Is Good Enough?

How good is cataract surgery? It is the most commonly performed operation in the United States and arguably one of the most successful. The rate of complications is low, but the magnitude of this number demands a better understanding of the true efficacy of this procedure. David Chang, MD, addresses this subject in his article for this edition of *Cataract & Refractive Surgery Today*. His thorough review of the literature suggests that a leaking incision increases the risk of endophthalmitis 44-fold.[1] The rate of endophthalmitis in most studies ranges from 1:300 to 1:2,000, with a median of approximately 1:1,000. Based on the 3.3 million cataract procedures performed in the United States in 2011, there are about 3,300 cases of endophthalmitis per year. Clearly, better-constructed incisions would significantly reduce this figure. The second greatest risk for this complication is posterior capsular tears and vitreous loss, which increases patients' chances of endophthalmitis 17-fold. The risk of vitreous loss suggested by Dr. Chang's review of the literature is 2% or 66,000 cases per year. Vitreous loss also dramatically increases the risk of cystoid macular edema, glaucoma, and retinal detachment.

Although safety plays a major role in the efficacy of a procedure, patients also have refractive expectations that must be met or exceeded. The predictability and accuracy of the cataract procedure are assuming greater importance with the emergence of refractive cataract surgery. Murphy and colleagues reported an outcome within 0.50 D of emmetropia in only 45% of patients and within 1.00 D in only 72%.[2] A more recent article that evaluated refractive success using the IOLMaster (Carl Zeiss Meditec, Inc.) found that only 75% of patients achieved an outcome within 0.50 D of emmetropia.[3] These results pale in comparison to those achieved with LASIK for mild and moderate refractive errors: 95% of patients' results are within 0.50 D of emmetropia.[4] The practical consequence of the cited statistics is that approximately one-quarter to one-half of the patients undergoing cataract surgery today (about 750,000 to 1.5 million patients per year) will require distance correction.

Can we do better? This question is at the heart of the newest innovation in cataract surgery—use of the femtosecond laser—and it is the subject of several articles in this month's edition of *CRSToday*. Early data suggest improved anterior capsulotomies, a better effective lens position, more precise and predictable refractive arcuate incisions, and less need for phaco energy. Ultimately, more data on overall safety and refractive precision are needed to warrant the additional time and expense of laser cataract surgery. In the interim, understanding the physics of the procedure is important, which Holger Lubatschowski, PhD, addresses in his article. The entrance of several more companies into the laser cataract surgery market is exciting, and in this issue of *CRSToday*, John Vukich, MD, provides an overview of the similarities and differences in their devices. Finally, two leading experts on the subject, Kevin Corcoran and Alan Reider, discuss the controversial topic of allowing patients access to laser cataract surgery.

Cataract surgery is very good, but it should be better. To quote my father, "Be proud but never be satisfied." The beauty of our profession is we never settle for the status quo. If we are fortunate, once or twice in our careers, we participate in disruptive, revolutionary advances in surgical technique. Now just might be one of those times. ■

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4. Solomon KD, Fernández de Castro LE, Sandoval HP, et al; Joint LASIK Study Task Force. LASIK world literature review: quality of life and patient satisfaction. *Ophthalmology*. 2009;116(4):691-701.