

(X) R1 ( ) R2 ( ) R3 ( ) PG0 ( ) PG1 ( ) Estagiário ( ) Tecnólogo ( )  
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Service (sector) Cataract N° CEP

### **Higher-order aberrations of age-related cataract Federal University of São Paulo - Cataract Section**

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**PURPOSE:** To measure and quantify higher-order aberrations induced by different lenticular opacities types. **METHODS:** One hundred and thirty eyes of sixty five patients with lenticular opacities classified according to Lens Opacities Classification System III (LOCS III) underwent to complete ophthalmology exam, corneal topography (Eye Sys Corneal Analysis System: Eye Sys Technologies, Dallas, USA) and wavefront analysis for a 5.0mm pupil diameter (LADARWave® - Alcon Laboratories, Fort Worth, TX). Patients with cataracts that aberrometry could not be measured by Hartmann-Shack sensor and any coexisting ocular disease were excluded. **RESULTS:** Sixty five patients were recruited and 120 eyes assessed: 28 (23,33%) eyes had predominantly nuclear opacification (NO1NC1-NO6NC6 and C1-2), and 13 (10,83%) had mainly cortical opacification (C1-5 and NO1NC1-NO2NC2). Seventy-nine eyes (65,83%) had a mixed pattern of LOCS classification, being difficult to establish a correlation between the aberrometry and cataract type. In eyes with predominantly nuclear opacification, the analysis of aberrometry data revealed mean spherical aberration values of  $0,30\pm 0,15\mu\text{m}$  and mean coma values of  $0,26\pm 0,09\mu\text{m}$ . Eyes with predominantly cortical cataract showed mean spherical aberration values of  $0,02\pm 0,21\mu\text{m}$  and mean coma values of  $0,47\pm 0,23\mu\text{m}$ . Three months postoperative, high order aberrations were measured and there were an agreement between astigmatism before and postoperatively in 40,83% (49 eyes), trefoil 9 and tetrafoil 10 in 35% (42 eyes). Eight eyes were excluded because presented dense posterior subcapsular cataract (P4-5) as well as two eyes with cortical C5 LOCS III classification. It was also observed that some posterior subcapsular cataract (P2-3) had negative spherical aberration and it was possible to get aberrometry measurement in all cases of nuclear cataract (NO1NC1- NO5NC5). **CONCLUSION:** Different types of early lenticular opacities induced different wavefront aberration profiles. Predominantly cortical opacification produced an increase in coma and nuclear opacification induced an increase in spherical aberration.