Uncompromised Distance Vision + Intraoperative Aberrometry = Home Run

Excellent distance vision is important to presbyopic patients, and these technologies deliver

BY TONY A. WEAVER, MD

Dr. Weaver practices with Eye Associates of Tallahassee in Florida, where he specializes in refractive cataract surgery with premium implants. He's also a clinical professor for the Florida State University School of Medicine and Tallahassee Memorial Hospital Family Medicine and Internal Medicine program. Dr. Weaver is a paid consultant to Alcon.

Having been the first doctor in Tallahassee to implant a ReSTOR® multifocal IOL (Alcon) many years ago, I've accumulated much experience working with this lens platform. All of the ReSTOR® IOLs, which share the same proven material, mechanics, and optics, are designed to provide presbyopic patients with a range of vision. Most recently, I was the first surgeon in my area to implant the AcrySof® IQ ReSTOR® +2.5D multifocal IOL with the ACTIVEFOCUS™ optical design, and this lens has been one of the two best things to happen for my practice in quite some time.

The ACTIVEFOCUS™ lens design dedicates the center optic to distance vision. It allocates more light than other diffractive presbyopia-correcting lenses to the distance focal point at most pupil sizes, especially in mesopic conditions. The result is excellent, sharp distance vision, the same quality contrast sensitivity as the AcrySof® IQ Monofocal IOL, and near (40 cm) and intermediate (53 cm) vision two lines better than the monofocal.[1] With fewer defractive zones than other ReSTOR® models, the ACTIVEFOCUS™ design offers better nighttime vision and improved computer-distance focusing as well. It truly creates a "wow" factor for my patients. Importantly, I have yet to have a patient complain of any halos or "rings."

The Importance of Intraoperative Aberrometry

I mentioned that the ACTIVEFOCUS™ design has been one of the two best things to happen for my refractive cataract surgery practice in quite some time. The other very welcome advance has been my use of intraoperative aberrometry. The ORA SYSTEM® with VerifEye+™ Technology (Alcon) allows me to refine IOL power in real time. It has not only reduced my IOL exchange rate to zero but also has enabled me to achieve 20/20 distance visual acuity in every eye where it's possible without fail. Patients pay more for presbyopia-correcting lenses and outcomes, making it imperative that I deliver this level of results.

I enter the OR for each case with my preoperative lens calculations as I have always done, but when the patient is aphakic, I measure the eye with the ORA SYSTEM®. In all but the occasional case, I implant whichever IOL power the system recommends for achieving plano. It's actually intraoperative aberrometry that gives me the confidence to aim for plano. With traditional mathematical IOL calculations, the standard deviation is an issue. Once a surgeon performs a certain number of procedures, some patients inevitably will be overcorrected and some will be undercorrected. A typical fix for this has been to intentionally shift the IOL power toward slight myopia to avoid a hyperopic surprise. Unfortunately, the effect of the fix is not allowing everybody to achieve perfect plano. The ORA SYSTEM®, on the other hand, allows just that. It makes IOL power choice specific to the individual patient, without using formula math, and the results are outstanding.

The ORA SYSTEM® (Figure 1) also allows fine-tuning of cylinder power and IOL alignment in real time, which means it's also an important tool when I'm implanting the AcrySof® IQ ReSTOR® Multifocal Toric IOL. The potential to change the planned IOLs does create a need to have multiple lens options at hand. This can detract from efficiency, in particular if ASC policy dictates, as ours does, that only one lens at a time can be in the OR. Our solution was to move our IOL stock into cabinets as close to the OR as possible.

Nuances in My Approach to Patient Selection and Education

Another advantage of the ACTIVEFOCUS™ design is a somewhat simplified patient selection and education process. Given my lack of concern about potential postoperative distance vision issues, fewer patients are eliminated as candidates for a presbyopia-correcting lens. I'm still cautious about recommending a lens in this category for patients with a Type-A

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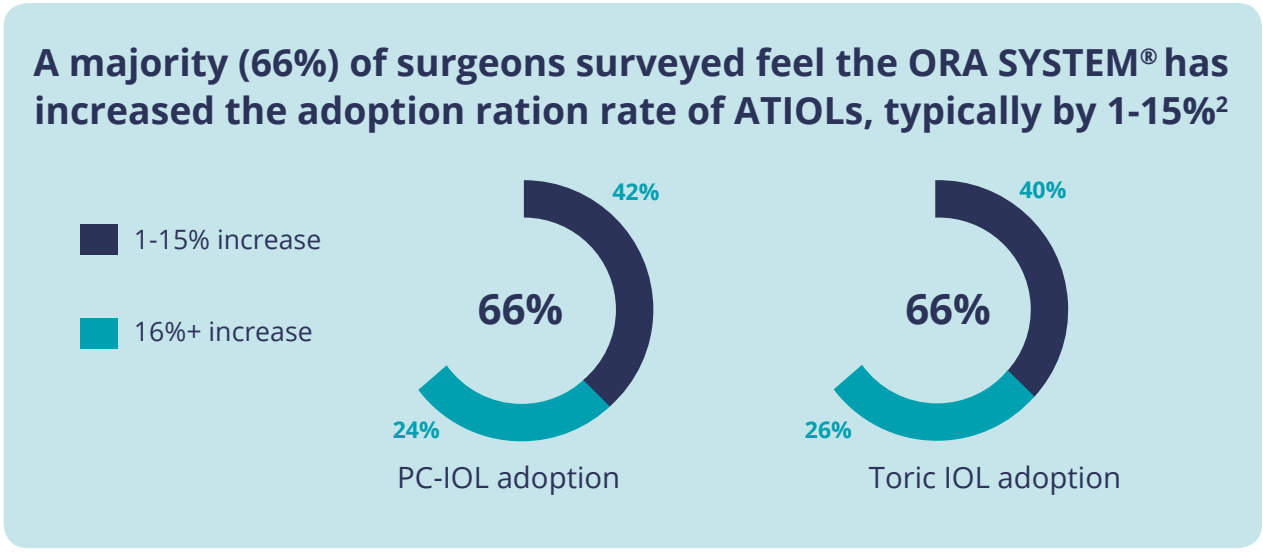

Figure 1. 2017 Alcon survey of 150 opthalmic surgeons who utilitzed the ORA SYSTEM® within the previous 12 months.[2]

personality, but I have used the ReSTOR® +2.5D IOL with ACTIVEFOCUS™ design in several because they were highly motivated to obtain a range of vision and they fully accepted the risks. In addition, while I wouldn't fault another surgeon for using the ReSTOR® +2.5D IOL with ACTIVEFOCUS™ design in a patient who makes his or her living flying a plane or driving a truck — the outcomes have been that good — my personal philosophy is to err on the side of caution. I say to these patients, "Why would you put your livelihood at risk, regardless of how low that risk might be?" I have, however, used the lens in patients for whom driving at night is important but not their source of income.

I also ensure that patients understand that the ACTIVEFOCUS™ design doesn't specifically provide the best extremely near vision, such as what's needed to read a medicine bottle label. While it offers functional near vision, much better than a monofocal, other lenses in the ReSTOR® family might be best if extremely close-up vision is the main goal. I tell them they'll have great vision at intermediate and distance with the ReSTOR® +2.5D IOL, with the lowest risk of visual disturbances, but they may need reading glasses for some near tasks. As long as they know this up front, they're very satisfied postoperatively. I take a one-eye-at-a-time approach. I implant the dominant eye with the ReSTOR® +2.5D IOL with ACTIVEFOCUS™ design and then evaluate the patient's vision postoperatively. Having this option has resulted in great outcomes in my practice.

When it comes to astigmatism, because the center optic of the AcrySof® IQ ReSTOR® +2.5D IOL with ACTIVEFOCUS™ performs like a monofocal, the lens is more forgiving than other presbyopia-correcting IOLs that include multifocality. Still, given the importance I place on achieving minimal residual astigmatism for all of my cataract surgery patients, I limit use of the AcrySof® IQ ReSTOR® +2.5D IOL to eyes with less than 1.0D of cylinder. I am certainly excited about the FDA approval of the AcrySof® IQ ReSTOR® +2.5D Multifocal Toric IOL with ACTIVEFOCUS™ optical design so I can now offer this technology to those with astigmatism.

Mix and Match or Mini-Monovision?

I estimate that I target both eyes for plano in 90% to 95% of my patients who receive bilateral ReSTOR® +2.5D IOL with the ACTIVEFOCUS™ design. As I've said, they're a very happy group of patients. However, while distance vision is usually their top priority, they often would like to have better near vision than bilateral ReSTOR® +2.5D IOLs targeted for plano can provide. I've found I can deliver this, but I accomplish it differently than most of my colleagues. Whereas most other surgeons currently prefer to implant the fellow eye with an AcrySof® IQ ReSTOR® +3.0D IOL in this scenario, I prefer to use the ReSTOR® +2.5D IOL with the ACTIVEFOCUS™ design in both eyes to create "mini-monovision." Following surgery on the first (dominant) eye, if a patient expresses a desire for more near vision, I use ReSTOR® +2.5D IOL in the second eye targeted for -0.50D. This enhances the range of near vision, with a focal point not as far out as would

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be expected with contact-lens or monofocal-IOL monovision. I prefer this mini-monovision strategy because even though the AcrySof® IQ ReSTOR® +3.0D IOL is a very good lens, I want to do everything I can to lessen the occurrence of a patient experiencing excessive halos or nighttime glare.

A Winning Combination of Technologies

Overall, I find the ACTIVEFOCUS™ design to be "just what the patient ordered." It's a presbyopia-correcting lens that appeals to the large number of patients who want more usable near vision than a monofocal can provide but also want terrific intermediate and distance vision to support an active lifestyle. Patient reactions to this lens resemble the reactions of my LASIK patients: glowingly happy and hugging my neck post-op day 1. And it's worth repeating that intraoperative aberrometry plays a role in producing those types of reactions time and time again.

Reference

1. AcrySof® IQ ReSTOR® +2.5D Multifocal IOL Directions for Use.

2. Alcon Data on File, (Survey 2017).

ORA SYSTEM® IMPORTANT PRODUCT INFORMATION

CAUTION: Federal (USA) law restricts this device to the sale by or on the order of a physician.

INDICATIONS: Federal (USA) law restricts this device to sale by, or on the order of, a physician.

INTENDED USE: The ORA SYSTEM® uses wavefront aberrometry data in the measurement and analysis of the refractive power of the eye (i.e. sphere, cylinder, and axis measurements) to support cataract surgical procedures.

CONTRAINDICATIONS: There are no known contraindications for this device.

WARNINGS AND PRECAUTIONS: The following conditions may make it difficult to obtain accurate readings using the ORA SYSTEM® • Patients having progressive retinal pathology such as diabetic retinopathy, macular degeneration, or any other pathology that the physician deems would interfere with patient fixation;

- Patients having corneal pathology such as Fuchs', EBMD, keratoconus, advanced pterygium impairing the cornea, or any other pathology that the physician deems would interfere with the measurement process;
- Patients for which the preoperative regimen includes residual viscous substances left on the corneal surface such as lidocaine gel or viscoelastics;
- Visually significant media opacity, such as prominent floaters or asteroid hyalosis, will either limit or prohibit the measurement process; or
- Patients having received retro or peribulbar block or any other treatment that impairs their ability to visualize the fixation light.
- Use of iris hooks during an ORA SYSTEM® image capture will yield inaccurate measurements.

In addition:

- Significant central corneal irregularities resulting in higher order aberrations might yield inaccurate refractive measurements.
- Post refractive keratectomy eyes might yield inaccurate refractive measurement.
- The safety and effectiveness of using the data from the ORA SYSTEM ® have not been established for determining treatments involving higher order aberrations of the eye such as coma and spherical aberrations.
- The ORA SYSTEM® is intended for use by qualified health personnel only.
- Improper use of this device may result in exposure to dangerous voltage or hazardous laser-like radiation exposure. Do not operate the ORA SYSTEM® in the presence of flammable anesthetics or volatile solvents such as alcohol or benzene, or in locations that present an explosion hazard.

ATTENTION: Refer to the ORA SYSTEM® Operator's Manual for a complete description of proper use and maintenance, as well as a complete list of contraindications, warnings and precautions.

ACRYSOF® IQ RESTOR® FAMILY OF MULTIFOCAL IOLS IMPORTANT PRODUCT INFORMATION

CAUTION: Federal (USA) law restricts this device to the sale by or on the order of a physician.

INDICATIONS: The AcrySof® IQ ReSTOR® Posterior Chamber Intraocular Multifocal IOLs include AcrySof® IQ ReSTOR® and AcrySof® ReSTOR® Toric and are intended for primary implantation for the visual correction of aphakia secondary to removal of a cataractous lens in adult patients with and without presbyopia, who desire near, intermediate and distance vision with increased spectacle independence. In addition, the AcrySof® IQ ReSTOR® Toric IOL is intended to correct pre-existing astigmatism. The lenses are intended to be placed in the capsular bag.

WARNINGS AND PRECAUTIONS: Careful preoperative evaluation and sound clinical judgment should be used by the surgeon to decide the risk/benefit ratio before implanting a lens in a patient with any of the conditions described in the Directions for Use labeling for each IOL. Physicians should target emmetropia, and ensure that IOL centration is achieved. Care should be taken to remove viscoelastic from the eye at the close of surgery. The ReSTOR® Toric IOL should not be implanted if the posterior capsule is ruptured, if the zonules are damaged, or if a primary posterior capsulotomy is planned. Rotation can reduce astigmatic correction; if necessary lens repositioning should occur as early as possible prior to lens encapsulation. Some patients may experience visual disturbances and/or discomfort due to multifocality, especially under dim light conditions. A reduction in contrast sensitivity may occur in low light conditions. Visual symptoms may be significant enough that the patient will request explant of the multifocal IOL. Spectacle independence rates vary; some patients may need glasses when reading small print or looking at small objects. Posterior capsule opacification (PCO), when present, may develop earlier into clinically significant PCO with multifocal IOLs. Prior to surgery, physicians should provide prospective patients with a copy of the Patient Information Brochure available from Alcon informing them of possible risks and benefits associated with the AcrySof® IQ ReSTOR® IOLs. Do not resterilize; do not store over 45° C; use only sterile irrigating solutions such as BSS® or BSS PLUS® Sterile Intraocular Irrigating Solutions.

ATTENTION: Reference the Directions for Use labeling for each IOL for a complete listing of indications, warnings and precautions.

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