

MULTIFOCAL AND EDOF IOLS: MY RATIONALE FOR USE IN PATIENTS WITH GLAUCOMA

These technologies can be safe and perform well in glaucomatous eyes.



BY JOHN P. BERDAHL, MD

Conventional thinking has suggested that only pristine eyes qualify for the use of multifocal and extended depth of focus (EDOF) IOLs in cataract surgery. This belief is partially evidence-based due to a paucity of randomized controlled clinical trial data—the highest-quality evidence does not exist to support their implantation in eyes with corneal aberrations. That said, ample research has demonstrated that multifocal and EDOF IOLs are safe and can perform well in patients with mild and probably moderate primary open-angle glaucoma (POAG).¹⁻⁵ My own experience has shown this to be true.

To challenge conventional thinking, ophthalmologists must think beyond the limited data sets and combine a solid understanding of the existing evidence with logic, with experience, and with what they would want for their own eyes. It is also important to consider the exit strategy: Is this an IOL that can be easily exchanged if necessary?

Given the minimal contrast sensitivity loss that occurs with

multifocal IOLs and EDOF IOLs and the modest contrast sensitivity loss seen in early glaucoma, patients can be happy and achieve their visual goals with these lenses. This article details considerations for their use in patients with POAG.

PUTTING PHILOSOPHY INTO PRACTICE

Many surgeons consider monovision to be the safest approach in eyes with mild to moderate glaucoma; however, no factor decreases contrast sensitivity more than defocus, and monovision is planned defocus for one eye. This outcome can be addressed with a pair of glasses that fixes the near eye and helps with night driving, but monovision is not as benign in glaucomatous eyes as some believe.

Recent studies have shown that modern multifocal and EDOF IOLs have less of an effect on contrast sensitivity than predicate devices, although the effect is minimal with both lens types. In my experience, patients undergoing cataract surgery desire as much spectacle independence as possible, and

currently multifocal IOLs meet this need best. I do not prefer to trade near vision for intermediate and distance vision. No comparative studies exist to demonstrate that EDOF IOLs have less of an impact on mean deviation than multifocal IOLs. That said, to provide spectacle independence at distance and some depth of focus, I am most likely to implant a Light Adjustable Lens (RxSight).

ASSESSING PATIENT CANDIDACY

A few fundamental questions help to inform my lens recommendations for patients with POAG.

No. 1: Is their glaucoma controlled?

I do not implant multifocal or EDOF IOLs in patients with uncontrolled glaucoma, although I will use toric IOLs in these cases. (Editor's note: For more on this topic, see "Toric IOLs: When and When Not to Use in Glaucomatous Eyes" on page 33.)

No. 2: How severe is their glaucoma?

In patients with controlled glaucoma, I next consider the disease

PERSPECTIVE ON MINI-MONOVISION



One key point of mini-monovision, now referred to as *blended vision*, is preserving contrast sensitivity. This is essential for neural adaptation over time. Anything that reduces contrast sensitivity will also impede neural adaptation. With that in mind, patient subgroups with compromised contrast sensitivity are generally not candidates for blended vision.

Contrast sensitivity is only minimally affected by glaucoma at the beginning of the disease course, but this changes over time. For now, blended vision is not typically offered to patients with glaucoma; in my opinion, a refractive (not diffractive) extended depth of focus IOL would be more appropriate.

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severity. For patients with ocular hypertension and mild glaucoma, multifocal and EDOF IOLs are options. The conversation starts to change in patients with moderate disease, because there are some additional considerations; I almost always opt for a multifocal IOL or the Light Adjustable Lens in these eyes. I would not implant a multifocal or an EDOF IOL in a patient with severe glaucoma.

No. 3: What would I want for my own eyes?

In eyes with controlled mild to moderate glaucoma, it is important to understand the value proposition of a presbyopia-correcting IOL for each patient. The chosen IOL must work for their eye, their lifestyle, and their financial situation. I almost

always ask myself, “What would I want for my own eyes in this scenario?”

SELECTING AN IOL

When selecting a specific IOL for a patient with controlled mild to moderate glaucoma, I also factor in the patient's goals and other pathologies beyond glaucoma, including corneal issues, ocular surface disease, and epiretinal membrane.

COMBINING CATARACT SURGERY WITH MIGS

I consider whether I believe that the patient's glaucoma can be controlled with a MIGS device or a procedural pharmaceutical. When I combine MIGS with phacoemulsification, all MIGS procedures that bypass the

trabecular meshwork are on the table, because they do not appear to affect refractive error.

CONCLUSION

Conventional thinking is not necessarily wrong. However, to best serve patients, ophthalmologists must step back and question whether long-held beliefs need reconsidering. Surgical decision-making should factor in the available evidence, logic, experience, and what approach clinicians would choose for their own eyes. ■

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