High myopes – is refractive lens exchange the answer?

Dermot McGrath
in Paris

REFRACTIVE correction of high myopia with minus power intraocular lenses results in good visual outcomes, high patient satisfaction and few postoperative complications, according to a German ophthalmologist.

Presenting the results of his research at the XXII Congress of the ESCRs, Mike Holzer MD said that there was a growing need for viable and safe treatment modalities for high myopia with or without cataract formation.

“The treatment spectrum for excimer laser surgery is not very wide and patients are increasingly requesting alternative and even individualised procedures. What we found in our study is that minus power lenses can be implanted without an increased risk of postoperative complications. However, it is important to remember that correct IOL power calculation and prevention of posterior capsule opacification are necessary in order to have consistently good visual outcomes,” said Dr Holzer MD, University of Heidelberg, Germany.

Dr Holzer’s retrospective study included 20 eyes of 11 highly myopic patients with a mean spherical equivalent refraction of –20.3 D (range –25.5D to –16D) and a mean axial length of 31.6 mm. All patients underwent cataract surgery or refractive lens exchange with implantation of minus dioptic lenses. The mean patient age was 53.5 years (range 35-69 years) and the IOL implanted was a PMMA 757C or 722C (AMO Inc.) in 16 eyes and a toric (MS611 6TU, Humanoptics) in four eyes. The mean spherical IOL power was –2.64D (range 0 to –7 D).

Dr Holzer said that the results seemed to confirm that the procedure is safe as well as efficacious.

“We had no intraoperative complications. Eighteen eyes (90%) gained one or more lines of visual acuity. We had two eyes, both of which were refractive lens exchanges, that recorded no change in visual acuity and no patient lost any lines. We even had some patients that gained four or more lines of visual acuity and patient satisfaction after surgery was very high,” he said.

The problem of accurately calculating the axial length of highly myopic eyes increases the likelihood of incorrect IOL power calculation, noted Dr Holzer. For this cohort, the researchers calculated axial length using the IOLMaster (Carl Zeiss Meditec) and ultrasound for more problematic cases.

The mean difference between intended and achieved spherical equivalent was 0.73 D and 85% of the eyes were within 1.0 D of the intended correction.

Complications rare
Postoperative complications were rare in this case series, reported Dr Holzer. One patient experienced ocular hypotension postoperatively, but recovered fully after the eye was re-sutured. There was no incidence of retinal detachment or macular oedema for the 34-month follow-up period. Eight eyes (40%) underwent YAG capsulotomy, six of which were treated during the first 12 months after surgery.

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In a separate presentation, Maurizio Luraschi MD, Rovereto, Italy, discussed the pros and cons of cataract extraction and refractive lens exchange in high myopes in further detail. He noted that refractive clear lens exchange has been gaining in popularity as a possible treatment option for selected cases of high ametropia, despite its chequered clinical history and well-documented concerns about the risk of associated complications.

Dr Luraschi’s non-comparative retrospective case series study included 50 eyes of 38 consecutive myopic patients with a mean age of 55 who underwent surgery because of initial lens opacity and refractive indications. Phacoemulsification was performed on all patients followed by IOL implantation in the capsular bag. The mean follow-up was 36 months.

The mean preoperative spherical equivalent (SE) was –15.52 D and the mean postoperative SE was –1.08 D. Spherical error was fully corrected within 1.0 D of emmetropia in 74% of cases and within 2.0 D of emmetropia in 95% of cases. Mean BCVA improved from a mean of 20/40 to 20/30 with the exception of one eye, which experienced a retinal detachment 18 months after surgery. Seventeen eyes required YAG capsulotomy for PCD; the mean time for capsulotomy was 20.9 months after surgery.

Postoperative complications included a retinal tear at 10 months, which was treated with focal photocoagulation. Two eyes had immediate postoperative corneal oedema resolved with topical treatment. One eye had posterior vitreous detachment (PVD) and a retinal detachment during the follow-up period. The incidence of posterior vitreous detachment before surgery was 64% and was more prevalent in older eyes, noted Dr Luraschi. Three new cases of PVD were detected during the postoperative follow-up period.

Dr Luraschi said that refractive lens exchange yielded good visual results with few complications if careful patient selection was adhered to. He noted that improved techniques for microincision surgery without wound burn or other damage were helping to address concerns about the known postoperative complications of such procedures.

Careful patient selection is vital for successful CLE procedures, said Dr Luraschi. Potential contraindications to watch out for in high myopes include an excessively deep anterior chamber, peripheral retinal degenerations, staphylomas, corneo-retinal atrophy, lacquer cracks and the lack of a posterior vitreous detachment.

“It is absolutely crucial to give the patients realistic expectations, which is also true of all refractive surgery. We also need larger studies with long-term follow-up before we can begin to consider RLE as a routine option,” he said.

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