World Academy of Science, Engineering and Technology
International Journal of Medical and Health Sciences
Vol:10, No:02, 2016

Comparison of Corneal Curvature Measurements Conducted with Tomey AO-2000® and the Current Standard Biometer IOL Master®

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Abstract : Purpose: Corneal curvature (CC) is an important anterior segment parameter. This study compared CC measurements conducted with two optical devices in phakic eyes. Methods: Sixty phakic eyes of 30 patients were enrolled in this study. CC was measured three times with the optical biometer and topography-keratometer Tomey AO-2000 (Tomey Corporation, Nagoya, Japan), then with the standard partial optical coherence interferometry (PCI) IOL Master (Carl Zeiss Meditec, Dublin, CA) and data were statistically analysed. Results: The measurements resulted in a mean CC of 43.86 ± 1.57 D with Tomey AO-2000 and 43.84 ± 1.55 D with IOL Master. Distribution of data is normal, and no significance difference in CC values was detected (P = 0.952) between the two devices. Correlation between CC measurements was highly significant (r = 0. 99; P < 0.0001). The mean difference of CC values between devices was 0.017 D and 95% limit of agreement was -0.088 to 0.12. Duration taken for measurements with the standard biometer IOL Master was longer (55.17 ± 2.24 seconds) than with Tomey AO-2000 (39.88 ± 2.38 seconds) in automatic mode. Duration of manual measurement with Tomey AO-2000 in manual mode was the shortest (28.57 ± 2.71 seconds). Conclusion: In phakic eyes, CC measured with Tomey AO-2000 and IOL Master showed similar values, and high correlation was observed between these two devices. This shows that both devices can be used interchangeably. Tomey AO-2000 is better in terms of faster to operate and has its own topography systems.

Keywords : corneal topography, corneal curvature, IOL Master, Tomey AO2000
Conference Title : ICOO 2016 : International Conference on Ophthalmology and Optometry
Conference Location : London, United Kingdom
Conference Dates : February 25-26, 2016