Abstracts

11 - Agreement between rebound (Icare ic200) and applanation tonometry (Perkins) in patients with primary congenital glaucoma

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Purpose: To examine agreement between intraocular pressure (IOP) measurements made using the rebound tonometer Icare ic200 (RT200) and the Perkins hand-held applanation tonometer (PAT) in patients with primary congenital glaucoma (PCG). The impacts of several covariables on measurements using the two devices were also assessed.
Materials and methods: IOP measurements were made in a single session in 86 eyes of 86 patients with PCG (46 under anaesthesia, 40 in the office). The order was RT200 then PAT. The variables of age, central corneal thickness (CCT), corneal state, and anaesthesia were recorded in each patient. Data were compared by determining interclass correlation coefficients (ICC) for each tonometer and representing the differences detected as Bland-Altman plots. Effects of covariables were assessed through univariate and multivariate regression.
Results: Mean IOP difference between tonometers (RT200 minus PAT) was 1.26 mmHg (95%: 0.22-2.31). Absolute agreement (ICC) was 0.73 (95% CI: 0.62-0.82). Lower and upper limits of agreement (95%) were -8.06 mmHg (95% CI: -9.87- -6.25) and 10.59 mmHg (95% CI: 8.77-12.40), respectively. The tonometers showed systematic differences (a= -4.63 mmHg; 95% CI: -9.11- -1.44) and proportional differences; for each mmHg increase in PAT-IOP, the RT200 reading increased by 1.28 mmHg (b= 1.28; 95% CI: 1.12-1.53). None of the variables tested as predictors explained the differences between tonometers.
Conclusions: Despite the good overall agreement between both tonometers, caution should be taken in high values of IOP, considering the interchangeability of its readings as systematic and proportional differences appear to exist between both methods.