SAY ANYTHING

WHAT DO YOU CONSIDER TO BE THE DEFINITION OF REFRACTIVE CATARACT SURGERY?

WHAT ARE THE BIGGEST BARRIERS TO ADOPTION OF THE MORE WIDESPREAD PRACTICE OF REFRACTIVE CATARACT SURGERY?

RENATO AMBRÓSIO JR, MD, PhD

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"Refractive surgery is the subspecialty of ophthalmology that includes options to improve the optical performance of a patient's eye, aiming to reduce his or her dependence on glasses or contact lenses and thereby providing patient satisfaction with quality vision. Although any cataract procedure produces a significant change in the eye, *refractive cataract surgery* involves active and conscious planning to optimize visual performance.

With refractive cataract surgery, the procedure should be individualized for each eye of each patient by considering the ocular anatomy, optical properties, and the patient's needs. The comprehensive evaluation should also consider the patient's binocularity, and the objective assessment should include corneal transparency, shape, and regularity; corneal endothelial status; and analysis of the anterior chamber and lens characteristics. Ocular biometry must be performed. Also, the optic nerve, macula, peripheral retina, and vitreous transparency are relevant to achieve the best plan for each patient.

When it comes to adoption of refractive cataract surgery, there is still tremendous work to be done in terms of patient (and doctor) education. While cost is always a major factor, the value of the procedure should be emphasized to patients. The need for more chair time and the fear of having unhappy patients are restraining factors for many surgeons who are comfortable with the safety and results of traditional cataract surgery. There is still an unmet medical need for a simulation of binocular vision with different IOL approaches. Also, we do not yet have an accommodating IOL that compares with the natural, young crystalline lens.

Nevertheless, the foremost misconception of refractive cataract surgery is related to the belief that cutting-edge technology for cataract surgery is a synonym for refractive cataract surgery. Refractive cataract surgery is not the same as clear lens extraction, nor the same as laser cataract surgery, and also not the same as multifocal IOL surgery. While it is true that refractive cataract surgery requires technology and proper equipment for the procedure, medical knowledge is essential for addressing the needs of each patient."

RANA ALTAN-YAYCIOGLU, MD, FEBO

- Acibadem University, Adana, Turkey

"The term *refractive cataract surgery* is used to define the replacement of the cataractous lens with advanced lens designs to correct distance, intermediate, and near vision, with the goal of reducing or eliminating patients' dependence on glasses. Improvements in multifocal IOL technology have enabled surgeons to achieve better results for patients with fewer complaints of glare and halos. However, there is still need for improvement. For example, these lenses are not suitable for patients with irregular corneas, severely dry eyes, macular degeneration, or retinal disorders.

To achieve a successful outcome with these lenses, surgeons must meticulously evaluate patients, perform surgery without any complications, and have a well-centered capsulotomy and IOL. Additionally, precise measurements with sophisticated biometry devices are necessary, which may not be attainable for every surgeon. In my opinion, these are the possible obstacles to the more widespread use of refractive cataract surgery."

FERNANDO FARIA-CORREIA, MD, PhD, FEBOS-CR

- CUF Porto, Porto, Portugal

"In my practice, refractive cataract surgery focuses on the individual demands of each patient. Additional preoperative chair time and advanced ocular analysis are useful to customize our surgical approach and to help us select the most suitable IOL for each case. For me, patients' demands and satisfaction are the top priorities in refractive cataract surgery.

Surgeons' training and experience are essential in refractive cataract surgery, but it is not enough to avoid patient unhappiness postoperatively. Currently, advanced ocular analysis and surgical treatments based on cutting-edge technology provide accuracy and safety for our surgical procedures. For me, an open discussion with the patient preoperatively is mandatory in refractive cataract surgery. In this way, we can prepare the patient for the postoperative outcome and eliminate unrealistic expectations."

FLORIAN T.A. KRETZ, MD, FEBO

- Augentagesklinik Rheine, Germany

"In my practice, every cataract surgery is considered *refractive cataract surgery*. Even in a visually impaired patient, the main goal is to hit his or her target refraction in order to offer the best possible outcome. Truly, the main focus of refractive cataract surgery is on patients receiving premium IOLs. From the implantation of toric IOLs to offer spectacle independence for distance, to presbyopia-correcting IOLs to reach the maximum individual level of spectacle independence—cataract surgery is a very technology-driven field with a large selection of different IOL optics. Therefore, we can individualize refractive cataract surgery for each patient's individual needs. In other words, for me, *refractive cataract surgery* means meeting each patient's individual demands, from standard to premium IOLs and even special IOL models for visually impaired patients.

The biggest barrier to adoption is the fear of being unable able to fulfil patient expectations. Proper counselling is time consuming, and there is always a statistical rate of error. This ultimately leads to the potential for unhappy patients who need a lot of counselling. Personally, I believe that a proper preoperative examination with available technology and preoperative counselling that sets the right expectations is the key to success. A surgeon's skills are still important to deliver perfect results, but preparing the patient for his or her postoperative outcome is crucial."

A. JOHN KANELLOPOULOS, MD

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“Refractive cataract surgery is the parallel attempt, along with the safe removal and replacement of a degenerated and opaque crystalline lens, to aim for a refractive target that suits the needs of each patient. In other words, refractive cataract surgery is the quest to meet patients' expectations for visual function. In most cases, this means achieving emmetropia for distance vision. There are many ways in which we can achieve this, starting with simple accurate biometry and progressing into interferometry, which is far more accurate. There is also a multitude of formulas that can approximate emmetropia better than the parameters of axial length and corneal curvature, such as anterior chamber depth and steepness or flatness of keratometry.

In my opinion, the most important parameter with regard to refractive cataract surgery is the consideration of cylinder, which brings me directly to the second question: What are the barriers to adoption of refractive surgery today? I think the number one barrier is astigmatism.

Most cataract surgeons have not been trained to consider preoperative keratometry and do not understand that every cataract patient may be considered a candidate for simultaneous astigmatic correction. Therefore, employing accurate keratometry and considering a toric IOL become a burden that few surgeons have been able to overcome.

In our practice in Greece, one in every 40 cataract patients has keratoconus and doesn't even know it. This is a potential trap when using keratometry alone to calculate the IOL power. Toric IOL implantation requires further skills and understanding to select the appropriate IOL. Although the use of the IOL formulas is not that different for toric IOLs, marking and defining the astigmatic axis and employing these landmarks during surgery is an extra step for this procedure.

I think that, unfortunately, our society does not feel that people in the late stages of their life should be as demanding to achieve emmetropia with astigmatic correction. However, I implant toric IOLs in more than 90% of my patients. I aim for 0.50 D of with-the-rule astigmatism; therefore, I implant a toric IOL even in patients who have as little as 0.50 D of against-the-rule astigmatism.

I believe that every cataract patient, even an 85-year-old who does not drive or read much, deserves the best possible vision after cataract surgery. Astigmatism correction with a toric IOL is a very reproducible procedure, and it is rare that I have had to enhance a toric IOL postoperatively in the 13 years since they became commercially available.

Another barrier to the adoption of refractive cataract surgery is performing adequate corneal imaging in every cataract surgery patient and employing this knowledge and philosophy into the every cataract procedure. We are people of habit, and it takes a large leap to incorporate these simple principles into your everyday surgical practice. Taking into account the corneal astigmatism of every person who undergoes cataract surgery is a huge step.

I think that the ophthalmic community needs to encourage colleagues who have not adapted to the principles of refractive cataract surgery to consider doing so, and also encourage them to inform patients that they deserve to become spectacle-free after surgery.” ■