Choosing an IOL for Adolescent Patients

BY RICHARD J. MACKOOL, MD; J. E. "JAY" McDONALD II, MD; JAY S. PEPOSE, MD, PhD; TAL RAVIV, MD; AND ROBERT J. WEINSTOCK, MD

Which presbyopia-correcting IOL do you recommend for adolescents aged 18 years and younger following cataract extraction?

RICHARD J. MACKOOL, MD

Most young patients are not the best candidates for a presbyopia-correcting IOL. In my opinion, the need for future laser vision correction after IOL implantation is much more likely in this patient population than it is for adults. Adolescents also have relatively large pupils. As a result, they may experience reduced reading acuity and an increased risk of glare and halos with the AcrySof Restor IOL (Alcon Laboratories, Inc., Fort Worth, TX). Also, pilocarpine is not well tolerated by the young. According to James Schweigerling, PhD, the Crystalens HD (Bausch & Lomb, Rochester, NY) has a reduced modulation transfer function and increased risk of glare and halos with pupils of 5 mm or greater.[1] Other presbyopia-correcting IOLs, such as the ReZoom (Abbott Medical Optics Inc., Santa Ana, CA) and the Tecnis Multifocal (Abbott Medical Optics Inc.), also have a lower modulation transfer function and are associated with an even greater risk of glare and halos than the AcrySof Restor and Crystalens.[2]

I recommend that surgeons (even if adventurous) avoid the monocular insertion of presbyopia-correcting IOLs in adolescent and most other patients; the results are generally less than satisfactory when the other eye is normal. If a patient requires bilateral surgery, and he/she and the family understand the risks and wish to proceed, then the AcrySof IQ ReStor IOL +3.0 D (Alcon Laboratories, Inc.) would be my lens of choice.

J. E. "JAY" McDONALD II, MD

My favorite lens to use in an adolescent is a monofocal aspheric IOL with -0.75 to -1.00 D power. Young patients have significant accommodative reserve in their other eye, which provides the near vision that they need. As a result, they have excellent binocular vision at near and far. Additionally, adolescent patients implanted with a monofocal IOL would be candidates for an intraocular medical device that may offer a presbyopia-correcting solution when they turn 45.

In my opinion, neither a multifocal IOL nor an accommodating lens is a good option. Aggressive capsular fibrosis in someone this young could be counterproductive with an accommodating IOL. I believe that multifocal optics are a poor choice for a lifetime and always require removal before other corneal technology can be used. Over the course of my career, many patients in whose eyes I have implanted a monofocal IOL during their adolescence are happy with their vision years later both at near and far.

JAY S. PEPOSE, MD, PhD

I have had success with the off-label implantation of the Crystalens HD in older adolescents. Meticulous cortical cleanup and polishing of the underside of the anterior lens capsule are important to minimize the fibrotic capsular changes that can occur postoperatively. I also assess the pupil's size before surgery, because many younger patients have much larger pupils under mesopic conditions than the average, older cataract patient. Mini-monovision with an aspheric monofocal IOL is another option. The younger the patient is, the more likely some myopic drift will occur over time. Regardless of the chosen IOL, before surgery, it is best to discuss with younger patients and their families the potential for capsular changes and the possibility of requiring a miotic drop for nighttime use. The choice of IOL, targeted refractive outcome, and surgical technique depend upon the patient's age, pupillary dynamics, and the etiology and type of unilateral or bilateral cataracts.

TAL RAVIV, MD

A lack of refractive stability is the main difference between an adolescent and any other prepresbyopic patient (less than 40 years of age). Because adolescent patients will undergo future changes in axial length and keratometry, I favor an accommodating lens—currently the Crystalens HD—over a multifocal IOL. A postoperative

progressive refractive shift—most likely myopic—would be better tolerated with the Crystalens HD in place than a multifocal IOL. Multifocal lenses work best within 0.50 D of emmetropia, a result difficult to guarantee in a growing adolescent, who would then have to wait years before refractive stabilization and eventual corneal refractive surgery.

ROBERT J. WEINSTOCK, MD

The only presbyopia-correcting IOLs I would consider using in adolescents are the Crystalens Five-O (Bausch & Lomb) in the dominant eye and the Crystalens HD in the nondominant eye. In a unilateral case, I would likely use a monofocal aspheric implant with a target of -0.37 D sphere. I am not impressed with the quality of vision delivered by the multifocal implants available at this time. ■

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