( ) R1 ( ) R2 ( ) R3 ( ) PG0 (X) PG1 ( ) Estagiário ( ) Tecnólogo ( )
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**Wavefront Analysis and Contrast Sensitivity of Aspheric and Spherical IOLs: Randomized prospective study**

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**Purpose**: To compare visual performance, total and high order wavefront aberrations, contrast sensitivity and depth of focus in eyes implanted with one monofocal aspheric intraocular lens (IOL) and two spherical IOLs. **Methods**: Sixty patients were randomized to receive three IOLs types: Alcon AcrySof®IQ (40 eyes), AcrySof®Natural (40 eyes) and Sensar® (40 eyes). Complete ophthalmologic exam including, corneal topography and wavefront analysis were performed preoperatively, 30 and 90 days postoperatively. Pelli-Robson chart test and functional acuity contrast testing (FACT-Optec®6500) were performed postoperatively. Distance (6 meters), intermediate (1 meter) and near (0.33 meters) visual acuities were measured using distance correction at 90 days postoperatively. Statistical analyses were performed using analysis chi-squared, Kruskal-Wallis Test, ANOVA. **Results**: After cataract surgery the AcrySof®IQ IOL group showed statistically significant less induction of spherical aberration ($p<0.001$) when compared to the Sensar® and the AcrySof®Natural IOLs. The AcrySof®IQ showed better results in 3cpd spatial frequency in mesopic condition using FACT-Optec 6500($p=0.008$), although there were no statistical differences in photopic and mesopic with glare conditions. At 90 days postoperative period, mean logMar distance-corrected near visual acuities were: 0.50±0.20 in AcrySof®IQ IOL group, 0.38±0.17 in AcrySof®SN60AT group and 0.45±0.16 in Sensar® group. The AcrySof®SN60AT group showed statistically significant higher mean spherical aberration values and better distance-corrected near and intermediate visual acuity. **Conclusion**: The aspheric AcrySof®IQ induced significantly less spherical aberration then AcrySof®Natural and Sensar®. It also presented better contrast sensitivity only under mesopic conditions. The reduction of total spherical aberration after aspheric IOL implantation could worsen distance-corrected near and intermediate visual acuity.