

3 de Dezembro

08h30 | 10h00 – Sala 2

Catarata | Cataract

Moderadores | Chairs: João Feijão (CHULC), Conceição Lobo (CHUC), João Paulo Macedo (CHUSJ)

CO 111

COMPARISON OF BIOMETRIC PARAMETERS AND REFRACTIVE RESULTS IN SHORT AND LONG EYES BETWEEN TWO OPTICAL BIOMETERS

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Introduction: Accurate biometry is important to obtain good visual outcomes after cataract surgery. Most existing biometers and intraocular lens (IOL) power-calculating formulas have good reproducibility in medium-length eyes with no concomitant pathology, however, for short or long eyes, IOL power calculation is more challenging. The purpose of this study was to compare the biometric parameters and IOL power calculations between two different optical biometers [swept-source optical coherence tomography (SS-OCT) versus (vs) partial coherence interferometry (PCI)] in short (< 22 mm) and long (> 26 mm) eyes using the Barrett Universal II (BII) formula.

Methods: A cross-sectional, observational, and device comparison study analysed axial length (AL), corneal curvature (K), anterior chamber depth (ACD) measured pre-operatively by two biometers, Argos® (Alcon Inc®, USA), and IOL Master® 500 (Carl Zeiss Meditec®, Germany). The proposed dioptric (D) IOL power (using BII formula) from each biometer was evaluated. We recorded patients' demographics, pre- and post-operative best-corrected visual acuity (BCVA), pre- and post-operative spherical equivalent (SE), power, and type of implanted IOL. Statistical analysis was conducted using SPSS Statistics 28.0 software.

Results: A total of 153 eyes of 106 patients were enrolled in the study (69.3% of females with a mean age of 73.9±10.1 years). Subgroup analysis was done for AL in three different ranges (< 22 mm; > 22 and < 26 mm; > 26 mm). For the cohort of medium-sized eyes (only evaluated by the Argos® biometer), mean AL was 23.70±1.03 mm, K was 43.90±4.27 and ACD was 3.14±0.36 mm (p<0.001). The mean difference between the proposed dioptric power of BII and post-operative SE (0.1±0.3 D) was not statistically significant (p=0.68). Regarding AL, both short and long eyes didn't have statistically significant differences between both biometers (Argos® vs IOL Master®): 21.60±0.36 mm vs 21.66±0.35 mm (p=0.382) and 28.13±2.31 mm vs 28.86±1.71 mm (p=0.083). In short eyes, the mean difference between post-operative SE and the proposed dioptric power was 0.05±0.76 D with Argos® and 0.37±0.61 D with IOL Master®. The difference between both biometers was not statistically significant (p=0.133). In long eyes, the mean difference was 0.15±0.19 D with Argos® and 0.21±0.66 D with IOL Master®. The difference between both biometers was also not statistically significant (p=0.105).

Conclusion: We corroborate that SS-OCT based biometers have extremely accurate results regarding biometric parameters in medium-sized eyes. Although the mean difference between proposed dioptric power and post-operative SE was lower in Argos® for both short and long eyes, the difference between Argos® and IOL Master® was not statistically significant. The Barrett Universal II formula seems to work well for eyes with extreme axial lengths in either type of biometer.