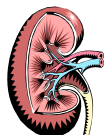


# Treatment of Urinary Incontinence

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## Objectives

- Review the types of urinary incontinence
- Evaluate medications for the treatment of urinary incontinence
- Describe non-pharmacologic techniques to reduce urinary incontinence

## Case

JM is a 60 year old woman who presents to your pharmacy for a refill of Detrol LA. She gives you a disgruntled look and says, "I don't know why I'm refilling this. It doesn't work." After asking her several questions, you learn she continues to have frequent sudden urges to urinate throughout the day, sometimes causing incontinence. As a result, she has been restricting her fluid intake and rarely leaves the house.

PMH: dyslipidemia, hypertension, overactive bladder with urge incontinence

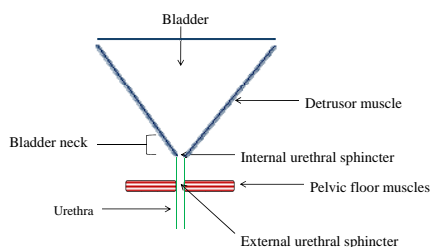
### Medications:

Detrol LA (tolterodine extended-release) 2mg po daily (started 11/2009)  
Zocor (simvastatin) 80mg po QHS (started 4/2001)  
Prinivil (lisinopril) 20mg po daily (started 4/2001)

## Impact of Urinary Incontinence

- Estimated to affect ~25 million adult Americans<sup>1</sup>
  - More common in women and the elderly
- Consequences<sup>2</sup>
  - Impairs quality of life socially, sexually, professionally, etc
  - Skin infections
  - Falls
  - Dehydration due to fluid avoidance
  - Sleep disturbance
  - Anxiety, depression

## Bladder Anatomy



## Types of Urinary Incontinence

- Stress incontinence
- Overflow incontinence
- Urge incontinence
- Mixed incontinence

## Stress Incontinence

- Intermittent leakage due to sudden pressure on bladder which overcomes the urethral sphincter (ie: from a cough, sneeze, laugh, movement)<sup>2</sup>
- Usually small volume
- Common in women:
  - During pregnancy (↑ pressure on bladder)
  - After vaginal childbirth
- Can occur in men post-prostatectomy<sup>3</sup>

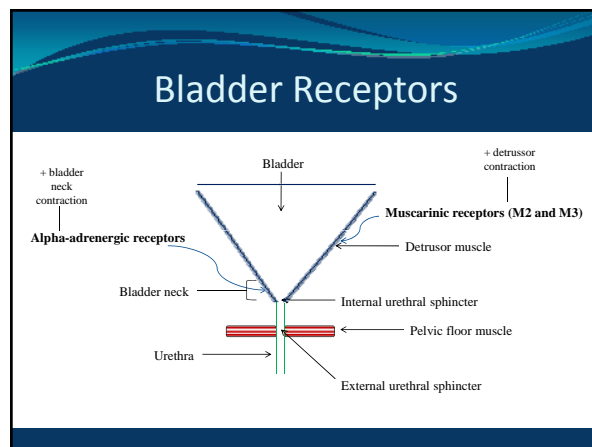
## Overflow Incontinence

- Small leakage of urine due to incomplete bladder emptying<sup>4</sup>
- Symptoms: weak stream, hesitancy, frequency, and nocturia<sup>4</sup>
- Causes:<sup>4</sup>
  - Nerve damage to bladder, which impairs detrusor contractility (diabetic neuropathy, spinal cord injury, multiple sclerosis)
  - Bladder outlet obstruction (ie: benign prostatic hyperplasia (BPH), prostate cancer, urethral stricture)
    - In BPH, obstruction is due to tension of prostatic smooth muscle and impingement of enlarged prostate on urethra

## Urge Incontinence

- Leakage of urine following sudden urge to urinate that cannot be suppressed<sup>4</sup>
  - May be a small or large volume
  - Symptoms: urgency, frequency, nocturia
  - A chronic sudden urge to urinate is known as overactive bladder (but overactive bladder may not lead to incontinence)
- Cause: involuntary, uninhibited detrusor muscle contraction<sup>4</sup>
  - CNS impairment caused by Parkinson's disease, multiple sclerosis, stroke, dementia, etc
  - Bacteria from a urinary tract infection causes bladder irritation

CNS: central nervous system



## Bladder Antimuscarinics

- aka anticholinergics
- Examples: oxybutynin (Ditropan), tolterodine (Detrol)
- **Side effects:** dry mouth, constipation, dry eyes, blurred vision, confusion, delirium
- **Contraindications:** gastric retention, urinary retention, uncontrolled narrow angle glaucoma
- **Precautions:** bladder outflow obstruction, gastrointestinal obstructive disorder or decreased motility, controlled narrow angle glaucoma

## Antimuscarinics for OAB

Generic/Brand	Form	Dosing	Incidence of side effects	Comments
Oxybutynin/ Ditropan	Tablet, oral syrup	2.5-5mg po BID- QID	Xerostomia: 29-71% Constipation: 7-15%	Serious ADR: psychosis, seizure, prolonged QT interval. Generic available.
Oxybutynin XL/ Ditropan XL	Long- acting tablet	5-30mg po once daily	Xerostomia: 29-61% Constipation: 7-13%	Serious ADR: psychosis, seizure, prolonged QT interval. Generic available.
Oxybutynin/ Oxytrol	Trans- dermal patch	3.9mg/day topically applied q3-4 days	Xerostomia: 4-10% Constipation: 3%	Apply to skin on abdomen, hip, or buttock; avoid same site within 1 week
Oxybutynin/ Gelnique	Gel	100mg topically once daily (in unit dose sachets)	Xerostomia: 2-8% Constipation: 1%	Apply to skin on abdomen, upper arms/shoulders, or thighs

CrCl: creatinine clearance, ADR: adverse drug reaction.

Generic/Brand	Form	Dosing	Incidence of side effects	Comments
Tolterodine/ Detrol	Tablet	1-2mg po BID Max 1mg BID if CrCl 10-30mL/min, severe liver disease, or concomitant potent CYP3A4 inhibitor	Xerostomia: 35% Constipation: 7%	May prolong QT interval
Tolterodine LA/ Detrol LA	Long-acting capsule	2-4mg po once daily Max 2mg/d if CrCl 10-30mL/min, severe liver disease, or concomitant CYP3A4 inhibitor	Xerostomia: 23% Constipation: 6%	May prolong QT interval
Fesoterodine/ Toviaz (prodrug of tolterodine)	Long-acting tablet	4-8mg po once daily Max 4mg/d if CrCl <30mL/min or concomitant potent CYP3A4 inhibitor	Xerostomia: 19-35% Constipation: 4-6%	Not recommended with severe hepatic impairment

Generic/Brand	Form	Dosing	Incidence of side effects	Comments
Solifenacin/ VESIcare	Tablet	5-10mg po once daily Max 5mg/d if CrCl <30mL/min, moderate hepatic impairment, or concomitant potent CYP3A4 inhibitor	Xerostomia: 11-28% Constipation: 5-13%	May prolong QT interval Not recommended with severe hepatic impairment
Darifenacin/ Enablex	Long-acting tablet	7.5-15mg po once daily Max 7.5mg/d with moderate hepatic impairment or concomitant potent CYP3A4 inhibitor	Xerostomia: 20-35% Constipation: 15-21%	Not recommended with severe hepatic impairment
Trospium/ Sanctura	Tablet	20mg po BID Max 20mg po once daily if over age 75 or CrCl <30mL/min	Xerostomia: 20% Constipation: 10%	Take on empty stomach, at least 1 hour before meal. No CYP450 interactions.
Trospium XR/ Sanctura XR	Long-acting capsule	60mg po once daily	Xerostomia: 11% Constipation: 9%	Not recommended if CrCl <30mL/min. Do not consume alcohol within 2 hours.

## Bladder Antimuscarinic Comparison

### Efficacy:

- Titrate dose (as indicated) for maximal efficacy
- **No difference in efficacy between bladder antimuscarinics**

### Highest incidence of anticholinergic effects:

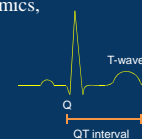
- High dose oxybutynin (Ditropan) IR or XL
- Darifenacin (Enablex) had highest incidence of constipation

### Lowest incidence of anticholinergic effects:

- Oxybutynin patch (Oxytrol) or gel (Gelnique)

## QT Prolongation

- No QT interval prolongation shown with trospium (Sanctura) or fesoterodine (Toviaz)
- Bladder antimuscarinics that may prolong QT interval may be inappropriate in patients with congenital long QT syndrome or concurrent drugs that prolong QT interval
  - Drugs that prolong QT interval: antiarrhythmics, antipsychotics (especially ziprasidone), antidepressants, macrolide antibiotics, fluoroquinolones, azole antifungals, etc



## Comorbidity Considerations

- Renal/hepatic disease
- Chronic constipation
- Narrow angle glaucoma
- GI disorders
- Alzheimer's disease: concomitant use of an antimuscarinic and a cholinesterase inhibitor results in decreased efficacy of the cholinesterase inhibitor
  - Concomitant cholinesterase inhibitor and oxybutynin or tolterodine has been associated with accelerated decline in activity of daily living function<sup>5</sup>
  - Antimuscarinics with higher bladder selectivity and less BBB penetration may have less impact on cognitive function<sup>5,6,7</sup>

## Non-Pharmacologic Techniques

- Scheduled urination every 2-4 hours<sup>8</sup>
- Avoid alcohol, caffeine, and acidic foods<sup>8</sup>
- Kegel exercises: strengthen urinary sphincter and pelvic floor muscles<sup>2,8</sup>
  - Squeeze the muscles you would use to stop urinating, hold for 3 seconds, repeat

## Non-Pharmacologic Techniques

- Bladder training<sup>2,8</sup>
  - Wait 10 minutes every time you feel the urge to urinate
  - Control urges by relaxing, breathing slowly and deeply, and trying to distract yourself
  - Double voiding

True or False:

1. Urge incontinence commonly occurs when one coughs or sneezes.
2. In patients with dementia, the risks typically outweigh the benefits of treating urinary incontinence with antimuscarinics.
3. Pelvic muscle (kegel) exercises aid in the treatment of urinary incontinence.

## Case

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## Case Question

You decide to call the doctor to make a recommendation. What do suggest?

(Note: pt has normal renal and hepatic function)

- A. Switch to VESicare 5mg po once daily
- B. Switch to immediate release Detrol 1mg po BID
- C. Increase Detrol LA to 4mg po once daily
- D. Increase Detrol LA to 6mg po once daily

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