

Brief Report

Comparison of Short-term Posterior Capsule Opacification Rates between Single-piece and Three-piece Hydrophobic Acrylic Intraocular Lenses

In a fellow-eye-controlled trial, we compared the posterior capsule opacification (PCO) rates of single-piece (SA60AT) and three-piece (MA60AC) hydrophobic acrylic intraocular lenses (IOL) in 54 pair-matched eyes of 27 age-related cataract patients who consecutively underwent bilateral (4-8 weeks apart) phacoemulsification; horizontal chopping performed through a capsulorrhexis of approximately 5-5.5 mm in diameter followed by in the bag fixation of the IOL. PCO grading was done according to Evaluation of Posterior Capsule Opacification (EPCO) system¹ by two independent observers.

At last follow up (mean: 6 months), 42.5, 42.5, 13, and 2% of the eyes had a PCO scores of 0, 1, 2, and 3, respectively and eyes with a single-piece IOL were tended to have higher PCO grades (odds ratio for a PCO grade of 1 or more: 2.9; $P=0.08$). PCO showed significant progression during the follow up ($P<0.004$). Last follow up means of best-corrected visual acuity (BCVA) were comparable ($P=0.857$). Despite significant progression of PCO, mean BCVA of month one and last follow ups were also comparable ($P=0.859$). Mean follow up for the two groups of eyes was comparable ($P=0.396$).

Wallin et al² demonstrated that there was a significantly more severe PCO with the SA30AL single-piece compared with the MA30BA three-piece IOL with two years of follow up. Sacu et al³ reported that the single-piece (SA30AL and SA60AT) IOLs showed slightly more severe PCO than the three-piece (MA30BA and MA60BA) IOLs at one year postoperatively. However, two years postoperatively PCO intensity was comparable.³ In a recent study, Nejima et al⁴ failed to show a significant difference in the degree of PCO between the IOL types evaluated in the current study at one year. In another study,⁵ they found no significant difference between SA30AL and MA30BA IOLs PCO severity at one year postoperatively. Bender et al⁶ also observed a similar percentage area of PCO for SA30AL single-piece and MA30BA three-piece IOLs at six months and one year postoperatively.

In conclusion, single-piece hydrophobic acrylic IOLs may be associated by a higher PCO rates than the three-piece counterpart in short term but the difference is not of a remarkable clinical significance. Long term PCO rates seem comparable.

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