Algorithm for the Management of Benign Prostatic Hyperplasia: Diagnosis and Treatment Recommendations with \( \alpha \)-blockers
Adapted from the American Urological Association (AUA) Guidelines (2003)

History, Physical, Digital Rectal Exam (DRE), Urinalysis, Prostate-specific antigen (PSA)
Optional/Recommended:
AUA Symptom Index, Urinary flow rate, Post-void residual, GU Referral

Treatment Options:
Observation (“Watchful Waiting”)
Medical management
\( \alpha \)-blockers; 5-\( \alpha \)-reductase inhibitors; combination Tx; antimuscarinics; herbals
Surgical options

Decision made to treat with \( \alpha \)-blocker.
If patient is being treated for hypertension (HTN), remind him to monitor BP &/or see PCP for adjustment in HTN therapy
Educate patient about possible effect on BP, main side-effects of therapy & importance of titration regimen

Initiate therapy with terazosin or doxasozin for at least 4 weeks on target dose (see attached guidelines)

If follow-up visit shows improvement in BPH symptoms at target dose & patient tolerating medication well, continue therapy with annual DRE & PSA

If follow-up visit shows NO improvement in BPH symptoms at target dose &/OR patient NOT tolerating medication well, switch to tamsulosin (see attached guidelines)

If follow-up visit shows NO improvement at target dose or change in BPH symptoms on tamsulosin, consider dual medical therapy with \( \alpha \)-blocker & a 5-\( \alpha \)-reductase inhibitor (finasteride), or obtain a GU referral for consideration of invasive treatment options
From AUA Guidelines Introduction:
Benign prostatic hyperplasia (BPH), one of the most common diseases of aging men, can be associated with bothersome lower urinary tract symptoms (LUTS) that affect quality of life by interfering with normal daily activities and sleep patterns. Since the impact of LUTS on the patient's quality of life is highly variable and not directly related to any measurable physiological factors, the patient's perception of the severity of the condition, as well as the degree to which it interferes with his lifestyle or causes embarrassment, should be the primary consideration in choosing therapy.

Most patients who seek treatment for BPH do so because symptoms alter quality of life. Symptom quantification is therefore of major importance in determining the severity of disease, in documenting the response to therapy, and in detecting symptom progression in men managed by watchful waiting.

After “watchful waiting”, usually the first medical therapy is with alpha-adrenergic blockers (α-blockers). Alpha-blocker therapy is based on the hypothesis that clinical BPH is partly caused by alpha1-adrenergic-mediated contraction of prostatic smooth muscle, resulting in bladder outlet obstruction.

All three agents have been investigated for the treatment of LUTS. Although, there are slight differences in the adverse-event profiles, all three have equal clinical effectiveness.

In May 2010, the Pharmacy & Therapeutics Committee added tamsulosin to the formulary. Doxazosin and terazosin are currently the other formulary α-blockers used for BPH. Due to comparative cost issues, tamsulosin is restricted to second-line therapy after failure of, or intolerance to, either doxazosin or terazosin. See management algorithm on previous page.

**Recommended dosing for BPH and warnings from Lexi-Comp™ & UpToDate®**

**Doxazosin** (Cardura® or equivalent) – immediate release form
- Beers criteria (appropriateness for use in the elderly): LOW severity risk due to potential for dry mouth, stress incontinence & hypotension
- Dosing:
  - Initiate therapy with 1 mg once daily at bedtime (0.5 mg in geriatrics). Titrate upward over several weeks, balancing therapeutic benefit with postural hypotension
  - UpToDate® recommends:
    - 1 mg on days 1 to 3
    - 2 mg on days 4 to 14
    - 4 mg daily on weeks 2 to 6
    - 8 mg daily on week 7 & thereafter
  - Goal: 4 to 8 mg per day
  - Max: 8 mg per day
  - Re-initiation of therapy: may start at 4 mg and titrate back up prn
- Warnings:
  - Hepatic Impairment; caution with mild to moderate disease; do not use with severe impairment
  - Screen for prostate cancer prior to starting therapy with α-blockers
  - Patients should be warned:
    - to discontinue if angina occurs or worsens
    - about hypotension / syncope /dizziness / vertigo, especially if patient is already orthostatic on antihypertensives (particularly other vasodilators), or when initiating or titrating dose or if a PDE-5 inhibitor like sildenafil (Viagra®) is introduced.
    - to notify surgeon if considering cataract surgery - risk of intraoperative floppy iris syndrome
**Terazosin** (Hytrin® or equivalent)
- **Beers criteria (appropriateness for use in the elderly):** lower risk compared to doxazosin; risk is due to potential for dry mouth & stress incontinence.
- **Dosing:**
  - Initiate therapy with 1 mg daily at bedtime; titrate upward only if needed over several weeks, balancing therapeutic benefit with postural hypotension
  - **UpToDate® recommends:**
    - 1 mg on days 1 to 3
    - 2 mg on days 4 to 14
    - 5 mg daily on weeks 2 to 3
    - 10 mg daily on week 4 & thereafter
  - Goal: most patients require 10 mg per day
  - Max: 20 mg per day (only after 4 to 6 weeks of no response at 10 mg daily)
  - Re-initiation of therapy: consider starting with 1 mg; could give twice daily until usual dose reached
  - Dose reduction may be necessary when combined with a diuretic
- **Warnings:**
  - Screen for prostate cancer prior to starting therapy with α-blockers
  - Patients should be warned:
    - to discontinue if angina occurs or worsens
    - about hypotension / syncope /dizziness / vertigo, especially if patient is already orthostatic on antihypertensives (particularly other vasodilators), or when initiating or titrating dose or if a PDE-5 inhibitor like sildenafil (Viagra®) is introduced.
    - about priapism (rare side-effect)
    - to notify surgeon if considering cataract surgery - risk of intraoperative floppy iris syndrome

**Tamsulosin** (Flomax® or equivalent)
- **Note:** NOT indicated for patients with hypertension
- Not listed in Beer’s Criteria table
- **Dosing:**
  - Initiate therapy with 0.4 mg ~ 30 minutes after the same meal daily; titrate upward to 0.8 mg only if needed after 2 to 4 weeks
  - Goal 0.4 mg to 0.8 mg per day
  - Max: 0.8 mg per day
  - Re-initiation of therapy: start with 0.4 mg daily
- **Warnings:**
  - Avoid use if a serious allergy to sulfas has been reported
  - Screen for prostate cancer prior to starting therapy with α-blockers
  - Metabolism is slower in older patients; thus orthostatic hypotension is more likely
  - Major drug interactions are more likely than with other α-blockers due to it being a substrate of the CYP2D6 & 3A4 enzyme systems
  - When stopping, dose should be tapered and BP monitored
  - Patients should be warned:
    - to discontinue if angina occurs or worsens
    - about hypotension / syncope /dizziness / vertigo, especially if patient is already orthostatic on antihypertensives (particularly other vasodilators), or when initiating or titrating dose or if a PDE-5 inhibitor like sildenafil (Viagra®) is introduced.
    - about priapism (rare)
    - to notify surgeon if considering cataract surgery - risk of intraoperative floppy iris syndrome
## Incidence of Certain Side Effects from E-facts®, Lexi-Comp® & Micromedex®
### Ranges Depend on Description and Grouping and Reference

<table>
<thead>
<tr>
<th>Side-effect</th>
<th>Doxazosin</th>
<th>Terazosin</th>
<th>Tamsulosin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postural hypotension</td>
<td>0.3 to 10%</td>
<td>1.3 to 3.9%</td>
<td>0.2 to 19%*</td>
</tr>
<tr>
<td>Syncope</td>
<td>0.5 to 2%</td>
<td>0.6%</td>
<td>0.2 to 0.4%</td>
</tr>
<tr>
<td>Dizziness / vertigo</td>
<td>5 to 19%</td>
<td>9.1 to 19.3%</td>
<td>14.9 to 17.1%</td>
</tr>
<tr>
<td>Asthenia (includes tiredness, fatigue, weakness)</td>
<td>1 to 12%</td>
<td>7.4 to 11.3%</td>
<td>7.8 to 8.5%</td>
</tr>
<tr>
<td>Impotence / decreased libido</td>
<td>0.8 to 2%</td>
<td>1.2 to 1.6%</td>
<td>1 to 2%</td>
</tr>
</tbody>
</table>

* This percentage reported also in package insert as at least one observation in 19% of the studied patients

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