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Effects of moxaverine on ocular blood flow in patients with age-related macular degeneration, patients with primary open angle glaucoma and in healthy controls

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Background

Ocular perfusion abnormalities could be found in several common eye diseases including age-related macular degeneration (AMD) and primary open angle glaucoma (POAG). There is recent evidence that intravenous administration of moxaverine, a derivate of papaverine, increases ocular blood flow in young, healthy volunteers. The present study investigated the effect of intravenous moxaverine on ocular blood flow in elderly patients with AMD or POAG and in healthy control subjects.

Methods

Twenty patients with AMD, 20 patients with POAG and 20 age-matched healthy subjects participated in this study. Moxaverine (Ursapharm, Saarbrücken, Germany; 150 mg) was administered intravenously over 30 minutes. Measurement of systemic haemodynamics, retinal vessel diameters and blood flow in the choroid, in the optic nerve head and in retrobulbar vessels was performed before drug administration and repeatedly up to 90 minutes thereafter.

Results

Intravenous application of moxaverine increased blood flow in the choroid by $8.7 \pm 21.8\%$ ($p = 0.012$) and in the optic nerve head by $12.9 \pm 33.3\%$ ($p = 0.021$). There was also an increase in the mean flow velocities of posterior ciliary arteries ($24.8 \pm 34.7\%$, $p < 0.001$) and of the ophthalmic artery ($23.3 \pm 33.5\%$, $p < 0.001$) after drug administration. No differences observed were observed between the three study groups.

Conclusions

The present study indicates that a single dose of moxaverine increases ocular blood flow in patients with POAG, patients with AMD and in age-matched healthy controls. Future studies should investigate possible beneficial effects of moxaverine after continuous treatment in patients with ocular diseases that are associated with hypoperfusion.

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