

3 de Dezembro

08h30 | 10h00 – Sala 2

Catarata | Cataract

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

#### CO 106

#### IMPACT OF TOTAL KERATOMETRY AND CMAL IN PREDICTING POST-OPERATIVE SPHERICAL EQUIVALENT IN NORMAL EYES

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**Introduction:** Prediction accuracy of intraocular lens (IOL) calculation formulas is a major concern in cataract surgery, and precise measurements of ocular parameters are essential for optimal refractive results. Adjustments to conventional formulas and new formulas considering new parameters have been proposed, such as those incorporating total keratometry (TK) and axial length (AL) adjustment methods, namely Cooked-modified AL (CMAL).

**Purpose:** The aim of this study was to evaluate the prediction error of conventional formulas updated with CMAL and the Barrett Universal formula (BUII) updated with total keratometry (BU II TK).

**Methods:** Retrospective study of consecutive patients who underwent uneventful cataract surgery with monofocal IOL implantation. The following IOL calculation formulas were applied to predict the target spherical equivalent for the implanted IOL in each subject; and Holladay1, HofferQ and SRK-T with and without CMAL incorporation, BUII and BUII TK. Biometry was obtained using a sweep-source optical biometer (IOLMaster 700; Carl Zeiss). Prediction errors (PE), defined as the difference between postoperative and formula-predicted SE based on the IOL power implanted, were calculated at 6-week follow-up. Mean absolute error (MeanAE), median absolute error (MedAE), and the percentage of eyes with in  $\pm 0.25$  diopters (D),  $\pm 0.50$  D and  $\pm 1.00$  D of PE were determined.

**Results:** A total of 87 eyes from 87 patients with a mean AL of  $25.23 \pm 3.03$  mm (range 21.24-33.78); were included. MeanAE and MedAE were slightly inferior for formulas integrating CMAL: 0.51 and 0.44 VS. 0.46 and 0.43D for SRK/T vs. SRK/T-CMAL; 0.55 and 0.45 vs 0.50 and 0.41D for Holladay1 vs Holladay1-CMAL; 0.54 and 0.45 vs 0.48 and 0.41 for HofferQ vs HofferQ-CMAL. The percentage of eyes within  $\pm 1.00$ D of PE was slightly superior for formulas with CMAL (92.0-93.1%) vs original AL (87.4-89.7%). Regarding the comparison of BUII and BUII TK, the percentage of eyes within  $\pm 0.50$  and  $\pm 1.00$ D of PE was the same for both formulas (69.0% within  $\pm 0.50$  and 94.3% within  $\pm 1.00$ D); MeanAE and MedAE were also similar (BUII 0.40 and 0.32D, BUII TK 0.40 and 0.34D).

**Conclusions:** The CMAL adjustment improved classical formulas prediction performance. Meanwhile, prediction accuracy of BUII TK formula using total keratometry was not superior to conventional BUII using simulated keratometry from anterior measurements.