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) system 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 al 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 al 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. In a recent study, Nejima et al 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, they found no significant difference between SA30AL and MA30BA IOLs PCO severity at one year postoperatively. Bender et al 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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References


