Drug Update

NEW ANTI-GLAUCOMA DRUGS

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Glaucoma is a leading cause of blindness, with an estimated 5.2 million people World wide owing their blindness to this disease [1]. Antiglaucoma drugs form the basis of medical management of glaucoma.These drugs are pharmacological agents which reduce the intra-ocular pressure either by reducing aqueous humor production or by increasing the outflow of this fluid from the intra-ocular compartments. Miotics like Pilocarpine and Eserine, Beta adrenergic antagonists like Timolal maleate and Betaxolol and Alpha adrenergic agonists like Epinephrine and Depiveprine are drugs which have established themselves as the standard antiglaucoma drugs for quite some time. Recently a number of new drugs have come into therapeutic use in glaucoma and have already received FDA approval. Dorzolamide (a carbonic anhydrase inhibitor) and Latanoprost (a prodrug of prostaglandin F2a) are two such drugs which hold enough promise for the future as safe and efficient antiglaucoma drugs.

DORZOLAMIDE

Dorzolamide hydrochloride (TRUSOPT) is a carbonic anhydrase inhibitor which selectively inhibits human carbonic anhydrase isoenzyme II, the predominant isoenzyme found within the ciliary processes [2]. This agent is marketed as a 2% solution and on topical application at 8 hourly intervals causes a fall of IOP by 18 to 22% by decreasing the aqueous humour production. It can be used in monotherapy or as an adjuvant with other antiglucoma agents like Beta-adrenergic anatagonists. The drug is generally well tolerated though the patients may experience transient burning or stinging in conjunctiva, transient blurring of vision. Some patients may show punctate corneal epithelial erosions. Its activity appears to be slightly less in dark coloured iris as compared to the light coloured ones.

LATANOPROST

Latanoprost is Isopropyl ester of Prostaglandin F_2 alpha with a molecular weight of 432.6. It is available as a 0.005% solution for topical ocular administration. Being a long acting drug its administration is once in 24 hours. On administration the drug is hydrolysed to Latanoprost acid in cornea and passes in this form to the intra-ocular compartment. It lowers the IOP by about 25 to 30% chiefly by enhancing the Uveoscleral outflow. Though well tolerated by the patients its main untoward effect is darkening the iris colour after 3 to 12 months of continuous use. The other side effects that have been reported include conjunctival hyperaemia and upper respiratory tract infection [3]. This drug can be used in monotherapy or in combination with a Beta adrenergic antagonist like Timolol maleate.

REFERENCES

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