

Ocular Rigidity, Outflow facility, Ocular Pulse Amplitude and Pulsatile Ocular Blood Flow in Open Angle Glaucoma; a manometric study

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PURPOSE: To compare ocular rigidity (OR) and outflow facility (C) coefficients in medically treated open-angle glaucoma (OAG) patients and controls and to investigate differences in ocular pulse amplitude (OPA) and pulsatile ocular blood flow (POBF) between the two groups.

METHODS: Twenty-one OAG patients and 21 controls undergoing cataract surgery were enrolled. Patients with early or moderate primary or pseudoexfoliative OAG participated in the glaucoma group. A computer-controlled system, consisting of a pressure transducer and a microstepping device was employed intraoperatively. After cannulation of the anterior chamber, intraocular pressure (IOP) was increased by infusing the eye with microvolumes of saline solution. IOP was recorded after each infusion step. At an IOP of 40mmHg, an IOP decay curve was recorded for four minutes. OR coefficients, C, OPA and POBF were estimated from IOP and volume recordings.

RESULTS: There were no differences in age or axial length in the two groups. The OR coefficient was $0.0220 \pm 0.0053 \mu\text{l}^{-1}$ in the OAG and $0.0222 \pm 0.0039 \mu\text{l}^{-1}$ in the control group ($p=0.868$). C was $0.092 \pm 0.082 \mu\text{l}/\text{min}/\text{mmHg}$ in the glaucoma group compared to $0.149 \pm 0.085 \mu\text{l}/\text{min}/\text{mmHg}$ in the control group at an IOP of 35 mmHg ($p0.05$).

CONCLUSIONS: Manometric data reveal lower C in OAG patients and increased C with increasing IOP. There were no differences in the OR coefficient, OPA and POBF between medically treated OAG patients and controls, failing to provide evidence of altered scleral distensibility and choroidal blood flow in OAG.

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