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RESEARCH ARTICLE

USE OF IBOPAMINE IN OPHTHALMOLOGY

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ABSTRACT

Ibopamine is currently used in Ophthalmology. Its action is on both adrenergic and dopaminergic receptors. The adrenergic receptors cause a marked mydriasis without accommodative paralysis, while the dopaminergic receptors increase the production of aqueous humor. Ibopamine may be useful for diagnostic purposes in Ophthalmology. This review article focuses on presenting the most intriguing evidence on ibopamine.

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INTRODUCTION

This drug is used in Ophthalmology since 1986 (Virno *et al*., 1986; Virno *et al*., 1998). Ibopamine causes a marked mydriasis without accommodative paralysis and increases the production of aqueous humor. This review article focuses on presenting the most intriguing evidence on ibopamine.

Pharmacology of ibopamine

This is a dopaminergic prodrug. It is transformed into the active metabolite epinine, a catecholamine (Virno *et al*., 2003). Ibopamine is hydrolyzed into epinine by the esterases of the aqueous humor and ocular tissues (Fig. 1). Ibopamine stimulates the α-adrenergic and D1 dopaminergic receptors. The interaction with the α- adrenergic receptors of the dilating muscle of the pupil causes the mydriatic effect of ibopamine (Giuffré, 2007). Ibopamine has no effect on the ciliary muscle and the mydriasis is not associated with cycloplegia (Figg. 2,3). The D1 dopaminergic activity increases the stimulation of aqueous humor production (Giuffre' *et al*., 2004; Giuffré, 2007; Giuffrè *et al*., 2013). Ibopamine 2% has no clinically-relevant local or systemic adverse effects. This drug is useful also in relatives of glaucoma patients (Virno *et al*., 2013). Electrophysiological assessment showed that ibopamine is not retinotoxic (Giuffrè *et al*., 2013). After local instillation, normal refraction is preserved (Giuffré, 2007).

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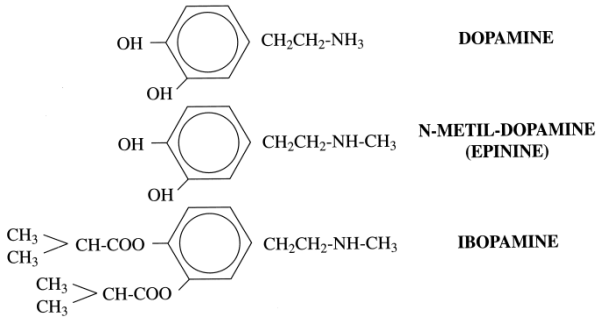

Fig. 1. Dopamine, epinine and ibopamine

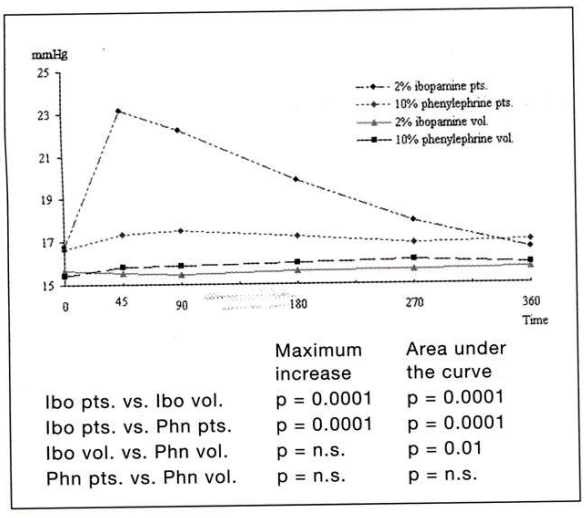

Fig. 2. The effect of ibopamine eyedrops on the IOP in glaucomatous patients vs healthy volunteers compared to phenylephrine eyedrops

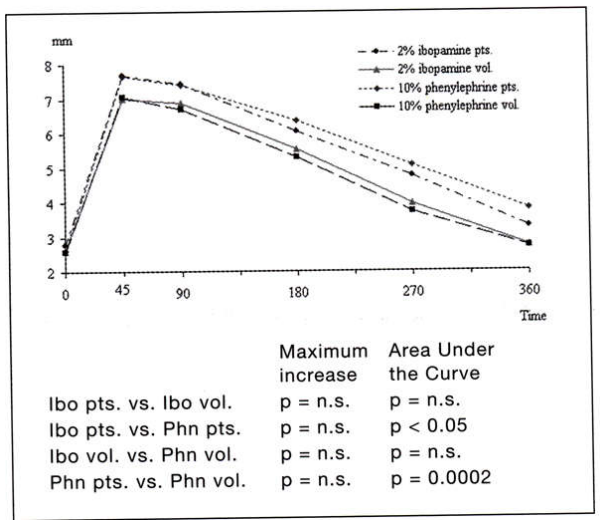

Fig. 3. The effect of ibopamine on the pupil diameter of glaucomatous patients vs healthy volunteers compared to phenylephrine eyedrops

Conclusion

Ibopamine has an α-adrenergic and a D1 dopaminergic action. Ibopamine can cause a mydriatic effect without cycloplegia as well as an increase in the production of aqueous humor. These effects are not associated with the onset of serious adverse events or alterations of visual acuity, as shown by extensive clinical experience collected on this molecule. Ibopamine action is short, with a peak at about 45 minutes since administration, and usually lasts no more than six hours, thus comparing favorably with other molecules used in Ophthalmology (Fig. 2). Therefore, ibopamine may find a role in Ophthalmology in almost all patients who do not need a cycloplegic effect. This drug is particularly useful in the diagnostic mydriasis in all patients who need an extensive mydriasis or must avoid cycloplegic effect. Indeed, ibopamine can be used in the diagnostic mydriasis in patients at particular risk of adverse events or with angle closure. This drug may be useful in patients with concomitant systemic conditions including cardiovascular disease, benign prostatic hyperplasia or diabetes. It can be also used in patients affected by glaucoma and relatives of glaucoma patients and subjects at risk of ocular hypotony or hypothalamia. We are very interested to explore the efficacy and safety of ibopamine. Such studies will help to expand knowledge on the use of this dual-acting molecule in Ophthalmology.

REFERENCES

Virno M, Taverniti L, Motolese E *et al*. 1986. Ibopamina: nuovo midriatico non cicloplegico (nota preliminare). *Boll Ocul.,* 65: 11.

Virno M, Pecori Giraldi J, Taverniti L, De Gregorio F. and Sedran L. 1998. L'ibopamina in oftalmologia. I.N.C. Editor, Rome (Italy).

Virno M, Pecori Giraldi J, Taverniti L. *et al*. 2003. Ibopamine. D-1 dopaminergic agonist in the physiopathology of intraocular pressure. I.N.C.Editor, Rome (Italy).

Giuffre' I, Taverniti L. and Di Staso S. 2004. The effects of 2% ibopamine eye drops on the intraocular pressure and pupil motility of patients with open- angle glaucoma. *Eur J Ophthalmol*., 14: 508-513.

Giuffré, I. 2007. Ibopamine stimulates α-adrenergic receptors and D1-dopaminergic receptors in the eye. *Curr Drug Ther.,* 2: 127-132.

Giuffrè I, Falsini B, Gari MA and Balestrazzi E. 2013. Pattern electroretinogram assessment during ibopamine test in ocular hypertension. *Eur J Ophthalmol*., 23: 819-822.

Virno M, Sampaolesi R, Pecori Giraldi J, De Gregorio F, Taloni M, Brusini P, Di Staso S. and Stecchi G. 2013. Ibopamine: D1-dopaminergic agonist in the diagnosis of glaucoma. *J Glaucoma*, 22: 5-9.

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