Problems With Different Meanings and Types of Refractive Lens Exchange

We read the article by Schallhorn et al. in the November 2017 issue with interest, but we believe that some issues should be clarified. In this retrospective study, the authors compared the outcomes of monovision LASIK and presbyopia-correcting intraocular lenses (IOLs).

Patients between 45 and 60 years of age with preoperative manifest sphere between -10.00 and +3.00 diopters sphere were included in the study. They underwent bilateral LASIK or lens surgery with the Tecnis Symfony IOL (Johnson & Johnson Vision Care, Inc., Santa Ana, CA) in at least one eye, and the term refractive lens exchange (RLE) was used at several points. However, the definition of RLE covers surgery with transparency and softness of the crystalline lens, absence of cataract, and abnormal ocular anatomy associated with high refractive error, which in this particular case is the indication for RLE. Presbyopia and spectacle independence may also constitute an important indication for RLE, and presbyopic lens exchange (PRELEX) aims solely to correct the loss of accommodation. Distinguishing between RLE and PRELEX is critical because patients who have PRELEX are more demanding and have excellent corrected distance visual acuity and often good uncorrected distance visual acuity. With that, offering RLE to emmetropic patients is a contentious clinical decision, especially when postoperative halo and glare are concerns.

Another issue is the possibility of vision-threatening complications of RLE, of which retinal detachment is the most common in myopic eyes, presenting an incidence of between 1.5% and 8.1%. Even refractive surgery itself may induce some increase in the occurrence of such pathology. During lens surgery, a transient decrease in intraocular pressure (decompression effect) can cause changes in the vitreous body, especially if vitreous degenerations already exist. Intraoperatively, minimal disturbance of the intraocular environment is of great importance. Thus, it would be relevant to know whether any retinal pathologies were found in the preoperative examination and how they were managed. What was the incidence of intraoperative capsular tear with vitreous loss during RLE, because it significantly increases the risk for retinal detachment? With that, we believe that a 3-month follow-up period might be insufficient to fully confirm the safety and outcomes of these methods.

The authors state that this is the largest study comparing outcomes of monovision LASIK and RLE, presenting results separately among different refractive categories. All myopic patients with RLE experienced more postoperative visual phenomena and had worse near visual acuity than patients with monovision LASIK. It was concluded that monovision LASIK might be a better option in this population. A scrupulous analysis of Table B reveals that patients with RLE in all refractive groups had an increase in glare or halos postoperatively. With that, a pronounced rate of plano presbyopes had an increase in dysphotopsias in both monovision LASIK and RLE, which was not statistically different. It should be underscored that several optical principles might be applied to achieve multifocality in IOLs—diffractive and/or refractive design, bifocality and trifocality, bioanalogic IOLs, and small aperture design. In the presented study, only one type of multifocal IOL was implanted, the Tecnis Symfony IOL. Thus, the results refer to this particular lens, and not RLE in general.

REFERENCES

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Reply

We read with interest the comments of Drs. Grzybowski and Kanclerz related to our article “Monovision LASIK Versus Presbyopia-Correcting IOLs: Comparison of Clinical and Patient-Reported Outcomes” and understand their concerns about terminology and performing refractive lens exchange (RLE) or presbyopic lens exchange in patients with plano presbyopia or high myopia.
RLE is a more general and widely used term that refers to an exchange of a crystalline lens in the absence of cataract with the aim of reducing dependence on spectacles/contact lenses. Presbyopic lens exchange (PRELEX) is more specific, and can be useful to describe procedures that aim to restore presbyopia. Using PRELEX in the article may have been more descriptive in a subgroup of the study, namely emmetropic patients who have no treatable refractive error, but the term RLE was chosen because it was more encompassing of our entire study population where the aim was to reduce dependence on distance-correcting and/or near-correcting optical aids.

We previously highlighted issues of implanting presbyopia-correcting IOLs in emmetropic patients. This is a challenging population who may have lower satisfaction rates with any type of surgical procedure (corneal or intraocular) due to higher visual demands and expectations. However, the safety profile of lens exchange procedures has improved significantly over the years, and it is becoming more acceptable to perform intraocular procedures in emmetropic patients. Nevertheless, these patients need to understand the possible outcomes, including visual phenomena, and our study could help in this preoperative counselling. We treat one eye at a time, generally the non-dominant eye first, and patients can postpone their second eye surgery for as long as necessary should significant side effects be present in the first eye.

Performing RLE in patients with high myopia is another concern. We take special precautions in these patients to minimize the risk of retinal detachment. RLE for high myopia in our clinics is only performed in patients with completed posterior vitreous detachment. When treating patients younger than 50 years, we require the opinion of a vitreoretinal specialist prior to proceeding with surgery. In the group of patients presented in this study, we had no intraoperative complications that could increase the risk of retinal detachment. We understand that the presented follow-up time is insufficient to thoroughly evaluate the possibility of developing this sight-threatening complication. However, RLE outcomes and adverse events are carefully monitored in our practice and the current incidence of retinal detachment following RLE for the last available follow-up was 1:6,230. Interestingly, most of these have occurred in patients with hyperopia or low to moderate myopia, rather than patients with high myopia.

Finally, we admit that using only one type of IOL (Tecnis Symfony; Johnson & Johnson Vision Care, Inc., Santa Ana, CA) is a limitation of our study. However, it would be out of the scope of one study to present comparisons of different IOL types. It would be interesting to compare monovision LASIK to various other types of multifocal IOLs, and this could be considered in future studies.

REFERENCES

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