



NEUROOFTALMOLOGIA, INFLAMAÇÃO OCULAR, GLAUCOMA

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**CL157- CORNEAL ELEVATION TOPOGRAPHY IN PRIMARY OPEN ANGLE GLAUCOMA**

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**Purpose:** To describe and compare anterior and posterior topographic elevation maps in primary open angle glaucoma (POAG) patients with functional damage staging and in healthy controls.

**Methods:** A total of 217 subjects were consecutively recruited, including 111 POAG patients (study group, SG), and 106 healthy individuals (control group, CG). Previous intraocular surgery or other known ocular conditions were exclusion criteria. All patients performed Pentacam HR corneal topography. Mean anterior keratometry and anterior and posterior topographic elevation maps were analysed and compared in the central 3mm, 5mm and 7mm. Humphrey automated perimetry results from the SG were reviewed and classified according to the Glaucoma Staging System (GSS).

**Results:** Age (SG:72.32±8.09; CG:70.82±8.36; p=0.18) and central corneal pachymetry (SG:541.13±36.98; CG:548.67±34.56; p=0.12) were similar in both groups. Maximum elevation readings in the central 5mm were significantly (p<0.05) higher in the anterior (SG:8.21±8.63; CG:5.79±3.62) and posterior (GE:16.17±8.72; GC:13.92±6.03) corneal topography of the SG, as well as in the anterior (SG:17.32±20.78; CG:9.61±5.64) and posterior (SG:38.81±19.78; CG:26.38±12.73) central 7mm. The difference between the 7mm maximum and minimum elevation readings was higher in the anterior (SG:32.92±29.35; CG:22.50±11.39) and posterior (SG:72.73±46.13; CG:52.92±18.76) corneal topography of the SG. There was a weak but significant correlation between the GSS stage and both the anterior 5mm (r=0.397) and 7mm (r=0.304) maximum, as well as the posterior 5mm (r=0.233) and 7mm (r=0.241) maximum. The same was true for the correlation between GSS stage and the difference between the maximum and minimum elevation readings in the anterior 5mm (r=0.402) and 7mm (r=0.352), and the posterior 5mm (r=0.228) and 7mm (r=0.307).

**Conclusions:** In patients with POAG, there is a forward shifting of the posterior and anterior corneal surfaces. This appears to be correlated with more advanced stages of functional damage, pointing to a possible link between corneal structural changes and duration and intensity of elevated intra-ocular pressure. Further studies may ascertain the potential for this link to be used as a useful tool in monitoring POAG patients.