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PIBIC Last Name - Rocha First Name - Karolinne Middle - Maia

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WAVEFRONT TECHNOLOGY IN PSEUDOPHAKIC EYES

Karolinne Maia Rocha, MD; Carlos Eduardo B. Souza, MD; Eduardo Soriano, MD; Paulo Schor, MD; Maria Regina Chalita, MD; Rubens Belfort, MD.

Higher order optical aberrations such as spherical aberration and coma have an impact on contrast sensitivity and functional vision. These concepts and Zernike wavefront analysis of optical aberration can also be applied to pseudophakic eyes to evaluate optical quality and to compare results obtained with different intraocular lenses (IOL). **Purpose:** To compare total higher order wavefront aberrations and contrast sensitivity in 105 eyes implanted with four different types of IOLs. **Methods:** Implanted lenses were Alcon Acrysof SA60AT and MA30AC, Alcon Restor and Mediphacos Acqua. Examinations were carried out at least 1 month and a half after cataract surgery using LadarWave® (Alcon Laboratories, Fort Worth, Texas, USA). Patients with any ocular pathology were excluded. **Results:** The Mediphacos Acqua implanted eyes showed higher spherical aberration and trefoil, and lower contrast sensitivity values ($p < 0,001$). No statistically significant difference was found between SA60AT and MA30AC IOLs. The Restor (Alcon multifocal lens) showed lower values of coma and spherical aberration. **Conclusions:** Different types of IOLs resulted in measurably different higher order aberrations patterns. The integration of wavefront technology and cataract patients represents a step toward improving functional vision.