Indian Health Service  
Alpha₁ Adrenergic Antagonists  
IHS National Pharmacy and Therapeutics Committee  
Last Reviewed: March 2011

Background:

In March 2011, the IHS National Pharmacy and Therapeutics Committee (NPTC) reviewed the agents used for the treatment of benign prostatic hyperplasia (BPH). The NPTC voted to maintain terazosin and doxazosin on the IHS National Core Formulary (NCF). In addition, they voted to add the selective alpha₁ adrenergic antagonist, tamsulosin, to the NCF.

Clinical Review:

Alpha blockers reduce urethral sphincter tone and facilitate voiding by blocking alpha₁ receptors in the prostate and base of the bladder. There are two classes of alpha blockers: the non-selective agents (doxazosin, prazosin, and terazosin) and the selective agents (alfuzosin, silodosin, and tamsulosin). The selective agents have less affinity for alpha-1B receptors which are more prevalent in the smooth muscle of vascular walls, leading to a reduction in orthostatic side effects.

Efficacy: A meta-analysis published in 1999 looked at placebo-controlled trials involving 6333 patients and direct comparative studies involving 507 patients treated with alfuzosin, doxazosin, tamsulosin, and terazosin. This analysis showed comparable reductions in lower urinary tract symptoms (LUTS) and urinary flow among these agents. Scores utilizing the American Urological Association (AUA) Urinary Symptom Score decreased by 30-40% overall and maximal urinary flow rates increased by 16-25%. The selective agents were shown to have an improved tolerability, with tamsulosin showing less effect on blood pressure compared to alfuzosin.¹ Clinical trials of combined treatment with an alpha₁ adrenergic antagonist and a 5-alpha reductase inhibitor have shown greater reductions in risk for clinical progression, acute urinary retention, symptom scores, and improved quality of life measures in those treated with combination therapy versus monotherapy with either class of agent when used in men with clinically enlarged prostate glands with moderate to severe LUTS.²-⁴

Side Effects:

Orthostatic hypotension can be seen with all agents within the alpha₁ adrenergic antagonists class, though this is much more common for the non-selective agents. The non-selective agents should be started at a lower dose, preferably given at bedtime, and titrated up for effect. Caution should be used when utilizing these agents in conjunction with phosphodiesterase-5 inhibitors (i.e. sildenafil, vardenafil, tadalafil) as the risk of hypotension is increased. This risk can be decreased by separating the dosing of these agents by at least 4 hours, particularly when using the non-selective agents.

Ejaculatory problems have been seen with the use of tamsulosin (reduced ejaculate in 90% of patients, no ejaculate in 35%) and silodosin (retrograde ejaculation in 28% of patients). Alfuzosin has not been observed to cause these effects.

Intraoperative Floppy Iris Syndrome (IFIS), first described in 2005, is a triad of progressive intraoperative miosis despite preoperative dilation, billowing of a flaccid iris, and iris prolapse toward the incision site during phacoemulsification for cataracts. It can lead to posterior capsule rupture with vitreous loss or postoperative intraocular pressure spikes. It has been associated with alpha₁ adrenergic antagonist use, particularly tamsulosin. There is no current evidence to support a reduction in this risk by stopping the alpha blocker pre-operatively. The AUA recommends avoidance of the use of alpha blockers in patients who may be candidates for cataract surgery.

If you have any questions regarding this document, please contact the NPTC at nptc1@ihs.gov.
References: