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High Order Aberrations and Depth of Focus in Eyes Implanted With Aberration Free IOL and Spheric Intraocular Lenses.

Katia Bottós, Karolinne Maia Rocha, Walton Nosé, Wallace Chamon, Juliana Bottós, Ana Carolina Yamada, Paulo Schor. **Purpose:** To evaluate high order aberrations and depth of focus (by means of distance-corrected near visual acuity) in patients implanted with aspheric and spheric IOLs. **Methods:** Prospective, randomized and double-blinded study. Forty eyes of 20 patients with bilateral cataract were randomly selected to receive Bausch & Lomb SofPort Advanced Optics Aspheric silicon model L161AO IOL (group I – 20 eyes) and SoFlex SE (LI61SE) IOL (group II – 20 eyes). Pupil diameter was analyzed using Colvard pupillometer (OASIS Medical, Inc., Glendora, California, USA) under photopic condition. Distance (6 meters) and near (0.33 meters) visual acuities were measured using distance correction at 90 days postoperatively. Wavefront analysis (LadarWave, Alcon Laboratories, Fort Worth, TX, USA) was performed using 5-mm at 30 and 90 days postoperatively.

Results: Photopic pupil sizes in each group were similar at 30-day visit. There were no statistically significant differences between the groups regarding coma, astigmatism, trefoil, quadrifoil and total RMS. Mean spherical aberration 5-mm values were: $0.16 \pm 0.06 \mu\text{m}$ (SofPort AO) and $0.23 \pm 0.10 \mu\text{m}$ (Soflex). The SofPort AO IOL showed statistically significant less induction of spherical aberration. At 90 days postoperative period, mean logMar distance-corrected near visual acuity were: 0.49 ± 0.15 in SofPort® IOL group and 0.48 ± 0.17 in Soflex® group. All eyes in the two groups had BSCVA ≥ 0.2 . **Conclusion:** The aspheric aberration free IOL (SofPort AO) induced less total spherical aberration without compromising depth of focus.