

# MEDICAL TREATMENT OF BPH

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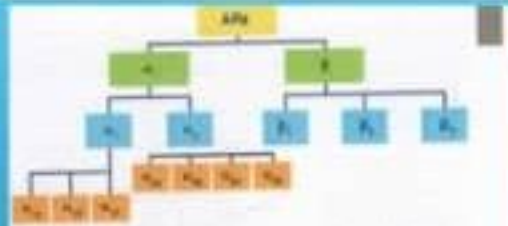


Fig. 140.4. Adrenergic receptor (AR) nomenclature and subtypes.



Fig. 140.5. Distribution of  $\alpha$ -adrenergic receptors at the level of the paranasal and nasal cavity. The red dots represent  $\alpha_1$  receptors, the blue dots represent  $\alpha_2$  receptors, and the black dots represent  $\alpha_3$  receptors.

TABLE 143.1 Classification of  $\alpha$ -Adrenergic Blockers and Recommended Doses

CLASS OF $\alpha$ -BLOCKERS	AVAILABLE FORMULATION	RECOMMENDED DAILY DOSE	RECOMMENDED ADMINISTRATION
<b>NONSELECTIVE</b>			
Phenoxbenzamine	10-mg capsule	10 mg bid	No longer indicated for LUTS treatment
<b>SELECTIVE</b>			
Prazosin	0.5, 1, 2, 5-mg capsule	2 mg bid	No longer indicated for LUTS treatment
Terbinafin	20-mg capsule	20 mg bid	No longer indicated for LUTS treatment
Terazosin	1, 2, 5, 10-mg capsule	5 or 10 mg qd	Initial dose is 1 mg at bedtime. The dose should be titrated up to 5 or 10 mg.
Sildenafil #1	1, 2, 4-mg capsule	2-8 mg qd	Initial dose is 2 mg at bedtime. The dose should be titrated up to 4 or 8 mg.
Sildenafil #2	4, 8-mg capsule	4 or 8 mg qd	Initial dose is 4 mg after breakfast, eventually increased to 8 mg.
<b>UNSELECTIVE</b>			
Alfuzosin #1*	10-mg capsule	10 mg qd	Initial dose is 10 mg with the same meal each day.
Tamsulosin	0.4, 0.8-mg capsule	0.4-0.8 mg qd	Initial dose is 0.4 mg with the same meal each day.
Sildenafil #3	4, 8-mg capsule	8 mg qd	Initial dose is 8 mg with the same meal each day.
Tadalafil	20, 30-mg capsule	20-75 mg/1day	Marketed only in Asian countries

#1, #2, #3 for patient information leaflet.

\*Alfuzosin is considered a  $\alpha$ -1-adrenergic agent on the basis of the efficacy profile demonstrated by a preferential effect on the urogenital system. Marketed only in Europe.

#Marketed only in the United States.

bid,  $\alpha$ -adrenergic blockers, bid twice a day; qd, extended-release, qd, once a day; #1, immediate-release; LUTS, lower urinary tract symptoms; #2, sustained-release; #3, three times a day.



TABLE 146.9 Androgen Manipulation: Classification of Pharmacologic Agents and Dosages

DRUGS	DOSEAGE	REFERENCE
<b>GLUCOCORTICOID-RELEASING HORMONE ANALOGUES</b>		
Leuprolide	5.75 mg IM monthly	Rowlands et al., 1999 Kjawa et al., 1999 Suzawa-Tanaka, 1999
Triptorelin acetate	400 mg SC qd	Travis and Walsh, 1997
Cetrorelin	1 mg SC qd 4 loading dose Then dosage regimens	Leibel et al., 1997 Geddes et al., 2008
<b>PROGESTATIONAL AGENTS</b>		
Megestrol acetate	200 mg IM weekly	Mason et al., 1977
Megestrol	250 mg PO bid 40 mg PO bid	Chatterjee et al., 1974 Sachs et al., 1978
<b>ANTIANDROGENS</b>		
Flutamide	100 mg bid 250 mg bid	Coble et al., 1979 Dunn, 1989
Oestrone	200 mg IM weekly	Chen et al., 1989
Bicalutamide	50 mg qd	Enos and Taylor, 1992
Zincorone	100-400 mg qd	Reaper et al., 1997
Enzalutamide acetate	60 mg qd	Fujimori et al., 2012
<b>Warnings and important notes</b>		
<b>5<math>\alpha</math>-REDUCTASE INHIBITORS</b>		
Finasteride	5 mg qd. Treatment is recommended for at least 6 months.	<ul style="list-style-type: none"> <li>PSA levels decrease by approximately 50%</li> <li>Finasteride is not indicated for PSA prevention because of an increased risk for high-risk disease</li> <li>Patients should be warned regarding risk for sexual dysfunction (depression)</li> </ul>
Dutasteride	0.5 mg qd. Treatment is recommended for at least 6 months.	<ul style="list-style-type: none"> <li>PSA levels decrease by approximately 50%</li> <li>Dutasteride is not indicated for PSA prevention because of an increased risk for high-risk disease</li> <li>Patients should be warned regarding risk for sexual dysfunction (depression)</li> </ul>

IM, intramuscularly; PO, per os (orally); QD, qd, once a day; BID, bid, twice a day.



**TABLE 145.12 Antimuscarinic Drugs for the Treatment of Lower Urinary Tract Symptoms**

DRUG	AVAILABLE FORMULATION	RECOMMENDED DAILY DOSE
Darifenacin ER	7.5-, 15-mg capsule	1 × day
Fesoterodine ER	4-, 8-mg capsule	1 × day
Oxybutynin ER	5-, 10-, 15-mg <sup>a</sup> capsule	1 × day (up to 20 mg/day)
Oxybutynin IR	2.5-, 5-mg <sup>a</sup> capsule	3-4 × day (max 20 mg/day)
Propiverine ER (no US)	30-mg capsule	1 × day
Propiverine (no US)	15-mg capsule	2-3 × day
Solifenacin	5-, 10-mg capsule	1 × day
Tolterodine IR	1-, 2-mg capsule	2 × day
Tolterodine ER	2-mg <sup>a</sup> , 4-mg capsule	1 × day 1 × day
Trospium IR	20-mg capsule	2 × day
Trospium ER	60-mg capsule	1 × day

<sup>a</sup>Marketed only in Europe.

Marketed only in the United States.

ER, Extended release; IR, immediate release.

significant; PFR, peak flow rate.

TABLE 145.19 Origin of Plant Extracts

SPECIES	COMMON NAME
<i>Serenoa repens</i> , <i>Sabal serrulata</i>	Saw palmetto berry, American dwarf palm
<i>Hypoxis rooperi</i>	South African star grass
<i>Pygeum africanum</i>	African plum tree
<i>Urtica dioica</i>	Stinging nettle
<i>Secale cereale</i>	Rye pollen
<i>Cucurbita pepo</i>	Pumpkin seed
<i>Opuntia</i>	Cactus flower
<i>Pinus</i>	Pine flower
<i>Picea</i>	Spruce



**TABLE 145.21 Suggested Mechanisms of Actions of Plant Extracts\***

**Inhibition of 5 $\alpha$ -reductase**  
**Anti-inflammatory action**  
**Interference with growth factors**  
**Antiandrogenic effects**  
**Estrogenic effects**  
**Inhibition of aromatase**  
**Decrease of sex hormone-binding globulin**  
**Alteration of cholesterol metabolism**  
**Action on  $\alpha$ -adrenergic receptors**  
**Free-radical scavenging**  
**Alteration of lipid peroxidation**  
**Modulation of prolactin-induced prostatic growth**  
**Protection of bladder and detrusor function**  
**Placebo effect**

The most investigated mechanisms are highlighted in bold.