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Service (sector) Cataract N° CEP

Postoperative refraction after cataract surgery in high hyperopic patients - a comparison between A-scan ultrasound biometry and optical coherence method (Zeiss IOL-Master).

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PURPOSE: The

purpose of the study was to compare optical coherence method (Zeiss IOL-Master) with conventional ultrasound biometry in the accuracy of intraocular lens (IOL) power calculations in high hyperopic patients. METHODS: A series of 10 high hyperopic eyes underwent cataract surgery. Preoperatively, keratometric readings were documented. All patients had biometry performed by Optical biometry (IOL Master, Carl Zeiss Meditec AG), A-scan ultrasound biometry (contact and immersion) (Alcon). IOL power calculation was computed using the HOFFER-Q formula. This was followed by phacoemulsification and foldable lens implantation. All surgeries were performed by the same surgeon. In all eyes, the IOL power was chosen based on the measurements conducted with immersion A-scan ultrasound biometry. Postoperative refraction was performed 40 days after surgery. The predictability of three different methods was also compared. RESULTS: The mean axial length difference between optical biometry and immersion A-scan ultrasound biometry was 0,027 mm and between optical biometry and contact A-scan ultrasound biometry was 0,05 mm. The IOL Master measures a longer axial length. The mean manual keratometric power was 45.64 D and for the Zeiss IOL Master it was 45.91 D. In all patients the mean of the postoperative refraction was +0,25 D at 40 days after surgery. Compared to the postoperative refraction at week 6, the calculated refractive values were higher in Contact A-US (+ 0.53 D) and lower in two measuring devices: IOLM: -2,36 D and Immersion A-US: -0,28 D. The postoperative corrected visual acuity ranged from 20/25 to 20/50. CONCLUSIONS: In this series of hyperopic eyes, the most accurate biometry method was immersion ultrasound, followed by optical coherence and contact ultrasound.