THE FUTURE OF IOLS: EMBRACING ADJUSTABILITY

BY KENDALL E. DONALDSON, MD, MS

"Change is the only constant in life" is a sentiment attributed to the Greek philosopher Heraclitus.

As patients prepare for cataract surgery, they face the exciting yet potentially overwhelming task of selecting the IOL that will reside in their eye for the rest of their lives. This choice will have a lasting impact on their lifestyle.

When reviewing the menu of standard and premium IOLs with patients, I frequently hear similar questions:

- "Which lens is the best?"
- "If technology improves, can I exchange the lens in the future?"
- "What if my prescription changes?"

My standard responses are as follows:

- "What is best for you may not be the best for another."
- "No, this will be your lens for life."
- "Don't worry. It won't change much."

Meanwhile, I think, "You're right! We should be able to fine-tune your vision after surgery. Sometimes, we even need to replace the lens due to variabilities in measurements or inability for the patient to adapt to the optics of the lens."

The quest for a perfect IOL for cataract surgery faces two major hurdles: achieving quality (reaching the refractive target) and quantity (range) of vision. Surmounting them entails mastering adjustability and accommodation. This issue of *CRST* explores the future of IOLs with a particular focus on adjustability. Contributions from several authors in the field highlight the latest technologies enabling the fine-tuning of refractive outcomes, even in the most challenging cases. Also featured is a discussion of the future of IOL technology with prominent ophthalmologists, including Douglas D. Koch, MD; David F. Chang, MD; and Richard L. Lindstrom, MD. Finally, a glimpse of future IOLs is provided.

After more than 20 years of development, the Light Adjustable Lens (LAL; RxSight) became a part of our cataract surgery armamentarium in November 2017. The LAL ushered in a new era of adjustability. This technology is particularly appealing in challenging refractive cases and for precision-oriented patients. Patients can test out the IOL in their daily lives and then participate in postoperative refractive adjustments, effectively choosing their final refractive state and determining their own quality and quantity of vision. Whereas standard cataract surgery concludes at the end of the surgical case, the LAL adjustment process may extend weeks to months after patients leave the OR.

The perfect IOL would restore the eye's youthful ability to accommodate and provide the clarity of vision associated with a clear plano crystalline lens. The power of the IOL would be changeable throughout the patient's lifetime to compensate for aberrations in either the lens or the cornea and maintain their desired refractive target. There would be no contraindications to the IOL's implantation, and it would induce no undesirable positive or negative dysphotopsias.

We cataract surgeons are fortunate to provide many patients with impressive refractive outcomes. Along with our patients, however, we have come to desire nearly perfect results.

The rapid evolution of IOL technology gives us an opportunity to provide them with a quality and quantity of vision that rival their youthful vision and exceed their greatest expectations. ■

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