Multifocal IOL a useful option in refractive lens exchange

REFRACTIVE lens exchange with the AcrySof® ReSTOR® multifocal intraocular lens (Alcon) effectively corrects myopia and hyperopia in carefully selected presbyopic eyes, according to several studies presented at the XXIII Congress of the ESCRS.

Tobias Neuhann MD presented a study of 27 women and nine men who received the ReSTOR SA60D3 lens in both eyes and an additional two men and two women who received the lens in one eye. The mean age of the patients was 63 years. The IOL power ranged from +18.0 D to +30.0 D. Miscalculations in four eyes led to IOI exchanges.

“The lens really only works if you reach emmetropia or come close to emmetropia,” said Dr Neuhann about those cases.

After 12 months, 63.15% had an uncorrected distance visual acuity of 20/30 or better, with 15.8% reaching 20/15, while 11.9% achieved 20/20 and 9.15% reached 20/40. Approximately 62% could read at the J2 level or better uncorrected, and 15.8% could read at J1.

Study supports bilateral simultaneous ReSTOR implantation

SIMULTANEOUS bilateral simultaneous implantation of the multifocal ReSTOR SA60D3 IOL leads to quicker cortical adaptation and visual recovery, greater patient satisfaction, reduced costs and a more efficient use of the operating theatre, according to Richard Packard MD.

“If you do a peer review of the literature, there is actually no evidence that this is likely to cause more problems,” said Dr Packard from the Prince Charles Eye Unit in WIndor, UK.

In the non-randomised prospective study, 63 men and 61 women with an average age of 58 years received bilateral simultaneous implantation of the multifocal lens in a private ophthalmic clinic in England. The group of patients included 55 hyperopes, 38 myopes and 31 patients who were within 1.0 D of emmetropia. Dr Packard performed limbal relaxing incisions on 46 patients and added piggyback lenses to 15 patients to extend the IOL’s power range.

Three weeks after the procedure, 82% of the participants had a monocular uncorrected distance visual acuity of 20/25 or better and 62% achieved 20/20 or better. Some 98% had binocular uncorrected distance visual acuities of 20/25 or better and 85% had 20/20 or better.

“The jump in the binocular visual acuity shows that it does make a big difference to these patients in terms of their functional ability,” said Dr Packard.

Seventy per cent of the patients read at J1 level unaided with one eye, with 80% reading J1 binocularly.

While there were no surgical complications, three patients had transient rises in IOP. Four of the patients who received piggyback IOIs had significant IOP rises requiring medical treatment. Three patients required postoperative excimer laser treatments. One case was to correct residual astigmatism and the other two were to correct residual hyperopia.

To perform simultaneous surgery safely and successfully it is important to stick to the standards for simultaneous lens surgery of performing two completely separate procedures. Surgeons need to change all instruments including tubing, drapes, BSS bottle and hand pieces. They also need to re-scrub and re-gown. In addition, surgeons also need to use a meticulous approach to the preparation of the eye with a meticulous pre-operative and postoperative regime of preparation and disinfection of the eye with drops.

“These interim data indicate bilateral simultaneous surgery with the Acrysof ReSTOR IOL provides excellent near visual acuity without compromising distance visual acuity even in patients with LRI and hyperopia,” concluded Dr Packard.

“Refractive lens exchange with ReSTOR is an extremely powerful refractive procedure in presbyopic age, able to correct myopia, hyperopia, plus presbyopia. At the same time it has intermediate stable results,” said Francesco Carones MD.

An option for refractive lens exchange

In a second study that tested the same lens, Francesco Carones MD performed refractive lens exchange on 60 eyes of 30 patients. Twenty-five of the participants were hyperopes with a range from +1.25 to +7.50 D, and five patients were myopes ranging from -1.25 to -7.50 D.

“All these patients were referred to me for refractive purposes. None of them had cataracts or contraindications for undergoing refractive lens exchange. All had high motivation not to use spectacles,” he said.

Dr Carones made it part of his surgery follow-up protocol to perform excimer laser...
eye surgery in Milan, Italy. He is a consultant for Alcon.

Psychometric testing confirmed the objective observations of the lens’ performance. All 30 patients reported that the procedure met their expectations, and that they would choose the same lens again because they were happy with their near and distance vision as well as their intermediate vision. Some, 16.7%, reported slight visual symptoms in their night vision, but none experienced severe symptoms.

**Alternative Russian approach**

A Russian study also evaluated the one-piece version of this new IOL using two different surgical techniques to see if visual symptoms such as loss of contrast sensitivity could be reduced.

Yuri Takhtaev MD reported a study of 42 patients that underwent bilateral refractive lens exchange to correct ametropia or presbyopia in both eyes. The study included 29 hyperopes (+1.5 to +8.0 D) and 13 myopes (-1.25 to -9.0 D). All of the subjects had less than 1.0 D of astigmatism and a high motivation to not use spectacles. One group of 42 eyes underwent surgery using the same technique used by Dr Carones (described above). In a second group of 42 eyes, surgeons created a 5.0 mm anterior capsulorhexis and a 4.0 mm PCCC before the implantation of the ReSTOR lens.

“The idea was that posterior capsulorhexis improves contrast sensitivity and overall visual outcomes,” said Dr Takhtaev, from the Fyodorov Eye Microsurgery St Petersburg Branch in Russia.

While the contrast sensitivity was slightly better in the second group, the difference did not reach statistical significance. In the first group, 86% of the participants read at a J1 or better level, 90% read at a J2 or better level and all read at J3 or better. In the second group 93% of the patients read at a J1 or better level, 96% read at a J2 or better level and all read at a J3 or better level.

Results were also similar for distance corrected near visual acuity. In the first group 84% read at a J1 or better level, 89% read at a J2 or better level and 100% read at a J3 or better level. In the second group 93% read at a J1 or better level, 95% at a J2 or better level and 100% read at a J3 or better level.

“Whenever I’m talking to a patient about the ReSTOR lens, I always do bring up the fact that there is a 5% chance of glare and halos with night driving. But even in a monofocal control you often find there are around 2% who have those symptoms,” said Donald Serafano MD, an eye surgeon based in Los Alamitos, California.

In the non-randomised multicentre prospective study 23 patients with the multifocal IOL and 25 with the monofocal lens participated in a night-driving test by sitting in a night-driving simulator system that included windshield, display screen, high-quality life-sized digital video projection and a field of view of 90 degrees. The simulator also included glare sources. In addition, the researchers performed rural scene testing with life-sized warning signs, test signs and road hazards on a night-time rural road with minimal lighting including headlights and roads under clear, fog and glare conditions.

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