

Presbyopia-Correcting IOLs

Optimizing vision with laser enhancements.

BY JOHN F. DOANE, MD, FACS

I recently completed an industry-required presbyopia-correcting IOL course, and I am now preparing to enter this market.

Presbyopia-correcting IOLs are a fantastic advance and a great way to augment one's practice by pursuing out-of-pocket, free-market elective services. The aforementioned is the easy part of the process. Presbyopic IOLs require extreme precision, as they are definitively a refractive procedure to resolve ametropia and presbyopia. As a refractive procedure, presbyopia-correcting IOLs come with all the wonders of the refractive surgical market (improving or reversing Mother Nature) but also all of its baggage (extremely high patient expectations and demanding personality types who pay out of pocket).

In my estimation, presbyopia-correcting IOLs require eight times the precision of standard IOLs and four times the accuracy of typical laser vision correction. The industry criterion for standard IOL surgery is postoperative vision within $\pm 1.00D$ from the target or a 2.00D range. If patients are dissatisfied, they are sent to the optical shop, as a backdoor solution. The laser vision correction industry standard is $\pm 0.50D$ from the target or a 1.00D range. Patients under age 40 who have both eyes targeted for distance tend to function quite well after laser vision correction if they fall within $\pm 0.50D$. Beyond this range, patients typically complain of asthenopia.

For presbyopia-correcting IOLs, in my opinion, the surgeon has to be within $\pm 0.25D$ of the target. Unfor-

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tunately, this is not a 0.50D range. It has been documented via the Eyeonics IOL Registry (administered by Surgivision Consultants, Inc. [Scottsdale, AZ]) that the Crystalens (Eyeonics Inc., Aliso Viejo, CA) works best slightly myopic, and any amount of hyperopia can take away from visual function at near. Similarly, the Acrysof Restor IOL (Alcon Laboratories, Inc., Fort Worth, TX) functions better at plano to a small amount of hyperopia. Hence, the best ranges for these two IOLs are 0.25D on either the myopic or hyperopic side of ametropia, respectively.

ISSUES

There are three salient points regarding laser enhancement after the implantation of presbyopia-correcting IOLs that I will review: (1) frequency; (2) proper candidates; and (3) the technique for an enhancement.

ENHANCEMENTS

How frequently is a laser vision enhancement of a presbyopia-correcting IOL necessary—5%, 10%, 15%, 25%, or 40%? At the 2005 AAO meeting, renowned surgeon Richard Mackool, MD, of Astoria, New York, stat-

ed that his excimer laser enhancement rates were approximately 20% with the Acrysof Restor IOL.¹ My guess is that these rates would be typical for a good surgeon with any of the presbyopia-correcting IOLs currently on the market. The best case scenario would probably be a 5% to 10% rate. How can you predict what your rate will be? A quick guess is to look at what percentage of your current IOL patients are beyond $\pm 0.50D$ from the target. These patients will likely have a higher rate of complaints due to their uncorrected refractive error.

CANDIDATES FOR ENHANCEMENT

Laser enhancements come in two forms—planned and unplanned. Candidates for planned laser enhancements include patients with large amounts of astigmatism (greater than 3.00D) that may not be amenable to incisional keratotomy. Planned enhancements are also appropriate in patients with high degrees of ametropia that require a bioptic technique because the IOL is not available in the exact power required for achieving emmetropia.

PLANNED ENHANCEMENT PROCEDURE

There are two ways to handle patients who require a presbyopic IOL and planned laser vision correction (LASIK or surface ablation). The first approach would be to insert a presbyopia-correcting IOL followed by laser vision correction. I prefer to wait 4 weeks after the IOL's implantation before performing PRK and 10 weeks after the IOL's implantation before performing LASIK. If the surgeon wants to decrease the time interval for patients undergoing LASIK, it is possible to create the flaps first, followed by the IOL's placement, and then to lift the flap and perform laser ablation 28 days later. This process saves the patient approximately 6 weeks of ametropia. During the interim between the IOL's placement and the correction of the residual refractive error, the surgeon should make the patient's vision functional for work and the activities of daily living with either contact lenses or spectacles.

UNPLANNED ENHANCEMENT PROCEDURE

For an unplanned refractive enhancement, the timing is similar to the planned process. I wait 4 weeks after the IOL's implantation to perform PRK and 10 weeks after the IOL's implantation to perform LASIK. I am aware of other surgeons who perform LASIK at 4 weeks, so this timing could be considered. One question that is often asked is, "Should I perform a customized or standard ablation?" I believe this decision can be made on a case-by-case basis, but I routinely opt for standard abla-

tion. An important consideration before performing the enhancement surgery is what to do with the intact posterior capsule. I prefer to open the capsule, because I have seen refractive changes occur that have obviated the need for the refractive enhancement procedure altogether.

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INEXPERIENCE

One business question worth answering is, "If I am not a laser jockey, what do I do?" You either have to become one or partner with one. Currently, presbyopia-correcting IOLs are married to laser vision correction enhancement, and this fact should be presented during the patient's consent process. Likewise, with proper preoperative education, laser vision correction enhancement can result in a happy experience for the patient. Our goal going forward is to minimize secondary surgeries. Striving for the most accurate biometry and keratometry preoperatively and creating increasingly predictable IOL selection formulae by knowing the final effective lens position will help us reach this goal.

CONCLUSION

In summary, presbyopia-correcting IOLs can be an amazing addition to your practice, but they are not without labor. The process from education to surgery to satisfaction will require your best efforts. In the end, however, you and your team will be rewarded with happy patients who will refer their friends and family. ■

John F. Doane, MD, FACS, is in private practice with Discover Vision Centers in Kansas City, Missouri, and is Clinical Assistant Professor for the Department of Ophthalmology, Kansas University Medical Center. He is on the Speaker's Bureau and is an investigator for Eyeonics, Inc.; owns stock in Alcon Laboratories, Inc., and Eyeonics, Inc.; and is paid for research overhead by Revision Optics, Inc., Eyeonics, Inc., Advanced Medical Optics, Inc., and Carl Zeiss Meditec Inc. Dr. Doane may be reached at (816) 478-1230; jdoane@discovervision.com.



1. Waltz KL, Dick B, Doane, J, et al. Presbyopia treatment by IOLs at the time of cataract surgery. Presented at: The Instruction Course Program of The AAO Annual Meeting 2005; October 16, 2005; Chicago, IL.