

Meeting abstract

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Effects of topical clonidine vs. brimonidine on choroidal blood flow and intraocular pressure during isometric exercise

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Purpose

Clonidine and brimonidine, two α_2 agonists, have been shown to reduce intraocular pressure in glaucoma patients. Little is, however, known about the exact role of alpha receptors in the control of ocular blood flow in the posterior pole of the eye. Hence, we set out to investigate the effects of topical clonidine vs. topical brimonidine on choroidal blood flow and intraocular pressure during isometric exercise.

Methods

We performed a randomized double-masked, controlled two-way cross-over study. Twelve healthy male non-smoking volunteers, aged between 19 and 35 years were included in the study. Two drops of clonidine or brimonidine were administered in the subjects' study eyes. Continuous measurement using the compact laser Doppler Flowmeter was done during a 6 minutes squatting period, to assess choroidal blood flow regulation during an increase in ocular perfusion pressure.

Results

IOP decreased significantly after administration of the α_2 agonists ($p < 0.001$ vs. each baseline, $p = 0.8$ between groups). Choroidal blood flow was significantly reduced by both drugs at baseline ($p < 0.01$ each) as well as during isometric exercise ($p < 0.01$ each). Vascular resistance

increased at baseline and during squatting after administration of the α_2 agonists ($p < 0.01$) in both groups to a comparable degree ($p = 0.56$).

Conclusion

Alpha-2 agonists may induce changes in choroidal blood flow even after single topical administration. Long-term studies are required to study potential effects of brimonidine and clonidine in the clinical setting.