Getting Started Mixing Presbyopia-Correcting IOLs

Tips based on experience.

BY JOHN F. DOANE, MD

Time and again, necessity is the mother of invention. In medical care and surgery, necessity allows physicians to utilize the sacred privilege, the Practice of Medicine Act,[1] to achieve the best outcome for a given patient. One of ophthalmology's current arenas for the invocation of this act is the implantation of presbyopia-correcting IOLs. Every surgeon knows that, although data from the FDA clinical trials for a given therapy establish a baseline level of safety and efficacy, the widespread postapproval usage by rank-and-file physicians is the ultimate barometer by which a therapy's real-world safety and efficacy are determined.

I have had the honor of being involved in the FDA clinical trials for the Crystalens accommodating IOL (Eyeonics, Inc., Aliso Viejo, CA) since the year 2000. In that capacity, I have gained a tremendous amount of first-hand experience with and knowledge of the phenomenon of accommodation, its measurement, its loss due to presbyopia, and its treatment and potential inhibition with man-made intraocular devices. I have been so astounded by the postoperative results achieved with the Crystalens that I have recommended its implantation to family members, friends, and patients alike. This article describes my explorations into the mixing of the Crystalens with the AcrySof Restor diffractive multifocal IOL (Alcon Laboratories, Inc., Fort Worth, TX). I am certain many readers will relate to my initial feelings and experiences.

MY INTRODUCTION TO MIXING IOLs

My first experiences mixing presbyopia-correcting IOLs occurred in the setting of a five-site, controlled clinical study involving four other surgeons (James Davies, MD, of Carlsbad, California; James C. Loden, MD, of Nashville, Tennessee; Jay Pepose, MD, PhD, of St. Louis, Missouri; and Varunan Sivalingam, MD, of Medford, New Jersey). In this study, sponsored by Eyeonics, Inc., we investigators evaluated five different bilateral IOL scenarios: group 1, bilateral AcrySof Restor IOLs; group 2, bilateral ReZoom IOLs (Advanced Medical Optics, Inc., Santa Ana, CA); group 3, bilateral Crystalens IOLs; group 4, a Crystalens in one eye and an AcrySof Restor lens in the other; and group 5, a Crystalens in one eye and a ReZoom lens in the other (see Dr. Pepose's review of this study's data on page 65). I felt I could translate this experience into my clinical practice.

REAL-WORLD EXPERIENCE

Although my experience with bilaterally implanting the Crystalens has generally been excellent, some of my patients were less than pleased with their overall visual function despite my careful counseling. They were very happy with their distance and intermediate vision but were hoping for better near vision. Despite waiting 1 to 2 years in most cases to see if they would adapt, these patients eventually concluded that they did not achieve the outcome for which they had hoped: nearly complete independence from spectacles for distant, inter-

mediate, and near focal points. After my experience in the Eyeonics study, I believed that the best solution would be to implant an AcrySof Restor IOL in these patients' nondominant eyes and to leave the Crystalens in their dominant eyes. My experience in the trial gave me confidence in this approach that I otherwise would not have had. Earlier, I was concerned about splitting light with a multifocal IOL, the induction of halos, and the loss of contrast sensitivity in scotopic environments.

My experience also led to my decision to leave the Crystalens in patients' dominant eyes and to implant the AcrySof Restor lens in their nondominant eyes. My rationale was that any perception of halos would be less bothersome in a person's nondominant eye. Furthermore, I felt these patients would be happiest if their dominant eyes had the best quality and quantity of distance vision.

As for all presbyopia-correcting IOLs, I believe that it is necessary to reduce patients' corneal astigmatism to less than 0.50 D. If they have less than 2.50 D of corneal astigmatism preoperatively, I will perform concurrent limbal relaxing incisions at the time of the lens' extraction and the IOL's placement. For more than 2.50 D of preexisting corneal astigmatism, I plan a two-staged procedure; I place the IOL first and perform laser vision correction at a later date. After the appropriate IOL's placement, my patients have mixed astigmatism with a spherical equivalent near plano. My desire is for the spherical equivalent after the IOL's implantation but before laser vision correction to be slightly myopic (-0.50 to -1.00 D), which I believe is easier to treat with an excimer laser than a hyperopic spherical equivalent.

Approximately 20% of the eyes I treat require some form of laser vision correction to achieve the optimal result from presbyopia-correcting IOLs. The vast majority of these ablations are for minor refractive errors, but they make a significant difference in patients' degree of satisfaction.

PATIENT SELECTION

At present, my colleagues and I at Discover Vision Centers in Kansas City, Missouri, decide on a per-case basis whether to implant the Crystalens IOL bilaterally or to combine this IOL with an AcrySof Restor lens. I do not implant the AcrySof Restor IOL bilaterally, because I do not find that this approach provides recipients with adequate intermediate function. My colleagues and my stance is that a patient who wants the highest quality of vision and does not mind occasionally wearing low-powered spectacles receives the Crystalens bilaterally. If a patient never wishes to wear spectacles and would be significantly disappointed if they were necessary, we consider mixing the two lenses.

For the AcrySof Restor/Crystalens patients, we have found it is necessary to discuss two issues specific to the AcrySof Restor lens preoperatively. We had originally thought halos would be a significant issue for eyes that received this IOL. Although some patients notice the phenomenon, the incidence is far less than I anticipated. Another complaint was unanticipated yet significant—that of waxy vision, which we have attributed to an alteration in contrast sensitivity by the diffractive optic. I explain to patients the benefits and drawbacks of the AcrySof Restor lens. They will have a high likelihood of being able to read even the smallest print, but they must be willing to risk the possibilities of seeing halos with or having waxy vision in that eye. This dysphotopsia is symptomatic in approximately 10% of patients in our experience, and it tends to lessen with time. Thanks to a thorough informed consent process, I have not yet had to explant an AcrySof Restor IOL for dysphotopsia.

Of course, I also explain the advantages and disadvantages of the Crystalens accommodating IOL to patients in depth. I tell them that their quality of vision with this lens will be excellent but that total independence from spectacles, although common among my patients, is not guaranteed.

CONCLUSION

My colleagues and I have had success with the combination of the AcrySof Restor lens and the Crystalens. I believe we and other surgeons will continue to mix presbyopia-correcting IOLs until we can achieve unaided near vision at J1 and a nearly emmetropic refractive error with a new generation of bilaterally implanted accommodating IOLs. Until then, the combination of a multifocal and an accommodating IOL will be an acceptable approach to pleasing the minority of patients who perceive the postoperative use of spectacles for any focal point as a failure. ■

John F. Doane, MD, is in private practice with Discover Vision Centers and is Clinical Assistant Professor for the Department of Ophthalmology, Kansas University Medical Center, Kansas City. Dr. Doane is a paid consultant to, owns stock in, and has been paid for research overhead by Eyeonics, Inc. He has also owned stock in Alcon Laboratories, Inc., during the past 12 months, and he has been paid for research overhead by Advanced Medical Optics, Inc., and Carl Zeiss Meditec, Inc. Dr. Doane may be reached at (816) 478-1230; jdoane@discovervision.com.

1. Section 906. [21 U.S.C. 396] Practice of Medicine. Available at http://www.fda.gov/opacom/laws/fdcact/fdcact9.htm. Accessed July 10, 2007.