The Evaluation and Treatment of Benign Prostatic Hyperplasia and Lower Urinary Tract Symptoms in the Primary Care Setting

March 26, 2014
7:45 AM – 9:00 AM
Anaheim, California

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Session 1: The Evaluation and Treatment of Benign Prostatic Hyperplasia and Lower Urinary Tract Symptoms in the Primary Care Setting

Learning Objectives
1. Describe the pathophysiology and common comorbidities of benign prostatic hyperplasia and lower urinary tract symptoms (BPH/LUTS)
2. Implement comprehensive assessment of patients with BPH/LUTS
3. Select treatment options available to effectively treat BPH/LUTS

Faculty

Martin Miner, MD
Chief of Primary Care and Community Medicine
The Miriam Hospital
Co-Director
Men’s Health Center
Clinical Associate Professor of Family Medicine and Urology
Warren Alpert Medical School
Brown University
Providence, Rhode Island

Dr Martin Miner clinical associate professor of family medicine and urology at Warren Alpert Medical School, Providence, Rhode Island, has practiced preventive and primary care medicine for more than 28 years and is currently chief of family and community medicine at The Miriam Hospital. He is the author of more than 75 publications in the areas of erectile dysfunction and cardiovascular disease, benign prostatic hyperplasia and lower urinary tract symptoms in reference to male sexuality, and hormonal replacement therapy in men. Dr Miner is president elect of the American Society for Men’s Health, associate editor of the Journal of Men’s Health, and serves on multiple journal boards and reviews for several publications. He is currently active in several research studies on men’s health, and was the recipient of the dean’s teaching excellence award in 2003 and 2007.

Matt T. Rosenberg, MD
Medical Director
Mid-Michigan Health Centers
Chief, Department of Family Medicine
Foote Health System
Jackson, Michigan

Dr Matt Rosenberg earned his medical degree at the University of California, Irvine, where he trained in general surgery. He also trained in urologic surgery at Brigham and Women’s Hospital, Boston before changing fields to general practice. Dr Rosenberg has a special interest in the medical management of urologic diseases and has authored or coauthored articles appearing in Urology, Journal of Urology, BJU International, International Journal of Clinical Practice, and other peer reviewed journals. He now practices in Jackson, Michigan; serving as medical director of Mid-Michigan Health Centers, and on staff at Allegiance Health, where he served as chief of the department of family medicine from 2003 to 2006. Dr Rosenberg is section editor of urology at the International Journal of Clinical Practice and is founder and chairman of the
Urologic Health Foundation: a nonprofit group dedicated to the education of primary care physicians in the field of genitourinary disease. In 2011, he was appointed by the American Urological Association office of education to be the Coordinator of Primary Care Education.

**Faculty Financial Disclosure Statements**
The presenting faculty reported the following:
Dr Miner receives consultant honoraria from AbbVie and research funding from Forest.

Dr Rosenberg receives consultant and speaker honoraria from Astellas, Eisai, Ferring, Forest, Horizon, Ortho-McNeil, Lily, and Pfizer.

**Education Partner Financial Disclosure Statement**
The content collaborators at Miller Medical Communications, LLC, report the following:
Lyerka D. Miller, PhD, has no financial relationships to disclose.

**Suggested Reading List**


SESSION 1
7:45–9am

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in the Primary Care Setting

SPEAKERS
Matt T. Rosenberg, MD
Martin Miner, MD

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Off-Label/Investigational Discussion

► In accordance with pmiCME policy, faculty have been asked to disclose discussion of unlabeled or unapproved use(s) of drugs or devices during the course of their presentations.

Facility

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Drug List

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Trade Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metformin</td>
<td>Fortamet, Glucophage, Glucophage XR, Glumetza</td>
</tr>
<tr>
<td>Linagliptin</td>
<td>Tradjenta</td>
</tr>
<tr>
<td>Enalapril</td>
<td>Epaned, Vasotec</td>
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<td>Atorvastatin</td>
<td>Lipitor</td>
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<td>Alfuzosin</td>
<td>Uroxatral</td>
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<td>Doxazosin</td>
<td>Cardura</td>
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<td>Silodosin</td>
<td>Rapaflo</td>
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<td>Tamsulosin</td>
<td>Flomax</td>
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<tr>
<td>Terazosin</td>
<td>Hytrin</td>
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<td>Tadalafil</td>
<td>Adcirca, Cialis</td>
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<td>Tolrestaurin</td>
<td>Kanne</td>
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<td>Terbutaline</td>
<td>Novalar, Crinon</td>
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<td>Terazosin</td>
<td>Detrol, Detrol LA, Detrusitol</td>
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<tr>
<td>Trospium</td>
<td>Sanctura, Spasmex, Spasmyl, Trosec</td>
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<td>Darifenacin</td>
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<td>Fesoterodine</td>
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<td>Oxybutynin</td>
<td>Ditropan, Gelnique, Lyrinel XL, Oxytrol</td>
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<td>Solifenacin</td>
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<td>Mirabegron</td>
<td>Myrbetriq</td>
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<tr>
<td>Dutasteride</td>
<td>Avodart</td>
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<tr>
<td>Finasteride</td>
<td>Proscar</td>
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<tr>
<td>Dutasteride/Finasteride</td>
<td>Jalyn</td>
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</table>

Learning Objectives

After participating in this educational activity the participant should be able to:

• Describe the pathophysiology and common comorbidities of BPH/LUTS
• Implement comprehensive assessment of patients with BPH/LUTS
• Select treatment options available to effectively treat BPH/LUTS

BPH=benign prostatic hyperplasia; LUTS(lower urinary tract symptoms.

Myths

• LUTS in the male is a normal part of aging
• LUTS in the male is always related to the prostate
• The provider needs urodynamic testing to facilitate the diagnosis LUTS
• PSA testing has no use in the evaluation of LUTS
Realities

• LUTS in the male is not a normal part of aging
• LUTS can come from the bladder, prostate, or medical causes
• The evaluation of LUTS can be performed in the PCP office with an adequate history, physical, and a few simple labs
• The PSA is a surrogate marker for prostate size

A Typical Patient?

• Stephen is a 65-year-old obese, hypertensive male with type 2 DM
• At the encouragement of his wife, he admits that he has some issues “down there”
  – He complains of urinary urgency, a poor stream, frequency, and nocturia
  – He has tolerated these symptoms for several years as he thought it was a natural part of aging

Current Medications

• Metformin 500 mg twice daily
• Linagliptin 5 mg daily
• Enalapril 10 mg daily
• Atorvastatin 10 mg daily

Physical Examination

• Height: 5'9'
• Weight: 217 lb
• BMI: 32 kg/m²
• BP: 140/80 mm Hg
• Neck: No thyromegaly
• Lungs: Clear
• Cor S1S2S4
• Genital: testes descended, no masses, no varicocele, normal size (30-35 g), no prostate nodule palpated
• Feet: no ulcers
• Neurologic: mild decreased sensation to 10-g monofilament; no visual field cuts
• Skin/hair: normal beard, normal male pattern hair in genital axilla
• No gynecomastia

Laboratory Results

• HbA1C: 6.8% at his last check-up 6 months ago
• Cr: 1.3 mg/dL
• PSA: 1.7 ng/mL
• TC: 210 mg/dL
• LDL-C: 110 mg/dL
• HDL-C: 35 mg/dL
• TG: 250 mg/dL
• Microalbumin: undetectable
• GFR: 50 mL/min

CLUES in the Patient Presentation

• Stephen is a 65-year-old obese, hypertensive male with type 2 DM
• At the encouragement of his wife, he admits that he has some issues “down there”
  – He complains of urinary urgency, a poor stream, frequency, and nocturia
  – He has tolerated these symptoms for several years as he thought it was a natural part of aging
More Clues

- HbA1C: 6.8% at his last check-up 6 months ago
- Cr: 1.3 mg/dL
- PSA: 1.7 ng/mL
- TC: 210 mg/dL
- LDL-C: 110 mg/dL
- HDL-C: 35 mg/dL
- TG: 250 mg/dL
- Microalbumin: undetectable
- GFR: 50 mL/min

Function of the Prostate

Normal Function
- Produces fluid for seminal emission
- Does not compress the urethra, thereby allowing unobstructed flow

Abnormal Function
- Obstruction of urinary flow
- Poor function seen as failure to void

Benign Prostatic Hyperplasia

- A common condition as men age
  - By sixth decade: >50% of men have some degree of hyperplasia
  - By eighth decade: >90% of men will have hyperplasia
- In only a minority of patients (approximately 10%) will this hyperplasia be symptomatic and severe enough to require medical treatment or surgical intervention

Natural History of Prostate Growth

- According to data from a study by Roehrborn and colleagues, a 55-year-old man who has a 30-mL prostate volume (PV), is experiencing symptoms, and has a PSA of 1.0 ng/mL, can expect his prostate to approximately double in size over the next 15 years.

<table>
<thead>
<tr>
<th>Age</th>
<th>PV</th>
<th>PSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>55 yrs</td>
<td>30 mL</td>
<td>1.5 ng/mL</td>
</tr>
<tr>
<td>60 yrs</td>
<td>&gt;40 mL</td>
<td>&gt;48 mL</td>
</tr>
<tr>
<td>65 yrs</td>
<td>&gt;50 mL</td>
<td>&gt;61 mL</td>
</tr>
</tbody>
</table>

Complications of BPH Progression

Worsening of symptoms
- Increase in bother
- Decrease in quality of life

The Enlarging Prostate

Need for surgical intervention

Alarm symptoms
- Hematuria
- Acute urinary retention
- UTI
- Bladder stones
- Renal failure

Risk Evaluation of BPH-LUTS Progression

Baseline Factors as Predictors

Five risk factors
1. Total prostate volume ≥31 mL
2. PSA ≥1.6 ng/mL
3. Age ≥62

Not usually evaluated by the PCP
4. Qmax <10.6 mL/s
5. PVR ≥39 mL

PV=post-void residual; Qmax=maximum flow rate
Assessment: DRE vs PSA

- There is a strong and clinically useful relationship between serum PSA and prostate volume, which enables the clinician to estimate prostate size in men with LUTS and BPH, and also to identify men with prostate above certain thresholds.
- Digital rectal examination (DRE) is quite inaccurate in estimating the correct prostate size when compared with either transrectal ultrasound (TRUS) or other imaging modalities.

Function of the Bladder

Normal Function
- Storage capacity of 300-500 mL of fluid
- Empty to completion after a gentle urge

Abnormal Function
- Voiding frequently of small amounts (less than capacity)
- Uncontrollable urge (urgency) to empty
- Incomplete emptying
- Poor function seen as failure to store

Definition of OAB
International Continence Society (ICS)

A syndrome including:
- Urinary urgency (the intense, sudden desire to void) with or without incontinence
- Urinary frequency (voiding often during the day)
- Nocturia (wakening at night to void)

Focus on the Prostate May Lead to Missed Treatment Opportunities

- 65% of patients with bladder outlet obstruction (BOO) and detrusor overactivity (DO) treated with an \( \alpha \)-blocker for 3 months did not show improvement in symptoms.
- Of these, 73% improved after adding antimuscarinic.
- 19% of men have persistent OAB symptoms after prostate surgery.
- 83% of men who experience resolution of OAB symptoms after TURP have return of symptoms at long-term follow-up.

Using Symptoms to Distinguish the Origin of the Problem

- Weak flow – think prostate
- Voiding small amounts – think bladder
- Leakage of urine – think bladder or sphincter
- Good flow, normal volume – think too much fluid production and evaluate accordingly

Differentiating the Etiology of LUTS

- It is all about volume and flow
OAB and BPH Can Coexist

Common Comorbidities in BPH-LUTS

<table>
<thead>
<tr>
<th>Comorbidity with BPH-LUTS (N=6909)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>53</td>
</tr>
<tr>
<td>High cholesterol</td>
<td>45</td>
</tr>
<tr>
<td>Erectile or other sexual dysfunction</td>
<td>36</td>
</tr>
<tr>
<td>Digestive tract disorder</td>
<td>21</td>
</tr>
<tr>
<td>Arthritis</td>
<td>20</td>
</tr>
<tr>
<td>Heart disease/Heart failure</td>
<td>18</td>
</tr>
<tr>
<td>Diabetes</td>
<td>17</td>
</tr>
<tr>
<td>Depression/Axiety/Sleep disorder</td>
<td>16</td>
</tr>
<tr>
<td>Allergies/Cold/flu/congestion</td>
<td>15</td>
</tr>
<tr>
<td>General pain/inflammation</td>
<td>11</td>
</tr>
</tbody>
</table>

LUTS-BPH and ED

Common Risk Factors and Comorbidities

LUTS-BPH

- Increasing LUTS severity or symptom worsening
- Increasing serum dihydrotestosterone
- Enlarged prostate: <30 mL
- Low testosterone
- Edema
- Elevated IPPS
- Refractory to treatment
- Poor flow
- Geriatric
- History of AUR
- High waist circumference
- Increasing age
- PSA >1.5 ng/mL
- PVR >50 mL
- Increasing bother
- Reduced physical activity

ED

- Increasing age
- Smoking
- High waist circumference
- Cardiovascular disease
- Depression
- Diabetes
- Hypertension/atherosclerosis
- Lower urinary tract symptoms
- Metabolic syndrome
- Obesity

Erectile Function and LUTS Severity

BPH-LUTS and ED

Common Pathophysiologic Mechanisms

- Reduced NO–cGMP signaling
- Increased RhoA–ROCK signaling
- Autonomic hyperactivity
- Pelvic atherosclerosis

- Reduced function of nerves and endothelium
- Altered smooth muscle relaxation or contractility
- Arterial insufficiency, reduced blood flow, and hypoxia-related tissue damage

What to Keep in Mind in the Evaluation of LUTS

- Lower Urinary Tract Symptoms (LUTS) can be of urologic origin, which includes the prostate and bladder, or can be medical in nature
- A comprehensive history, physical, and laboratory evaluation will generally provide the needed clues

Examples in the Medical or Surgical History That Can Cause or Confound LUTS

- Poorly controlled diabetes causing polyuria/polydipsia
- Anti-hypertensive diuretics can cause frequency and urgency whereas some cold medications (eg, α-agonists) commonly cause flow problems
- Congestive heart failure causing nighttime fluid mobilization
- Recent surgery causing immobilization or constipation
- Poor urinary hygiene

The temporal relationship may offer a clue

Medications Can Cause or Exacerbate BPH/LUTS

<table>
<thead>
<tr>
<th>Medication</th>
<th>LUTS-Related Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedatives</td>
<td>Confusion, secondary incontinence</td>
</tr>
<tr>
<td>Alcohol, caffeine, diuretics</td>
<td>Diuresis</td>
</tr>
<tr>
<td>Anticholinergics</td>
<td>Impaired contractility, voiding difficulty, overflow incontinence</td>
</tr>
<tr>
<td>α-Agonists</td>
<td>Increased outlet resistance, voiding difficulty</td>
</tr>
<tr>
<td>β-Blockers</td>
<td>Decreased urethral closure, stress incontinence</td>
</tr>
<tr>
<td>Calcium-channel blockers</td>
<td>Reduce bladder smooth muscle contractility</td>
</tr>
<tr>
<td>Neurontin-converting enzyme</td>
<td>Induce cough, stress urinary incontinence</td>
</tr>
<tr>
<td>First-generation antihistamines</td>
<td>Increase outlet resistance</td>
</tr>
<tr>
<td>Cholinesterase inhibitors</td>
<td>Precipitate urge incontinence</td>
</tr>
<tr>
<td>Opioids</td>
<td>Constipation</td>
</tr>
</tbody>
</table>

A Focused Physical Examination

- Abdominal
  - Tenderness, masses, distension
- Neurological
  - Mental and ambulatory status, neuromuscular function
- Genitourinary
  - Meatus and testes
- Rectal
  - Tone
  - Prostate size, shape, nodules and consistency

Laboratory Tests

- Urinalysis
  - Infection, blood, crystals
  - The urine is not an adequate screener for diabetes because the blood sugar must be above 180 mg/dL before it spills into the urine
- A random or fasting blood sugar
  - Diabetes
- Prostate specific antigen
  - Prostate specific, not cancer specific, but can be used in screening
  - Excellent as a surrogate marker for prostate size
  - PSA is more accurate than a DRE when estimating prostate size
  - A PSA of 1.5 ng/mL equates to a prostate volume of at least 30 grams (mL)

Optional Tests

- International Prostate Symptom Score (IPSS)
- Voiding Diary
- Post Void Residual (PVR)
- Urine Flow Rate (Qmax)

International Prostate Symptom Score (IPSS) Questionnaire

[Image of IPSS questionnaire]

The Purpose of the Voiding Diary

- Identifies voiding frequency and volumes
- Differentiates behavioral problems as opposed to ones of pathologic origin
  - Voiding frequently after drinking the 40-ounce cola at lunch or break (behavioral)
  - Voiding frequently of small amounts only at work as a result of always being in a rush (behavioral)
  - Voiding frequently of large amounts (overproduction of fluid – medical cause or excessive intake)
- Alerts the patients as to their habits and may offer opportunities for improvement
- Can help monitor efficacy of treatment

Post Void Residual

FACTS
- 50 mL or less represents adequate voiding
- 200 mL or more is consistent with clinically significant inadequate voiding

WHEN TO CHECK
- Clinical suspicion
- Refractory to therapy for BPH
- Prior to pharmacologic treatment of OAB

LUTS and Indications for Referral

- Suspicion of neurologic cause of symptoms
- History of recurrent UTI or other infection
- Findings or suspicion of urinary retention
- Abnormal prostate exam (nodules)
- Microscopic or gross hematuria
- History of genitourinary trauma
- Prior genitourinary surgery
- Uncertain diagnosis
- Meatal stenosis
- Elevated PSA
- Pelvic pain

The Next STEP: Informed Surveillance

If the patient has symptoms but no bother and no complications

Patients who opt for this option may benefit from:

- Lifestyle changes (exercise, weight management)
- Limitations of fluids
- Bladder training focused on timed and complete voiding (behavior modification)
- Medication modification
- Although LUTS secondary to BPH is not often a life-threatening condition, the impact of LUTS/BPH on quality of life (QoL) can be significant and should not be underestimated
The Next STEP: Step 2

Rationale for Alpha-Blocker or PDE5i Therapy

Step 2: Alpha-Blockers (AB)

*Single medication therapy with an AB is appropriate for the symptomatic patient who has identified bother and has a PSA of <1.5 ng/mL*

• Generally fast acting, relieving symptoms within days
• Does not affect progression of prostate growth

Step 2: Phosphodiesterase 5 Inhibitors (PDE5i)

*Single medication therapy with a PDE5i is appropriate for the symptomatic patient who has identified bother and has a PSA of <1.5 ng/mL. The potential impact of this therapy on male sexual function should be considered*

• New as a treatment for BPH-LUTS
• It is believed that the PDE5i increases the signaling of the NO/cGMP pathway, which reduces smooth muscle tone in the lower urinary tract
• It is not believed that use of a PDE5i will reduce progression of prostate growth

Step 2: Phosphodiesterase Type 5 Inhibitors

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tadalafil</td>
<td>2.5 mg per day</td>
<td>BPH</td>
</tr>
<tr>
<td>Tadalafil</td>
<td>5.0 mg per day</td>
<td>BPH and ED</td>
</tr>
</tbody>
</table>

Common side effects:
- headache, back pain, myalgia, dizziness, flushing, and dyspepsia.
- Contraindicated in patients who use nitrates, potassium channel openers, or nonselective 2nd generation ABs. Cardiac status must be assessed for patient risk before taking this medications.
What About PDE5i’s and ABs?

• Recent studies show benefit of PDE5i/AB combination therapy over AB monotherapy
  – Improvement in IPSS
  – No added benefit in urodynamic parameters
• Concerns over hemodynamics effects of combination therapy not demonstrated

Rationale for Combining AB/PDE5i with Antimuscarinic/Beta-3

Alpha-blockers

PDE5i’s

Dynamic component
Rapidly relieve symptoms

Antimuscarinics

Blocks contraction of detrusor

Beta-3 Agonists

Facilitates bladder storage

STEP 3a:
Addition of an Antimuscarinic or Beta-3

If the patient has symptoms of both obstruction and irritation as well as bother

- In multiple studies the combination of antimuscarinics were more efficacious in reducing voiding frequency, nocturia, or IPPS compared with α-blockers or placebo alone
- The β3 agonist class is newly available and has not been studied in combination with an AB.
- Neither antimuscarinics or β3 agonists have been studied in combination with PDE5i medications.

Antimuscarinics – Immediate Release

Exact mechanism of action unknown (may work on efferent or afferent pathway)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Frequency</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxybutinin IR</td>
<td>2–4 times per day</td>
<td>5 mg</td>
</tr>
<tr>
<td>Tolterodine IR</td>
<td>Twice per day</td>
<td>1-2 mg</td>
</tr>
<tr>
<td>Trospium Chloride</td>
<td>Twice per day</td>
<td>20 mg</td>
</tr>
</tbody>
</table>

IR=immediate release.

Antimuscarinics – Extended Release

Extended release medications have a better tolerability than their immediate release counterparts

<table>
<thead>
<tr>
<th>Drug</th>
<th>Frequency</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Darifenacin</td>
<td>Daily</td>
<td>7.5 mg, 15 mg</td>
</tr>
<tr>
<td>Trovafloxacin</td>
<td>Daily</td>
<td>4 mg, 8 mg</td>
</tr>
<tr>
<td>Oxybutinin ER</td>
<td>Daily</td>
<td>5 – 30 mg</td>
</tr>
<tr>
<td>Oxybutinin TDS</td>
<td>Twice per week</td>
<td>3.9 mg</td>
</tr>
<tr>
<td>Oxybutinin, 10%, gel</td>
<td>Daily</td>
<td>100 mg</td>
</tr>
<tr>
<td>Tolterodine ER</td>
<td>Daily</td>
<td>5 mg, 10 mg</td>
</tr>
<tr>
<td>Trospium Chloride</td>
<td>Daily</td>
<td>60 mg</td>
</tr>
</tbody>
</table>

ER=extended release, TDS=transdermal delivery system.
Common Side Effects of Antimuscarinics

- Dry Mouth
- Constipation
- Headaches
- Blurred vision

Side effects are greater with the immediate release medications compared with the extended release medications.

Some patients have symptoms that are severe enough they would tolerate significant side effects, whereas that may not be the same for others.


Common Contraindications of Antimuscarinics

- Urinary or gastric retention
- Uncontrolled narrow-angle glaucoma
- Clinically significant bladder outlet obstruction


Beta-3 Agonists

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mirabegron</td>
<td>25–50 mg per day</td>
</tr>
</tbody>
</table>

Common side effects: hypertension, nasopharyngitis, urinary tract infections, and headache

Caution should be used in patients with clinically significant bladder outlet obstruction.


The Next STEP: Step 3b

Step 3b:

Adding a 5 Alpha Reductase Inhibitor (5ARI)

The addition of a 5ARI is appropriate for the symptomatic patient with BPH-LUTS who has identified bother and has a PSA of 1.5 ng/mL or greater.

- Prostate growth may result in symptoms progression and other complications.
- Prostate growth is stimulated by dihydrotestosterone (DHT), which is converted from testosterone by the 5-alpha reductase enzyme.
- Decreasing DHT may induce prostatic epithelial apoptosis and atrophy, which can lead to approximately 18%–28% reduction in prostate size and approximately a 50% reduction in PSA levels after 6 to 12 months.

Rationale for Combining AB/PDE5i with 5ARI

Alpha-blockers
PDE5i's

Dynamic component
Rapidly relieve symptoms

Static component
Arrest disease progression

Step 3b:

Adding a 5 Alpha Reductase Inhibitor (5ARI)

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Potential side effects

- Diminished ejaculatory volume
- Erectile dysfunction
- Decreased libido
- Gynecomastia
- Increased risk of high-grade prostate cancer*

Drug Dosage

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finasteride</td>
<td>5 mg daily</td>
</tr>
<tr>
<td>Dutasteride</td>
<td>0.5 mg daily</td>
</tr>
</tbody>
</table>

Combination Therapy

- Starting with combination therapy may allow immediate symptom relief from the AB or a PDE5i while facilitating prostate reduction from the SARI
- Two prolonged studies (MTOPS and CombaT) using an AB and a SARI have shown that combination therapy is better than either monotherapy alone
- One 26-week study showed that use of tadalafil with finasteride was better than finasteride alone
- Expert opinion supports the long-term use of combination therapy in the patient with an enlarged prostate

Combination Therapy of an AB with a SARI Outperforms Either Monotherapy Alone

<table>
<thead>
<tr>
<th>Change (units)</th>
<th>Treatment month</th>
</tr>
</thead>
<tbody>
<tr>
<td>-6.3</td>
<td>P &lt; .001 Combination vs Tamsulosin</td>
</tr>
<tr>
<td>-3.8</td>
<td>P &lt; .001 Combination vs Dutasteride</td>
</tr>
</tbody>
</table>

Step 4: Referral

For the patient with symptoms and bother who is refractory to therapy

- "Alarm symptoms" or "red flags" (hematuria, acute urinary retention, UTI, bladder stones, renal failure)
- Failure to respond in a reasonable amount of time warrants reevaluation and possible referral
  - Alpha blockers, PDE5i's, antimuscarinics, and β3 agonists should work quickly
  - SARI's work slowly

SUMMARY

Understanding the facts simplifies the evaluation and treatment in BPH/LUTS

- The symptoms and comorbidities of BPH/LUTS provide significant clues
- The pathophysiology helps to define those at risk
- The assessment is readily done in the office of the PCP without the need for extensive testing
- There are many treatment options available for the PCP, including alpha blockers, SARI's and PDE-5 inhibitors