Premium intraocular lenses

Premium intraocular lenses (IOLs) are the big news in surgical refractive correction today, according to Paul Karpecki, O.D., chair of the American Optometric Association (AOA) Contact Lens and Cornea Section's Refractive Surgery Project Team. Premium IOLs were developed a decade ago to help replace some of the accommodative ability lost by cataract patients with the removal of their crystalline lenses. They have since proven "very successful" from a clinical standpoint, Dr. Karpecki says. However, they have not achieved the market acceptance that manufacturers initially anticipated, he acknowledges. The IOLs may offer older adults the highly attractive prospect of freedom from bifocals, but patient dissatisfaction with visual side effects—notably, nighttime glare in the early versions of the technology—has limited enthusiasm for the devices among both patients and practitioners.

Premium intraocular lenses (IOLs) are coming of age as a vision corrective measure for cataract patients—and presbyopes, proponents say. However, patient counseling by optometrists is critical to both bringing appropriate patients to this emerging form of correction and ensuring successful outcomes.

However, IOL design advancements over the last 5 years are providing improved vision correction (which has always been good, Dr. Karpecki notes) along with marked reductions in unwanted visual distortions. Those improved outcomes—along with new faster and safer forms of lens removal surgery—have spurred renewed interest in premium IOLs for cataract patients. It has also spawned the burgeoning field of clear lens exchange (CLE): the use of premium IOLs as a vision correction measure for noncataractous presbyopes. However, "the main problem is that 90% of patients have still never heard of premium IOLs," Dr. Karpecki says. He suggests optometrists take a more active role in counseling patients on premium IOLs.

For a variety of reasons, patients are best served when they are advised on IOLs by their optometrists before being referred to an ophthalmologist for possible surgery, Dr. Karpecki contends. As primary eye care providers, who are familiar with their patients and their needs, optometrists often are in a good position to determine whether a patient would be a good candidate for premium IOLs. Patient disposition and expectations, as well as visual demands, are proving to be critical determinants in premium IOL outcomes, Dr. Karpecki notes. Public awareness of premium IOLs is relatively low, Dr. Karpecki adds. Few patients are prepared to quickly determine whether they would like to have premium IOLs implanted, let alone what type of lens would best suit them.

Optometrists should take the time to counsel patients on how premium IOLs work as well as the pros and cons of IOL correction, Dr. Karpecki said. The optometrist must then be able to discuss the various types of premium IOLs available and how those IOLs might be used to meet the patient's visual needs. The patient can then discuss IOL options with the ophthalmologist and make informed decisions, Dr. Karpecki notes. "Traditionally, ophthalmologists have made all the decisions regarding IOL surgery. But today, a range of new IOLs can be used to correct more vision problems than ever. A surgeon has more factors to consider when choosing the IOLs that will best suit the patient. Patients, of necessity, are becoming more involved in the process. That means prospective IOL patients need to be counseled by their optometrists before being referred to the surgeon," Dr. Karpecki said.

Dr. Karpecki recommends optometrists take time to discuss premium IOLs with area ophthalmologists to whom patients may be referred. "Develop a basis for understanding IOL correction. Find out how the ophthalmologists in your area provide IOL correction for various types of patients. This will allow optometrists to familiarize patients with IOL correction, allow them time to consider such correction, and prepare them to respond when the ophthalmologist asks if they would like premium IOLs," Dr. Karpecki said.

Explaining premium IOLs

Dr. Karpecki suggests optometrists may wish to provide a fairly thorough briefing, beginning by explaining that there are 2 types of premium IOLs available in the United States:

In the second installment of its "Doctor-driven dispensing" series, the Practice Strategies section of *Optometry: Journal of the American Optometric Association* this month examines how optometrists can counsel patients on premium intraocular lenses (IOLs) and corneal reshaping. Articles on spectacles and contact lenses were included in the August Practice Strategies section. Laser refractive correction will be addressed in a future issue. Opinions expressed are those of the cited sources and do not necessarily represent those of the American Optometric Association.

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- Multifocals—which effectively incorporate corrective properties of bifocals or trifocals by allowing the patient to focus near, far, or even at midrange, depending on whether the patient is looking down or straight forward.
- Accommodating—which actually focus in somewhat the same manner as natural lenses. Ciliary body movement causes the vitreous to move, thereby causing the hinged IOL to move forward and backward.

There are 2 types of multifocal lenses available: the diffractive multifocal IOL (AcrySof® ReStor®, Alcon Laboratories, Fort Worth, Texas) and the refractive multifocal IOL (Tecnis® and ReZoom™, Abbott Medical Optics, Abbott Park, Illinois). Bausch & Lomb's Crystalens® (Rochester, New York) is the only accommodating lens now available in the United States.

Advantages and disadvantages of each type of premium IOL

The most notable advantage of any premium IOL, including multifocals, is that they help restore some of the accommodative ability lost with the removal or aging of the natural lens. In contrast to traditional monofocal lenses that focus light to only 1 point, a multifocal lens has more than 1 point of focus. Most commonly, multifocal IOLs will be bifocal, although trifocal IOLs are also available.

Glare and haloes around lighting at night are generally considered to be the most common problems associated with multifocal IOLs. About 25% of patients with multifocal IOLs (both diffractive and refractive) experience some level of glare or haloes. Those visual distortions can interfere with the patient's ability to drive comfortably at night. However, most patients find they get used to this phenomenon with time, and the glare and haloes effectively become less obvious. Glare and haloes are considered to be an inherent characteristic of multifocal lenses. However, approximately 7% to 8% of monofocal IOL patients also notice glare and haloes. And sometimes glare and haloes can be reduced by correcting residual refractive error or by treating dry eye or ocular surface diseases that may be present.

Diffractive multifocal IOLs generally provide excellent reading vision, very good distance vision, and good intermediate vision. However, patients who frequently use computers may need to sit close to the monitor, adjust the font size of displayed text, or use intermediate vision eyeglasses.

Refractive multifocal IOLs, on the other hand, provide excellent distance and intermediate vision with good near vision. However, near vision may not be sufficient to read very small print such as telephone book listings or instructions on medicine labels. Patients who read frequently or read in poor lighting may experience eye fatigue. A pair of near vision spectacles may be required.

The main advantage of accommodating IOLs is their ability to more closely approximate the focusing ability of the natural lens. They provide excellent vision at all distances—although some believe they typically do not provide the same quality of vision at closer ranges as the best multifocal IOLs. (Clinical trials of accommodating IOLs conducted for the U.S. Food and Drug Administration found 100% of patients could see at intermediate distances [24 to 30 inches] without glasses, 98.4% could see well enough to read the newspaper and the phone book without glasses, and visual acuity was restored to 20/40 or better in 88% of patients [compared with 35.9% of patients who received normal IOLs])[1] Accommodating IOLs have proven effective in reducing haloes, glare, and other visual aberrations because light comes from—and is focused on—a single focal point. They project no unwanted retinal images and produce no loss of contrast sensitivity or central system adaptation.

The main concern with accommodating IOLs is the lack of long-term, large-scale studies on their use. Complications are rare but can include capsular bag contraction and posterior capsule opacification that will require a yttrium aluminum garnet capsulotomy. Accommodating IOLs are more difficult to implant than standard IOLs and recovery time may be longer. Typically distance vision begins to stabilize at about 1 week and near vision after 2 weeks. Patients should understand that accommodative abilities will not be restored to perfect or even near-perfect function. The degree of improvement will not be the same for all patients and some will still need eyeglasses.

Many ophthalmologists now recommend a "mix and match" approach to offer patients the best features of both major types of premium IOLs. A multifocal IOL is implanted in one eye to provide good near vision for reading, while an accommodating IOL is used in the other eye for good midrange distance vision. With this approach, distance vision is not compromised while near vision is optimized. However, some patients may have trouble adjusting to the use of a different type of IOL in each eye, Dr. Karpecki said.

Patients should also be aware they have the option of toric IOLs for the correction of astigmatism. Toric IOLs can correct up to 3.00 D of astigmatism. These are also considered premium IOLs, and patients are responsible for paying what Medicare does not cover. Other significant IOL advancements include aspheric monofocal IOLs that have been shown to improve the quality of vision, especially in mesopic or dim illumination situations.

Postoperative care for premium IOLs is similar to that required for monofocal IOLs. However, some practitioners recommend patients who receive accommodating lenses perform ophthalmologic exercises such as puzzles and word games as a part of a daily regimen to tone up ciliary muscles and ensure the maximum benefit from the lenses. In such cases, the exercises are done consistently for 3 to 6 months, and the patient's performance is monitored by the patient's eye care practitioner, Dr. Karpecki notes.

Patients should understand that premium IOLs are more expensive than conventional IOLs and can represent a substantial out-of-pocket cost. Because they are considered a "premium" vision correction measure (helpful in reducing dependence on eyewear but not necessary to restore functional vision), Medicare and most other public and