(X) R1 ( ) R2 ( ) R3 ( ) PG0 ( ) PG1 ( ) Estagiário ( ) Tecnólogo ( )
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Service (sector) Glaucoma Nº CEP

Tonopen does not substitute for Perkins tonometry for intraocular pressure evaluation in congenital glaucoma

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Purpose: To evaluate the differences on intra-ocular pressure (IOP) measurements performed by Perkins (P) and Tonopen (T) tonometers in patients with congenital glaucoma.

Methods: Sixty-nine eyes of 69 primary congenital glaucoma patients were retrospectively analyzed. All IOP were measured with both tonometers and were performed with general anesthesia. To choose the eye for the study, worst - case analysis was considered as follows: (1) Surgery on both eyes: selected eye with the higher IOP; (2) Same IOP: eye randomly selected. (3) Only one eye underwent surgery, this one was selected. Age, biometry and corneal diameter working as independent variables were analyzed in linear regression models regarding their influence on the differences between the two tonometers (DTP-P). Paired t-test was performed to evaluate the differences between the two tonometers.

Results: Biometry has a weak but significant influence on the difference between the two tonometers; (R2 = 12,1%, p = 0.019). Corneal diameter and age did not reach significant levels of influence on DTP-P (R2 = 0,2%, p = 0,082 and R2 = 0,4%, p = 0.623, respectively). Tonopen gives a significantly higher IOP measure (mean = 21, 65mmHg +_9.36) compared with the Perkins tonometer (mean = 16,09mmHg +_7.03; p <0.0001).

Conclusion: Tonopen significantly overestimates the IOP compared with Perkins and the higher the axial diameter, the higher the difference between the two tonometers.