Advances in the Treatment of OAB
October 2019
Conflict of Interest

• Dr. Saffel has no actual or potential conflicts of interest in relation to this presentation.

• Disclosures
  – Acadia Pharmaceuticals – Consultant, Speaker
  – Mylan Pharmaceuticals – Consultant
  – Sunovion Pharmaceuticals – Consultant, Speaker
  – Sun Pharmaceutical Industries - Consultant
Pre-Test Question #1

Which of the following descriptions best describes OAB?

A. Urine leakage during stressful activities (i.e., laughing, sneezing, jumping, bending)
B. Urine leakage occurring during or immediately after a strong urge to void
C. Urgency and frequency without urine loss
D. A & B
E. B & C
Pre-Test Question #2

What receptor(S) that are involved with relaxing the bladder wall to allow for urine storage?

A. M2
B. M3
C. β3
D. A& B
E. All of the above
Pre-Test Question #3

Behavior modification for the management of urinary incontinence includes which of the following?

A. Clothes with elastic waist for quick & easy removal
B. Pelvic floor muscle strengthening
C. Delayed voiding
D. A & B
E. B & C
Pre-Test Question #4

• Which of the following OAB products causes the fewest anticholinergic side effects?
  A. Oxybutynin
  B. Fesoterodine
  C. Mirabegron
  D. Tolterodine
  E. Trospium
Pre-Test Question #5

• Which OAB treatment is available as an OTC product?
  A. Oxybutynin gel
  B. Oxybutynin patch
  C. Mirabegron tab
  D. Solifenacin tab
  E. Trospium tab
Objectives

- Recognize the prevalence of OAB and the impact of symptoms on quality of life.
- Develop effective treatment plans for older adults with overactive bladder.
- Evaluate the efficacy and safety of current and emerging therapies for adults with overactive bladder.
- Address the current long term care regulations for the evaluation and management of urinary incontinence.
- Minimize medication side effects in treatment plans for older adults with overactive bladder.
Urinary Incontinence Symptom Definitions

- **Stress Incontinence (USI):**
  - Urine leakage due to pressure on the bladder
    - Exercise, coughing, sneezing, laughing, lifting
  - Most common in young-middle aged women

- **Urge Urinary Incontinence:**
  - Involuntary urine leakage with or immediately preceded by urgency
  - Cannot reach toilet in time
  - Common with diabetes, Alzheimer’s dx, Parkinson’s dx, multiple sclerosis or stroke

- **Overflow Incontinence:**
  - Small urine leaks occurring with full bladder due to urinary retention
  - Common with prostate hyperplasia, diabetes or spinal cord injury

- **Transient or Functional Incontinence:**
  - Inability to reach toilet due to mental or physical condition
  - Can occur due to arthritis, paresis, Parkinson’s dx or dementia

- **Mixed Incontinence**
  - Symptoms of more than one type of incontinence

The spectrum of voiding dysfunction includes several types of urinary incontinence:

- **SUI** – stress urinary incontinence
- **OAB** – overactive bladder
- **UI** – urinary incontinence
- **UUI** – urge urinary incontinence

**Key points:***

- **Prevalence of UI ranges 5 – 70%**
  - Most common: 25 - 45%

- **Prevalence of UI increases with age**
  - Women > 70 years: 40%
  - Highest rates are among oldest old and nursing home residents

**Overall prevalence of UI in women is expected to increase in the future.**

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*References:
## Types of Incontinence/Etiology

<table>
<thead>
<tr>
<th>Urge</th>
<th>Stress</th>
<th>Overflow</th>
<th>Transient</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Damage to bladder nerves</td>
<td>• Weak pelvic floor muscles</td>
<td>• Weak bladder muscles</td>
<td>• Delirium / Dementia</td>
</tr>
<tr>
<td>• Spinal cord injuries</td>
<td>• Multiple pregnancies</td>
<td>• Diabetes</td>
<td>• Infection</td>
</tr>
<tr>
<td>• Bladder Cancer</td>
<td>• Pelvic prolapse</td>
<td>• Bladder tumors</td>
<td>• Atrophic urethritis</td>
</tr>
<tr>
<td>• Multiple sclerosis</td>
<td>• Intrinsic sphincter deficiency</td>
<td>• Urinary stones</td>
<td>• Pharmacologic</td>
</tr>
<tr>
<td>• Parkinson’s</td>
<td>• Aging</td>
<td></td>
<td>• Psychological</td>
</tr>
<tr>
<td>• Alzheimer’s</td>
<td>• Trauma</td>
<td></td>
<td>• Endocrine disorders (excess urine output)</td>
</tr>
<tr>
<td>• Stroke</td>
<td>• Surgery</td>
<td></td>
<td>• Restricted mobility</td>
</tr>
<tr>
<td>• BPH</td>
<td></td>
<td></td>
<td>• Stool impaction</td>
</tr>
<tr>
<td>• OAB</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Incontinence in Older Adults:
- Detrusor muscle overactivity is involved in many cases of incontinence.
- Vitamin D deficiency is a risk factor.

Differential Diagnosis: Overactive Bladder, Stress Incontinence, and Mixed Symptoms

**Medical History and Physical Examination Symptom Assessment**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>OAB</th>
<th>SUI</th>
<th>Mixed Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgency (strong, sudden desire to void)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Frequency with urgency (&gt; 8 times/24 h)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Leaking during physical activity (eg, coughing, sneezing, lifting)</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Amount of urinary leakage with each episode of incontinence</td>
<td>Large (if present)</td>
<td>Small</td>
<td>Variable</td>
</tr>
<tr>
<td>Ability to reach the toilet in time following an urge to void</td>
<td>Often no</td>
<td>Yes</td>
<td>Variable</td>
</tr>
<tr>
<td>Waking to pass urine at night</td>
<td>Usually</td>
<td>Seldom</td>
<td>Maybe</td>
</tr>
</tbody>
</table>

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Common Geriatric Diseases that Affect Continence

- **Vaginal atrophy**
  - NF Prevalence: *Most* women
  - Effect: inflammation, tenderness, friability of vaginal & urinary tract tissues causing frequency & urgency

- **Diabetes**
  - NF Prevalence: 33%
  - Effect: osmotic diuresis, neuropathy

- **CHF**
  - NF Prevalence: 20%
  - Effect: diuresis

- **BPH**
  - NF Prevalence: *Most* men
  - Effect: bladder spasms resulting from obstruction & incomplete bladder emptying

- **UTI**
  - NF Prevalence: 4%
  - Effect: bladder irritation with frequency & urgency

Incidence of UI Under-reported

• Increasing incidence in an aging population
  – but < 50% with bladder control problems report it to their health care provider

• Due to:
  – Embarrassment
  – Low expectation for therapy
  – Belief it’s “normal” part of aging
  – Availability of absorbent products/pads
  – Fear of having to “move” from ALF
Impact of UI on Quality of Life

Sexual
- Avoidance of sexual contact and intimacy

Physical
- Limitations or cessation of physical activities

Social
- Reduction in social interaction
- Alteration of travel plans
- Increased risk of institutionalization of frail older persons

Psychological
- Guilt/depression
- Loss of self-respect and dignity
- Fear of: being a burden
- lack of bladder control
- urine odor
- Apathy/denial

Occupational
- Absence from work
- Decreased productivity

Domestic
- Requirements for specialized underwear, bedding

Quality of Life

Neural Control of the Lower Urinary Tract

Hill WG. Clinical Journal of the American Society of Nephrology. 2015. DOI: 10.2215/CJN.04520413

NE – Norepinephrine
ACh - Acetylcholine
Micturition Process

Hill WG. Clinical journal of the American Society of Nephrology. 2015. DOI: 10.2215/CJN.04520413

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TREATMENT FOR OAB
# OAB Clinical Care Pathway

<table>
<thead>
<tr>
<th>Diagnostic Approach</th>
<th>Goal:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Document signs and symptoms of OAB</td>
</tr>
<tr>
<td></td>
<td>• Exclude other disorders that could cause symptoms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Required Evaluation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• History/Assessment of LUTS – onset, duration, degree of bother</td>
</tr>
<tr>
<td>• Contributing comorbidities</td>
</tr>
<tr>
<td>• Fluid intake, PE, Urinalysis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optional Evaluation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Post void residual urine (if retention suspected)</td>
</tr>
<tr>
<td>• Bladder diary</td>
</tr>
<tr>
<td>• Urodynamics, cystoscopy and diagnostic renal/bladder ultrasound only for complicated or refractory patients</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Patient Education</th>
<th>Patient Discussion:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Health bladder habits</td>
</tr>
<tr>
<td></td>
<td>• Normal bladder function</td>
</tr>
<tr>
<td></td>
<td>• Normal fluid intake and voided volumes</td>
</tr>
<tr>
<td></td>
<td>• Normal is abnormal frequency</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Establish Treatment Plan Expectations:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• OAB is variable and chronic symptom complex with no single ideal treatment</td>
</tr>
<tr>
<td>• Treatments vary in required patient effort, invasiveness, risks and reversibility</td>
</tr>
<tr>
<td>• Most OAB treatments can improve but do not eliminate symptoms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1st Line Treatment</th>
<th>Behavior/Lifestyle:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Urge suppression, PFMT, bladder training</td>
</tr>
<tr>
<td></td>
<td>• Dietary modification</td>
</tr>
<tr>
<td></td>
<td>• Therapies may be instituted at any time and combined with pharmacotherapy</td>
</tr>
<tr>
<td></td>
<td>• Optimal treatment duration/trial 4 – 8 weeks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reasses s After 4 – 8 Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>If at any point during treatment the patient is satisfied, continue present treatment.</td>
</tr>
<tr>
<td>If inadequate symptom relief, consider:</td>
</tr>
<tr>
<td>• Adding medication</td>
</tr>
<tr>
<td>• Dose escalation</td>
</tr>
<tr>
<td>• Change in medication</td>
</tr>
<tr>
<td>• Combination antimuscarinic and Beta-3 agonist</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2nd Line Treatment</th>
<th>Pharmacotherapy:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Initiate if 1st line does not control symptoms to patient’s satisfaction</td>
</tr>
<tr>
<td></td>
<td>• Current classes of medications include antimuscarinics and B₃ Agonists</td>
</tr>
<tr>
<td></td>
<td>• Choice of class or medication depends on age, comorbidities, concomitant medications, formulary restrictions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3rd Line Treatment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sacral Neuro-modulation</td>
<td></td>
</tr>
<tr>
<td>• Chemo-denervation: BOTOX</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>In No Particular Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Posterior Tibial Nerve Stimulation</td>
</tr>
</tbody>
</table>
Effective Methods of Treating OAB

- Pads
- Behavioral therapy
- Medications
- Neuro-modulation
- Surgery

Combined pharmacologic and behavioral therapy provides improved outcomes\(^1,2\)

Behavioral Modification

- Education/Log
- Timed voiding
- Pelvic floor exercises
- Delayed voiding
- Diet

Diet Modification

- Avoid food / beverages irritating to the bladder
  - Coffee
  - Caffeine
  - Carbonation
  - Alcohol
  - Acidic juices
- Manage fluid intake
- Stop evening fluids
- Avoid constipation

Bladder Training

• Modify bladder function
• Methods
  – Bladder diary
  – Gradually increase void interval
  – Teach coping strategies
• Strengthen pelvic floor muscles and improving bladder stability
## Medications Effecting Lower Urinary Tract Function

<table>
<thead>
<tr>
<th>Medication Class</th>
<th>Effect on LUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>Polyuria, frequency, UUI</td>
</tr>
<tr>
<td>α-Receptor agonists</td>
<td>Urethral constriction and urinary retention (males), OFI</td>
</tr>
<tr>
<td>α-Receptor antagonists</td>
<td>Urethral relaxation, SUI</td>
</tr>
<tr>
<td>ACE inhibitors</td>
<td>Cough → SUI</td>
</tr>
<tr>
<td>Anticholinergics</td>
<td>Urinary retention, fecal impaction, OFI</td>
</tr>
<tr>
<td>Antidepressants, tricyclic</td>
<td>Anticholinergic effect, OFI - α-receptor antagonist effect, SUI</td>
</tr>
</tbody>
</table>

LUT – lower urinary tract  
UUI – urge urinary incontinence  
OFI – overflow incontinence  
SUI – stress urinary incontinence
Medication Modification (cont)

Medications Effecting Lower Urinary Tract Function

<table>
<thead>
<tr>
<th>Medication Class</th>
<th>Effect on LUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>β-Receptor agonists</td>
<td>Urinary retention, OFI</td>
</tr>
<tr>
<td>Calcium channel blockers</td>
<td>Urinary retention, fecal impaction, OFI</td>
</tr>
<tr>
<td>Opioids</td>
<td>Urinary retention, fecal impaction, OFI</td>
</tr>
<tr>
<td>Sedative-hypnotics</td>
<td>Sedation, delirium, muscle relaxation, UUI</td>
</tr>
<tr>
<td>Diuretics</td>
<td>Polyuria, frequency, urgency, UUI</td>
</tr>
<tr>
<td>Methylxanthines</td>
<td>Polyuria, bladder irritation, UUI</td>
</tr>
<tr>
<td>Neuroleptics</td>
<td>Anticholinergic effect, sedation, OFI</td>
</tr>
</tbody>
</table>

LUT – lower urinary tract        UUI – urge urinary incontinence
OFI – overflow incontinence      SUI – stress urinary incontinence
# Distribution and Function of Muscarinic and Beta Receptors Throughout the Body*

<table>
<thead>
<tr>
<th>Location</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M&lt;sub&gt;1&lt;/sub&gt;</strong></td>
<td>Cerebral cortex, hippocampus, salivary glands, eye</td>
</tr>
<tr>
<td><strong>M&lt;sub&gt;2&lt;/sub&gt;</strong></td>
<td>Smooth muscle, hippocampus, hindbrain, cardiac muscle, eye, bladder</td>
</tr>
<tr>
<td><strong>M&lt;sub&gt;3&lt;/sub&gt;</strong></td>
<td>Smooth muscle, salivary glands, eye, brain, bladder</td>
</tr>
<tr>
<td><strong>M&lt;sub&gt;4&lt;/sub&gt;</strong></td>
<td>Basal forebrain striatum, salivary glands</td>
</tr>
<tr>
<td><strong>M&lt;sub&gt;5&lt;/sub&gt;</strong></td>
<td>Substantia nigra, eye</td>
</tr>
</tbody>
</table>

*Muscarinic receptors are expressed in all tissues.

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Pharmacologic Therapy for the Treatment of OAB

- Antimuscarinic agents have been the mainstay for treating OAB
  - Treatment can be limited by side effects such as dry mouth, GI effects (e.g., constipation), and CNS effects (cognitive impairment)
- Newest OAB agent is Beta-3 agonist
  - Avoids anticholinergic side effects
- OAB symptoms relieved by
  - Inhibition of involuntary bladder contractions
  - Increased bladder capacity
Ideal Muscarinic Receptor Antagonist

• **Efficacious**
  – Inhibits involuntary bladder contractions
  – Does not adversely affect volitional detrusor activity

• **Organ selective**
  – Preferentially affects the bladder over other organs
  – Results in minimal side effects and improved tolerability

• **Durable effects**
  – Improves compliance and/or persistency

• **Provides clinical effectiveness**
  – Optimal balance of efficacy, tolerability, and compliance/persistency
# Antimuscarinic Agents for OAB

<table>
<thead>
<tr>
<th>Drug</th>
<th>Receptor Specificity</th>
<th>Initial Dose</th>
<th>Max Dose</th>
<th>Generic Available</th>
<th>Month Cost for Initial Dose</th>
<th>Side Effects (max % prevalence)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Darifenacin (Enablex)</td>
<td>Most M3 selective</td>
<td>7.5mg daily</td>
<td>15mg daily</td>
<td>Yes</td>
<td>≈ $101</td>
<td>Dry mouth (35%), constipation (21%), dizziness (2%), abnormal vision (&lt;2%)</td>
</tr>
<tr>
<td>Fesoterodine (Toviaz)</td>
<td>Nonspecific for M3 vs M1</td>
<td>4mg daily</td>
<td>8mg daily</td>
<td>No</td>
<td>≈ $281</td>
<td>Dry mouth (35%), constipation (6%), fatigue, dizziness, blurred vision (&lt;1%)</td>
</tr>
<tr>
<td>Oxybutynin (Ditropan)</td>
<td>Slightly &gt; M3 than M1</td>
<td>5mg BID - TID</td>
<td>5mg QID</td>
<td>Yes</td>
<td>≈ $26 (generic)</td>
<td>Dry mouth (71%), constipation (15%), dizziness (17%), somnolence (14%), blurred vision (10%)</td>
</tr>
<tr>
<td>Oxybutynin LA (Ditropan XL)</td>
<td>5mg, 10mg, 15mg</td>
<td>5mg daily</td>
<td>30mg daily</td>
<td>Yes</td>
<td>≈ $14 (generic)</td>
<td>Dry mouth (61%), constipation (9%), somnolence (6%), dizziness (5%), blurred vision (4%)</td>
</tr>
<tr>
<td>Oxybutynin gel (Gelnique)</td>
<td>3%, 10%</td>
<td>100mg daily</td>
<td>100mg daily</td>
<td>No</td>
<td>≈ $175</td>
<td>Dry mouth (35%), application site reactions (5%), constipation (1%), fatigue (2%)</td>
</tr>
<tr>
<td>Oxybutynin Patch (Oxytrol – Rx) (Oxytrol for Women - OTC)</td>
<td>3.9mg twice weekly</td>
<td>3.9mg twice weekly</td>
<td>No</td>
<td>≈ $592 (Rx) ≈ $32 (OTC)</td>
<td>Application pruritus (17%), dry mouth (10%), constipation (3%), abnormal vision (2.5%)</td>
<td></td>
</tr>
</tbody>
</table>

## Antimuscarinic Agents for OAB (con’t)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Receptor Specificity</th>
<th>Initial Dose</th>
<th>Max Dose</th>
<th>Generic Available</th>
<th>Month Cost for Initial Dose</th>
<th>Side Effects (max % prevalence)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solifenacin</strong> (Vesicare) 5mg, 10mg tab</td>
<td>Slightly &gt; M3 than M1</td>
<td>5mg daily</td>
<td>10mg daily</td>
<td>No</td>
<td>≈ $315</td>
<td>Drug mouth(28%), constipation(13%), blurred vision(5%), fatigue(2%), dizziness (2%)</td>
</tr>
<tr>
<td><strong>Tolterodine</strong> (Detrol) 1mg, 2mg tab</td>
<td>Nonspecific for M3 vs M1</td>
<td>1mg BID</td>
<td>2mg BID</td>
<td>Yes</td>
<td>≈ $80</td>
<td>Dry mouth(35%), constipation(7%), fatigue(4%), dizziness(5%)</td>
</tr>
<tr>
<td><strong>Tolterodine LA</strong> (Detrol LA) 2mg, 4mg, ER cap</td>
<td>Nonspecific for M3 vs M1</td>
<td>2mg daily</td>
<td>4mg daily</td>
<td>Yes</td>
<td>≈ $134</td>
<td>Dry mouth(23%), constipation(6%), somnolence (3%), fatigue(2%), dizziness(2%), abnormal vision(1%)</td>
</tr>
<tr>
<td><strong>Trospium</strong> (Sanctura) 20mg tab</td>
<td>Nonspecific for M3 vs M1</td>
<td>20mg BID</td>
<td>Yes</td>
<td>≈ $23</td>
<td>Dry mouth(20%), constipation(10%), blurred vision(&lt;1%), fatigue (2%)</td>
<td></td>
</tr>
<tr>
<td><strong>Trospium LA</strong> (Sanctura XR) 60mg ER cap</td>
<td>Nonspecific for M3 vs M1</td>
<td>60mg daily</td>
<td>Yes</td>
<td>≈ $161</td>
<td>Dry mouth(11%), constipation(9%), blurred vision, somnolence (&lt;1%)</td>
<td></td>
</tr>
</tbody>
</table>
# Additional Agents for OAB

<table>
<thead>
<tr>
<th>Drug</th>
<th>Receptor Specificity</th>
<th>Initial Dose</th>
<th>Max Dose</th>
<th>Generic ?</th>
<th>Month Cost for Initial Dose</th>
<th>Side Effects (max % prevalence)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mirabegron (Myrbetriq) 25mg, 50mg ER tab</td>
<td>Beta-3 agonist</td>
<td>25mg daily</td>
<td>50mg daily</td>
<td>No</td>
<td>≈ $323</td>
<td>Hypertension(7.5%), headache(3%), constipation (2%), arthralgia, diarrhea, tachycardia, abdominal pain, fatigue (all &lt;2%)</td>
</tr>
<tr>
<td>Botulinum neurotoxin-A (BoNT-A)</td>
<td>None Paralysis by inhibition of neuro-muscular transmission</td>
<td>100 Units, as 0.5 mL (5 Units) injections across 20 sites into the detrusor – once q 3 or more months</td>
<td>No</td>
<td></td>
<td>UTI(38%), urinary retention(9%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Boxed Warning: potential spread of toxin to other areas of body causing swallowing &amp; breathing problems</td>
</tr>
</tbody>
</table>

• Anticholinergics should be avoided in patients with delirium, dementia or cognitive impairment
  – Antimuscarinics should be avoided include:
    • Darifenacin
    • Fesoterodin
    • Oxybutinin
    • Solefenacin
    • Tolterodine
    • Trospium

• Minimize the number of anticholinergic drugs used in the elderly whenever possible to reduce risk of adverse effects
Choosing OAB Therapy

• All antimuscarinic agents have Level 1 evidence; Grade A recommendation.
• Choice depends on:
  – Cost
  – Availability
  – Efficacy
  – Tolerability
  – Side effects
• Extended release versions of oxybutynin and tolterodine are only marginally more efficacious than the immediate release but do have fewer adverse events.
• Darifenacin is the most M3 selective.
Choosing OAB Therapy

• Trospium, theoretically, does not cross the blood-brain barrier and thus may be advantageous in the elderly and those who operate machinery.

• Oxybutynin patch is transdermal and is advantageous in those on oral poly-pharmacy or those who do not like taking tablets or cannot tolerate them. A version is available OTC.

• Mirabegron acts on B3 receptors and avoids common anticholinergic side effects. May be a good alternative for elderly with cognitive impairment, chronic constipation or poor tolerance to anticholinergic effects.
What If Oral Pharmacotherapy Fails?

• If one antimuscarinic fails, for any reason, then it is advisable to try a different one after about 6-8 weeks of therapy.
• Some would recommend trying three and others would recommend trying all available OAB medications before uro-dynamics.
• If the above fails then a specialist opinion should be sought to perform uro-dynamics and provide further treatment.
Post-Test Question #1

Which of the following descriptions best describes OAB?

A. Urine leakage during stressful activities (i.e., laughing, sneezing, jumping, bending)
B. Urine leakage occurring during or immediately after a strong urge to void
C. Urgency and frequency without urine loss
D. A & B
E. B & C
Post-Test Question #2

What receptor(S) that are involved with relaxing the bladder wall to allow for urine storage?

A. M2
B. M3
C. β3
D. A& B
E. All of the above
Behavior modification for the management of urinary incontinence includes which of the following?

A. Clothes with elastic waist for quick & easy removal
B. Pelvic floor muscle strengthening
C. Delayed voiding
D. A & B
E. B & C
Post-Test Question #4

Which of the following OAB products causes the fewest anticholinergic side effects?

A. Oxybutynin
B. Fesoterodine
C. Mirabegron
D. Tolterodine
E. Trospium
Post-Test Question #5

- Which OAB treatment is available as an OTC product?
  A. Oxybutynin gel
  B. Oxybutynin patch
  C. Mirabegron tab
  D. Solifenacin tab
  E. Trospium tab