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Factors Associated with Topographic Changes of the Optic Nerve Head after Intraocular Pressure Reduction in Glaucomatous Patients – Initial Results

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Purpose: To evaluate which factors, mainly diabetes and corneal hysteresis, could be correlated with topographic changes of the optic nerve head (ONH) after intraocular pressure (IOP) reduction in glaucomatous patients. **Methods:** Patients referred to the glaucoma clinic that presented documented IOP of over 21 mmHg and cup to disk ratio greater than 0.5 were included in the study. All subjects underwent a complete ophthalmic evaluation and those presenting any other significant ocular disease or ocular surgery were excluded. Central corneal thickness was measured using ultrasound pachymetry. Goldmann applanation tonometry, corneal hysteresis evaluation (by the Ocular Response Analyzer) and scanning laser ophthalmoscopy were performed before and after lowering
IOP with topical brimonidine tartrate 0.2%, timolol maleate 0.5% plus travoprost 0,004%, and oral acetazolamide 500 mg. It was analyzed the changes in the ONH parameters in both diabetic and non diabetic patients, and its correlation with corneal hysteresis. **Results:** A total of 21 non diabetic patients (21 eyes) and 5 diabetic patients (5 eyes) were included in the study. Mean age (standard deviation [SD]) for the diabetic and non diabetic groups were respectively 74.0 (4.7) and 67.8 (13.8) years old. Mean (SD) IOP delta was similar for both groups: 50.5% (6.8) for the diabetic and 48.1% (15.4) for the non diabetic subjects (P=0.6). There was a tendency for a statistically significant difference between the 2 groups concerning cup area (P=0.058) and rim area delta (P=0.074), and also for a positive correlation between maximum cup depth delta and corneal hysteresis. **Conclusions:** These initial results revealed that could exist significant differences in topographic changes of the ONH after IOP reduction between glaucomatous patients with and without diabetes. This possible correlation deserves further analysis with a larger number of subjects to be confirmed.