residual urine (PVR)
Goals of evaluation

• Basic evaluation to identify transient causes of incontinence which can be treated by the primary care physician
• Identify condition requiring specialised attention
• Identify urge from stress incontinence and treat accordingly
Urinary Incontinence

Transient Incontinence:

- **D** - Delirium
- **I** - Infection
- **A** - Atrophic Urethritis/vaginitis
- **P** - Pharmaceuticals
- **P** - Psychological (rare)
- **E** - Excessive urine output
- **R** - Restricted mobility
- **S** - Stool impaction
Transient incontinence

Reversible causes detectable by history

- Drug side effect: Stop/change drug
- Delirium/hypoxia: Treat cause
- Recent prostatectomy: Behavior therapy
- Excessive fluid intake: Reduce intake
- Impaired mobility: Therapy or environmental changes (bedside commode, etc)
**Drugs and incontinence**

<table>
<thead>
<tr>
<th>Class</th>
<th>Effect</th>
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</thead>
<tbody>
<tr>
<td><strong>Anticholinergics</strong></td>
<td>Decreases bladder contractions</td>
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<tr>
<td>Antidepressants</td>
<td></td>
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<tr>
<td>Antipsychotics</td>
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<tr>
<td>Sedative hypnotics</td>
<td>Producing retention</td>
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<tr>
<td>Antihistamines</td>
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<tr>
<td>Nervous system depressants</td>
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<tr>
<td>Narcotics</td>
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<tr>
<td>Alcohol</td>
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<tr>
<td>Calcium channel blockers</td>
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</tr>
<tr>
<td>Alpha adrenergic stimulants</td>
<td>Increases sphincter contraction</td>
</tr>
<tr>
<td>Beta adrenergic blockers</td>
<td>Producing outflow obstruction</td>
</tr>
</tbody>
</table>
Drugs and incontinence

Drugs causing stress incontinence
Alpha adrenergic blockers sphincter relaxation with urine leak

Drugs causing urge incontinence
Diuretics contractions stimulated by high urine flow
Caffeine diuretic effect
Sedative hypnotics depressed central inhibition of micturition
Alcohol depressed central inhibition and diuresis
Transient incontinence

Detectable by physical examination
Atrophic vaginitis  Estrogen therapy
Fecal impaction  Disimpaction and stool softeners

Detectable by urine analysis
Urinary tract infection  Antibiotics
Glycosuria  Control of Diabetes
Urinary incontinence

Indications for special evaluation or referral

In history

- recent onset of urge incontinence or irritative bladder symptoms
- previous anti incontinence surgery
- Previous radical pelvic surgery
- Incontinence associated with recurrent symptomatic urinary infections
Urinary incontinence

Conditions detected by physical examination

- Prostate nodule or asymmetry
- Gross pelvic prolapse
- Neurological abnormality suggesting systemic disorder or spinal cord lesion
Urinary incontinence

Conditions detected by urine analysis

- Hematuria without infection
- Significant persistent proteinuria

Other situations

- Abnormal PVR
- Presumptive diagnosis not arrived at
- Not responding to treatment
- Consideration of surgical intervention
• History rules out transient causes and there is no need for referral

Then is it

Urge or Stress wetting?
Urinary Incontinence

**Urge wetting**

Commonest cause of urinary incontinence (60%-70%).

Seen with: - neurologic disorders
- obstruction
- ageing
- DHIC
Urinary Incontinence

Detrusor Overactivity

- Clinically: - sudden onset
  - immediate need to void
- Leakage is episodic, moderate to large
- Nocturnal frequency
- Urge incontinence common
- PVR low in absence of DHIC
Urinary Incontinence

Stress Incontinence

• Common in women
• In men, only after sphincteric damage complicating prostatic resection
• Clinically: Instantaneous with stress manoeuvres
  Delayed - suggests stress induced detrusor overactivity
• In men, ‘leaky tap’ worsened by standing or straining
• Often co-exists with urge incontinence i.e. mixed
Simple tests to assess LUT

- Office cystometry
- Office stress testing
Sterile water

Center of syringe held 15 cm above ureter

Bladder contractions observed here

50-mL syringe

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Urinary Retention

Urethral Obstruction

• Common in men
• In women, after bladder neck suspension or kinking associated with severe prolapse
• Prostatic encroachment
• Clinically:
  (1) Filling symptoms
      (i.e. urgency, frequency, nocturia)
  (2) Voiding symptoms
      (i.e. poor stream, intermittency, dribbling post void)
  (3) Overflow
Urinary Retention

Detrusor Underactivity  (<10% of incontinence cases)

- Usually idiopathic
- Caused by degenerative muscle and axonal changes
- Clinically: Overflow incontinence
  Frequency
  Nocturia
  Frequent leakage of small amounts
- PVR usually > 450ml
- In men, differentiated by urodynamics
Treatment

Transient causes to be treated.
If need be, refer.
If both above not identified:
  presumptive diagnosis of stress or urge.
Confirm by simple office procedures and treat.
• Behavior therapy first choice, especially for urge wetting
• Medicines used as an adjunct.
• Surgical is an option in properly selected patients.
Common treatment for UI

urge:
Bladder training
Medications
Surgical rarely used

Stress Incontinence:
  Behavioral therapies eg. Kegel’s exercise
  Medications α adrenergic drugs, estrogens.
  Surgical
Common treatment for UI

Overflow incontinence
- clean intermittent catheterisation
- Indwelling catheter
- Suprapubic catheter

Pharmacologic management with
- alpha blockers
- 5HT reductase inhibitors

Surgical
Common treatment for UI

Non overflow ui
  pessaries
  Electrical stimulating devices
  surgically implantable artificial sphincters
  Periurethral bulking agents
  Vaginal cones
Common treatment for UI

When UI is mixed:
   treat the predominant problem
When no presumptive diagnosis is made:
   Investigate further with
      Flowmetry
      multichannel CMG
Treatment failure

• Patient has to be monitored for improvement. If not satisfactory, further evaluation to ensure that the presumptive diagnosis is correct has to be done.

• If the presumptive diagnosis is correct and still treatment is a failure, various measures like pads, artificial sphincters, catheters etc as per the situation may have to be resorted to.