Michael C Knorz

Surgical treatment of hyperopia presents a variety of challenges

Devon Schuyler
in Las Vegas

SURGICAL treatment of hyperopia presents unique challenges. Because a variety of treatment options are available, each with advantages and disadvantages, it is important that surgeons understand their patients' concerns and priorities, said Michael C Knorz MD, in a presentation at the annual AAO meeting.

Unlike myopic patients, who typically begin asking about LASIK in their 30s, hyperopic patients usually present in their 40s after presbyopia has set in.

"These patients have never worn glasses, and they often don't understand presbyopia. If you correct just for distance, your patients will be very unhappy – they want to be able to read without glasses," said Dr Knorz, FreeVis LASIK Centre, University Medical Centre in Mannheim, Germany.

Dr Knorz recommended a contact lens trial to illustrate the action of presbyopia, and pointed out that this can be combined with a trial of monovision if this is being considered.

The two main treatment options for hyperopia are laser refractive surgery – which includes LASIK, Epi-LASIK, LASEK, and PRK – and refractive lens exchange. Dr Knorz said that a "very small percentage" of patients were candidates for conductive keratoplasty (CK) or phakic IOLs.

Patients who choose LASIK have three options: monovision, distance correction of both eyes, and PresbyLASIK. Dr Knorz said that monovision is the "ideal" option if the patient accepts it. Distance correction of both eyes is a good choice if the patient is willing to wear reading glasses. He said that PresbyLASIK – where the central zone is steepened to provide near vision and the peripheral zone is targeted for distance vision – is an interesting option, but data on its use are limited.

Performing LASIK is more difficult in hyperopia than in myopia, Dr Knorz said. For example, healing takes longer, the retreatment rate is higher, and predictability is lower.

Conductive keratoplasty can be used to treat low hyperopia or presbyopia, often using monovision, but the effects of the procedure appear to diminish over time.

Dr Knorz referred to refractive lens exchange using a multifocal IOL as an "excellent" treatment option in hyperopes that corrects both hyperopia and presbyopia. He said that he recommends the ReZoom IOL (AMO) – which provides excellent distance and intermediate vision – for the dominant eye and the Tecnis multifocal IOL (AMO) or the ReSTOR IOL (Alcon) – which provide excellent near vision – for the non-dominant eye. He cautioned that this procedure can lead to halos and glare, and that patients with residual ametropia would need the addition of LASIK to be spectacle-free. However, he predicted that this procedure would gain increasing popularity.

A final option for patients with hyperopia is to enrol in a clinical trial of the AcuFocus Corneal Inlay, which has produced excellent early results for both distance and near vision.

The limit for hyperopic LASIK

In another presentation at the annual AAO meeting, David P O'Brart MD described the limits of LASIK for hyperopia. Dr O'Brart is the head of refractive, corneal and anterior segment surgery at St Thomas' Hospital in London.

"Hyperopic LASIK is safe and effective for corrections of up to 5 D, but the long-term stability of hyperopic LASIK – especially above 3 D – is uncertain," he told *EuroTimes* in an interview after the meeting.

Potential problems with hyperopic LASIK include slow wound healing, the induction of high-order aberrations, and poor mechanical responses. In addition, he said that the

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procedure is continuing to evolve.

The procedure is safest and most effective for patients who require corrections of no more than 5 D, he said. For corrections within 5 D, 76 per cent to 98 per cent of patients have results within 1 D of the goal. By contrast, for corrections of more than 5 D, only 50 per cent to 90 per cent have comparable results. In addition, the loss of two or more lines of BSCVA occurs in just zero to two per cent of patients undergoing corrections within 5 D, compared with seven per cent to 10 per cent of patients undergoing corrections of more than 5 D.

Dr O'Brart emphasised that ophthalmologists who perform hyperopic LASIK should use a large optical zone – at least 7.0mm. This has been associated with improved outcomes, including better safety and efficacy, and fewer high-order aberrations. Surgeons should also factor in considerations such as age when deciding what technique to use.

Other options for patients with hyperopia include PRK and LASEK, which appear to have good long-term stability when performed for hyperopia.

"Excellent corrections may be achieved with hyperopic LASEK, although recovery is slow," he said.

Peter S Hersh, MD, who moderated the session, told *EuroTimes* that he thought both surgeons had made "proper and fair statements", and that he agreed with their conclusions.

"I think that the emphasis on patient understanding of hyperopia and presbyopia is important, and that contact lens trials can be helpful," said Dr Hersh, who is the chief of cornea and refractive surgery at UMDNJ-New Jersey Medical School.

He added that he though that CK was appropriate for plano presbyopes or very low hyperopes – less than 0.75 D – and could be preferable in those circumstances.

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