Capsular Bag Stability and Posterior Capsule Opacification

Hydrophobic glistening free acrylic material enhances excellent outcomes combined with double C-loop haptics platform. *Cheryl Guttman Krader reports*

Findings after two years of follow-up in a contralateral eye-controlled clinical trial comparing two single-piece (double C-loop), aspheric, acrylic IOLs differing only in material demonstrate slight differences in rotational stability and posterior capsule opacification (PCO) favoring an IOL constructed of a glistening-free (G-free®) hydrophobic acrylic (PodEye, PhysIOL) over the hydrophilic acrylic IOL comparator (Pod AY, PhysIOL).

Overall, however, the results show that the symmetrical, double C-loop haptics design shared by the two implants provides excellent capsular bag stability and is associated with a low amount of posterior capsule opacification (PCO), said Oliver Findl, MD during the XXXIV Congress of the ESCRS in Copenhagen, Denmark.

"To my knowledge this is the first clinical trial to isolate the effect of IOL material on capsular bag performance and PCO inhibition," stated Dr Findl, Chief, Department of Ophthalmology, Hanusch Hospital, Vienna, Austria.

Providing perspective on the findings, he said, "IOL centration, stability within the capsular bag, and the avoidance of PCO are all critical for achieving good visual quality after cataract surgery and especially with aspheric, toric, and multifocal optics.

For every 3° of rotational misalignment, the efficacy of toric IOL correction is reduced by 10%.

Today, PCO remains the most common long-term 'adverse event' after cataract surgery, and it tends to be higher with plate haptics than with an open loop design."

G-free® material patented by PhysIOL

Hydrophobic IOL with glistenings

CLINICAL COMPARISON

Dr Findl conducted the prospective single-centre study that included 14 patients scheduled for bilateral cataract surgery. Implantation of the two IOLs was determined by randomisation. Follow-up examinations were conducted at 1 hour, 1 week, 3 months, 1 year, and 2 years after surgery and included measurements to determine rotation, decentration, and tilt. PCO was quantified at 1 and 2 years using dedicated software to analyse retroillumination images.

Mean±standard deviation (SD) rotation between 1 hour and 3 months after surgery was minimal with both IOLs, but significantly less with the G-free® hydrophobic IOL compared with the hydrophilic lens (1.6±1.61° vs 2.4±1.85°; P=0.016). Similarly, there was very little rotation of either IOL between 1 and 2 years, and while it was less with the G-free® hydrophobic IOL than with the hydrophilic IOL, the difference did not achieve statistical significance (1.8±1.0° vs 2.3±1.3°; P=0.09).

PodEye (Combination of Double C-loop platform and G-free® material)

"Typically, most IOL rotation happens within the first 3 months after surgery. The 2.4° of rotation with the hydrophilic IOL is similar to what is seen with other lenses on the market, while the amount of rotation of the G-free® hydrophobic IOL, both early after surgery and during the second year of follow-up, is significantly lower with 1.6°," Dr Findl said.

He added, "One might expect a tendency for more rotation in very myopic eyes with larger capsular bags. We found no correlation between axial length and amount of rotation for either IOL, although because there were very few myopic eyes, it is not possible to reach any conclusions."

Analyses of data collected at 1 year after surgery with a Purkinje meter showed identical, minimal decentration with both IOLs (mean±SD, 0.30±0.16 mm). The hydrophilic and G-free® hydrophobic IOLs also displayed similarly low amounts of horizontal tilt (2.3±1.7° and 2.1±1.7°, respectively) and vertical tilt (2.9±1.6° and 2.5±1.85°, respectively).

PCO "ACQUA" scores, graded on a scale of 0 (none) to 10 (maximum), were very low for both the hydrophilic and G-free® hydrophobic IOLs at 1 year (1.2±2.1 and 0.8±1.9, respectively) and 2 years (2.5±2.6 and 2.2±2.1, respectively). Although the results were numerically better for the G-free® hydrophobic IOL at both visits, neither difference was statistically significant.

"Obviously, this is still early follow-up for PCO, but the data slightly favor the G-free® hydrophobic material," Dr Findl said.

Double C-loop haptics design provides excellent capsular bag stability associated with a low amount of PCO

Oliver Findl MD