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A comparison of three techniques of intraocular pressure measurements in normal eyes

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Purpose: To compare the precision of Intraocular Pressure (IOP) measurements taken with ORA, TRK-1P, and GAT in healthy eyes.

Design: Prospective study.

Methods: One eye of fifty seven normal subjects was randomly selected and included in this study. The measurements of the IOP using ORA, TRK-1P, and GAT, and measurements CH, CRF, and CCT were taken with the ORA. Repeatability was assessed by the Coefficient of Variation (CV) and Interclass Correlation Coefficients (ICC). Repeated-measures analysis of variance (ANOVA) was used to test the statistical significance of the repeatability of three intra-observer readings. Agreement among tonometers was assessed by Bland-Altman plots and the one way-ANOVA.

Results: The average of IOP for the IOPg, IOPcc, TRK-1P, and GAT (\pm SD) were 15.13 ± 2.76 , 14.39 ± 2.59 , 16.54 ± 2.93 , and 15.21 ± 2.54 mmHg respectively. The intraobserver were higher for GAT and IOPg compare to TRK-1P. The intra observer for IOPg, TRK-1P, and GAT (CV= 4.99, ICC=0.93), (CV=6.69, ICC=0.86), and (CV=4.22, ICC=0.94) respectively. The Repeated-measures analysis of variance, P values for ORA, TRK-1P, and GAT were 0.13, 0.01, and 0.60 respectively. The results of the one way-ANOVA for the three instruments was statistically significant (P= 0.01). The comparison pair test P values for GAT vs IOPg, GAT vs. IOPcc were ($p>0.05$), and GAT vs. TRK-1P, TRK-1P vs. IOPg, and TRK-1P vs. IOPcc were ($p<0.05$).

Conclusion: GAT and IOPg were significantly more repeatable than TRK-1P. Both IOPg and IOPcc have good agreement with GAT on normal subjects.

Biography

Haya M Al Farhan has completed her PhD from City University London, UK. She is an Associate Professor at King Saud University College of Applied Medicine Science. She was the Head of Optometry and Visual Science department for 7 years at King Saud University, and at the present the Dean of Al-Mana College. She has published 12 papers in reputed journals and cited. She is also serving as an Editorial Board Member of Austin Ophthalmology Journal, and supervises postgraduate students for Master and PhD degrees in joint with Salus University in USA.

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