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Review Article

THE UROSELECTIVE ALPHA BLOCKER: ALFUZOSIN

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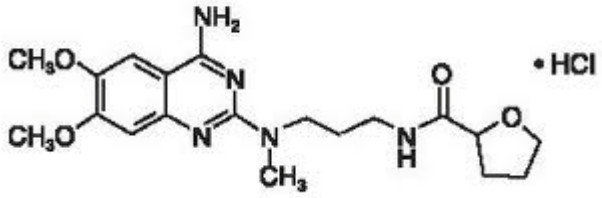
ABSTRACT

Benign prostatic hyperplasia (BPH) is one of the most common conditions affecting the elderly males[1], as the elderly constitute the major proportion of the population. This results in a major impact on the medical practice nowadays.[2]

Key words: *Benign Prostatic Hyperplasia, Alpha -1 Blocker, Alfuzosin.*

INTRODUCTION

Alfuzosin, a quinazoline derivative, is a selective and competitive antagonist of alpha-1 adrenoceptor-mediated contraction of prostatic smooth muscle. As a result it decreases sympathetically controlled muscle tone and improves the rate of urinary flow.[5,6] Alfuzosin differs from other quinazoline derivatives (prazosin, terazosin, doxazosin) by the presence of a diaminopropyl spacer and the absence of a piperidine moiety.[1] Thus, the pharmacological properties also differ.[5]



STRUCTURE OF ALFUZOSIN

THE RATIONALE FLOW

The enlargement of the prostate can produce voiding symptoms, which can lead to pathological changes in the urinary bladder and the kidney. Management of BPH has also changed significantly with a considerable advance in the understanding of the demographics and natural history of the disease.[3]

The pharmacotherapy of BPH comprises of alpha-1 receptor antagonists, 5-alpha reductase inhibitors, phytotherapy, Gonadotropin releasing hormone analogues and androgen receptor blockers.

PHARMACODYNAMIC PROPERTIES

Alfuzosin has high affinity for post-junctional alpha-1 adrenoceptors in human prostate [7]. Although Alfuzosin appears to lack specificity for a particular alpha-1 adrenoceptor subtype, it has been shown to be more selective for prostatic tissue [8]. In patients with BPH, Alfuzosin concentrations in the prostate were higher than those found in plasma, 12 hours after the daily oral dose (prostate/plasma ratio 2.39:1). The significant, dose-dependent increase in urinary flow and decrease in PVR volume associated with Alfuzosin therapy in patients with BPH is well established.[9,10]

PHARMACOKINETICS

In the prolonged-release formulation of Alfuzosin, barrier layers (one swellable and one erodible) are applied to the planar surfaces of compressed tablets, producing a three-layered matrix with the active substance between two inactive layers. Hydrophilic polymers, contained in the inactive layers, swell on contact with fluid resulting in an increased retention of drug in the stomach, and resulting in a continuous release of alfuzosin.[11] Most of the absorption occurs in

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the proximal part of the duodenum because of the slow gastric dissolution and a higher duodenal versus colonic permeability.[12] Maximum plasma concentration (16.6 µg/L) was achieved at 9 hours after post prandial administration of prolonged-release Alfuzosin 10mg .Alfuzosin is approximately 90% protein bound in plasma,[13] It has been shown to preferentially distribute in the prostate as compared with plasma.[8]

Plasma elimination half-life after multiple doses of prolonged-release Alfuzosin 10 mg orally once daily was 9.1 hours. Alfuzosin is extensively metabolized by the liver and the majority of the metabolites (which are inactive) are excreted in the faeces.[13]

EFFICACY

Once-daily administration of the prolonged-release formulation of alfuzosin 10mg effectively controlled LUTS suggestive of BPH throughout a 24-hour dosage interval. The mean change in the maximum urinary flow rate from baseline was significantly greater in patients receiving prolonged-release alfuzosin. Quality of life (QOL) also improved significantly in patients treated with alfuzosin. [13]

TOLERABILITY

Prolonged-release Alfuzosin 10mg once daily has been shown to be well tolerated in the short and long term (up to 12 months) in patients with BPH. The most common adverse events in clinical trials were asthenia and fatigue, and fewer vasodilator events like dizziness, headache, and hypotension.

DOSAGE AND ADMINISTRATION

Prolonged-release Alfuzosin is indicated for the treatment of symptoms associated with BPH in the dosage of 10mg once daily after a meal. Alfuzosin is contraindicated in combination with other Alpha-1 adrenoceptor antagonists, and in patients with orthostatic hypotension or hepatic insufficiency and also in patients with coronary artery disease, Alfuzosin should be discontinued, if symptoms of angina reappear or get worse.

CONCLUSION

With the increased patient awareness, reach to hospitals and also advanced scientific techniques like sonography etc, there are many cases of BPH being detected in the geriatric population. The drugs like Alpha blockers, especially Alfuzosin would offer the immediate relief to these patients and increases the quality of life in geriatric population

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