A refractive lens exchange (RLE) greatly complicates the ethical and risk management considerations ophthalmic surgeons must balance when evaluating and counselling patients compared to the days of straightforward cataract surgery, according to Douglas Koch MD, co-editor of the Journal of Cataract and Refractive Surgery (JCRS) and professor of ophthalmology at Baylor College of Medicine in Houston, Texas, US.

“It’s not like cataract surgery where the patient’s only option is to accept the diminished visual quality they get with the cataract. The key issue is informed consent. Because of the complexity of the current RLE options, and also the future options that will be eliminated if RLE is performed, it’s important that the patient and the surgeon understand the implications.”

A new balance point for complication risks

In the absence of the extreme indication of an extant cataract, concerns about low-incidence complications and the quality of visual outcomes take on greater weight – particularly since some complications, such as retinal detachment, may be more common with refractive patients than cataract patients, Dr Koch noted.

For example, data presented at the London ESCRS Congress by Paul Rosen FRCSE, consultant ophthalmic surgeon at Oxford Eye Hospital, UK, suggest that retinal detachments are four times more likely for myopes with less than three dioptres error, and 10 times greater for those with more than three dioptres, and that the risk increases substantially after refractive lens exchange.

Similarly, Prof Emanuel Rosen FRCSE, co-editor of JCRS, noted in a May JCRS article that retinal detachments appear to be even more common among myopes under age 50 who have had refractive lenses implanted.

Adherent vitreous, increasing the chances of torsion on the retina during and after surgery in younger patients, appears to be the culprit, making it a contraindication for RLE, said Jorge Alio MD PhD professor and chairman of ophthalmology at Miguel Hernandez University in Alicante, Spain. He said there is no real indication for RLE below age 45 for mild hyperopes, or below age 50 for myopes.

A bad outcome, such as a retinal detachment, translates to a reduced quality of life, which is the exact opposite of the goal of RLE, said David Hardten MD, associate professor of ophthalmology at the University of Minnesota, US.

“Patients who go from presbyopia to being an emmetrope are very satisfied with their quality of life. The question is how unhappy are they now? Does the risk justify the amount of improvement they might see?”

A different standard for acceptable outcomes

The many options available for refractive lens exchange further complicate the decision-making process – and risk assessment and management.

Should the patient go for monofocal monovision or multifocal IOLs? If multifocal, should the same lens be implanted bilaterally, or should an attempt be made to mix and match to avoid magnifying the weaknesses inherent in each design? And when are refractive corneal surgery or sticking with contact lenses better options?

Prof Thomas Neuhann MD, of the Alz Augenklinik in Munich, pointed out that monovision can and should be simulated with contact lenses before surgery to determine the patient’s tolerance. But multifocal lenses raise issues of contrast sensitivity that are harder to predict and simulate.

This issue is amplified in RLE because younger patients who have not experienced vision loss are much more likely to object to reduced contrast sensitivity, reduced accommodation, halos and other visual disturbances that may be tolerated by older cataract patients.

“Baby boomers are our most challenging patients. They have greater visual expectations, and they have more complaints about intermediate vision problems;” noted Eric Donnenfeld MD, associate professor of ophthalmology, NYU Medical center.

Beyond producing an outcome that a demanding patient might find unsatisfactory – and the liability risk that goes with it – reduced contrast sensitivity may create a more serious threat to vision for patients at risk for macular degeneration, Koch noted.

“I can tell you that at least with the early [multifocal] designs, when patients begin to develop early forms of macular degeneration, they have a much more precipitous drop in quality of vision.”

Thus, a family history of AMD or other risk factors are highly relevant to the refractive lens exchange decision, he stressed.

Future costs

In addition to potential future complications, patients need to realise that there are also potential advances in technology they miss out on when they choose RLE today, Dr Koch said.

“The future lens may offer improved quality of vision, but once you have RLE that basically eliminates it as an option. For the patient who got an Array lens three year ago, there are now much better options. But that patient is locked into an Array unless he undergoes a more complex and potentially hazardous IO L exchange.”

Patients should also be informed that the risks of surgery might decline as time goes on. “If you are one of the unfortunate few patients who get endophthalmitis, you are in trouble,” Koch said.

The recent ESCRS endophthalmitis study suggests that techniques for avoiding this serious complication are still improving. Nonetheless, RLE is a good option for many patients, Dr Hardten said.