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Assessment of intraocular pressure and corneal hysteresis in glaucomatous patients before and after trabeculectomy

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Purpose: To asses intraocular pressure (IOP) and corneal hysteresis in glaucomatous patients before and after trabeculectomy using the Pascal dynamic contour tonometer (DCT) and the Ocular Response Analyzer (ORA).

Methods: A total of 20 glaucomatous patients (20 eyes) with clinically uncontrolled IOP were assigned to this study. All subjects underwent a complete ophthalmic evaluation and patients presenting significant ocular disease other than glaucoma were excluded. IOP was measured using Goldmann applanation tonometer (GAP) and DCT. Corneal hysteresis and also the IOP were evaluated by the Ocular Response Analyzer (ORA). Central corneal thickness was analyzed using ultrasound pachymeter. All the exams were performed in a random sequence before and after 4 weeks of glaucoma surgery. The following variables were analyzed: IOP delta measured with the different devices, corneal hysteresis and the correlation between IOP delta and corneal hysteresis.

Results: The mean of corneal hysteresis before and after surgery was respectively 8,98 (SD: 1,88) and 9,08 (SD: 1,83). The difference was 0,09 (SD: 1,26) and was not statistically significant (P= 0,748). There was no significant difference in the IOP delta comparing GAP and DCT (P= 0,67), and GAP and ORA (P= 0,36). Analyzing the correlation between the IOP delta values and corneal hysteresis delta, there was no significant correlation using GAP (r= 0.008; P= 0,69), DCT (r= 0,002; P= 0,37) nor ORA (r= 0,13; p= 0,11).

Conclusions: Corneal hysteresis doesn't change after one month of trabeculectomy and there is no difference in the IOP delta values comparing the three different devices.