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Influence of intraocular pressure reduction on corneal hysteresis

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Purpose: To assess the influence of the intraocular pressure reduction on the corneal hysteresis.

Methods: A total of 22 glaucoma patients (37 eyes) were enrolled in this prospective study. Patients were included if they had glaucoma without previous ocular surgery, intraocular pressure higher than 20 mmHg, and no other significant ocular disease. The intraocular pressure was measured using Goldmann applanation tonometer and the corneal hysteresis was obtained using the Ocular Response Analyzer. These measurements were taken before and one hour after the use of antiglaucoma medications (brimonidine tartrate 0.2%, timolol maleate 0.5%, travoprost 0.004%, and acetazolamide 500 mg).

Results: Before medication, the mean (SD) intraocular pressure and corneal hysteresis were 29.6 (6.8) mmHg and 7.0 (2.4) mmHg, respectively. After medication, the mean (SD) intraocular pressure reduced to 18.5 (5.7) mmHg ($P < 0.001$) and the corneal hysteresis increased to 8.2 (2.3) mmHg ($P < 0.001$). There was no statistically significant correlation between both intraocular pressure and corneal hysteresis changes ($r = -0.12$; $P = 0.74$).

Conclusions: Corneal hysteresis increased after intraocular pressure reduction, but without correlation between these changes. This lack of correlation suggests that other factors are related to the increase in the corneal hysteresis, which need to be investigated.

