Medications and Incontinence

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Significance of Incontinence

◆ Concern in:
  ◼ Aged
  ◼ Hospital
  ◼ Nursing Home
◆ Ramifications
  ◼ Depression
  ◼ Mobility
  ◼ Pressure ulcer
◆ Cost
  ◼ Billions of Dollars

Bladder Anatomy
Control of Bladder

<table>
<thead>
<tr>
<th>Neurologic System</th>
<th>Effect Area</th>
<th>Result of Activation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sympathetic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alpha</td>
<td>Trigone</td>
<td>Close outlet</td>
</tr>
<tr>
<td></td>
<td>Proximal urethra</td>
<td></td>
</tr>
<tr>
<td>Beta</td>
<td>Fundus of bladder</td>
<td>Relax bladder</td>
</tr>
<tr>
<td>Parasympathetic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acetylcholine</td>
<td>Detrusor muscle</td>
<td>Contract bladder</td>
</tr>
<tr>
<td>Somatic</td>
<td>External sphincter</td>
<td>Control outflow</td>
</tr>
</tbody>
</table>

Age Related Changes

- Decrease Bladder Capacity
- Decreased Ability to Postpone Voiding
- Decreased Urethral Closing Pressure
- Decreased Urinary Flow Rates

Temporary Incontinence

- D - Delirium or Dementia
- I - Infections
- A - Atrophic Vaginitis
- P - Pharmaceuticals
- P - Psychologic
- E - Endocrine
- R - Restricted Mobility
- S - Stool Impaction
Medications That May Contribute to Incontinence

- Alpha Agonists
- Alpha Antagonists
- Anticholinergic Agents
- Calcium Channel Blockers
- Diuretics
- Agents Reducing Cognition
- Muscle Relaxants

Established Incontinence

- Urge incontinence
- Stress incontinence
- Overflow incontinence
- Functional incontinence

Urge Incontinence

- Most Common
- Presentation
  - Urgency & Frequency
  - Nocturia
  - Amount Lost
- Cause
  - Detrusor Instability
  - Detrusor Hyperreflexia
Management of Urge Incontinence

- Bladder Training
- Pharmacologic treatment aimed at detrusor muscle

Treatment of Urge Incontinence

- Anticholinergic/Antispasmodic
  - Efficacy
  - Mechanism
  - Agents
    - Oxybutynin – Ditropan, Oxytrol
    - Tolterodine – Detrol
    - Trospium – Sanctura
  - Onset and trial duration
  - Limitations

- Antidepressants
  - Imipramine & Doxepin
  - Mechanism of action
  - Onset
  - Dosing

- Calcium Channel Blockers
Treatment of Urge Incontinence

- Estrogens
  - Mechanism
  - Route
  - Onset
  - Side effects

Stress Incontinence

- More common in women
- Presents as involuntary loss of urine during activities that increase abdominal pressure
- Symptoms
  - Amount lost
  - Other accompanying symptoms

Stress Incontinence and Urethral Angle

<table>
<thead>
<tr>
<th>Normal</th>
<th>Pelvic Relaxation</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100</td>
<td>&gt; 100</td>
</tr>
</tbody>
</table>
Stress Incontinence

- Alpha agonists
  - Mechanism of action
  - Efficacy
  - Agents
    - Pseudoephedrine
  - Side effects
  - Conditions requiring caution

Stress Incontinence

- Antidepressants
- Estrogen
- Surgery

Overflow Incontinence

- More common in men
- Complaints
  - Quantity and frequency of urine loss
  - Hesitancy
  - Urine stream
  - Straining to void
  - Incomplete voiding
Overflow Incontinence

- Causes
  - Obstruction
  - Under active detrusor muscle
- Non-pharmacologic management
  - Catheterization
  - Surgery

Overflow Incontinence

- Medications
  - Goal
    - Facilitate emptying
    - Decrease residual volume
  - Approach
    - Detrusor activity
    - Outflow resistance

Overflow Incontinence

- Cholinergic Agents
  - Mechanism of action
  - Bethanechol
  - Adverse effects
  - Conditions requiring caution
    - Not used in obstruction
    - Asthma, Peptic ulcer disease, Parkinson’s disease
**Prostatic Hyperplasia**

- **Hypothalamus**
- **Pituitary**
- **Testis**
- **Prostate**

Testosterone to 5-alpha-dihydrotestosterone

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**Anatomy**

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**Prostatic Hyperplasia**

- Potential complications
  - Acute urinary retention
  - Chronic renal failure
  - UTIs
  - Overflow incontinence
- Prostate size does not correlate to degree of problems
- Progression
### Management of BPH

**Typical Indications**
- Transurethral Resection of the Prostate (TURP)
  - Efficacy
  - Complications
    - Bleeding
    - Incontinence
    - Impotence
    - Other approaches

**Other approaches**

### Management of BPH

**Alpha Blockers**
- Mechanism of action
- Agents
  - Older - Prazosin, Terazosin
  - Newer – Tamsulosin (Flomax), Alfuzosin (Uroxatral)
- Efficacy
- Onset and length of treatment
- Adverse effects

### Management of BPH

**5 alpha reductase inhibitors**
- Agents – Finasteride (Proscar), Dutasteride
- Use
- Trial duration
- Efficacy
- Side effects
  - PSA