

REFRACTIVE LENS

NOVEL MULTIFOCAL IOL

Early results show optical design provides a full range of vision

by Cheryl Guttman Krader in Paris

Surgeons implanting the Lentis MPlus multifocal IOL (Oculentis) reported favourable impressions about this novel technology at the XXVIII Congress of the ESCRS in Paris, France.

Magda Rau MD, head of Eye Clinic Cham, Germany, and Joao Póvoa MD, Department of Ophthalmology, University Hospital of Coimbra, Portugal, reported three-month outcomes for small cohorts of bilaterally implanted cataract surgery patients. Their results showed the presbyopia-correcting IOL was providing both good visual function and quality of vision.

The Lentis MPlus is an acrylic, single-piece, pupil-independent, aspheric multifocal IOL designed based on a concept of rotational asymmetry. It combines an aspheric asymmetric distance vision zone and an embedded, sector-shaped near vision zone with +3 D of add (+2.4 D at the spectacle plane) to provide seamless transition between the two optical zones.

“The spherical centres of the two surfaces lie on the optical axis of the sector lens and the vertexes of both surfaces coincide with the origin. Consequently both principal foci of the lens are on its optical axis, and the light at the transition zones is refracted away from the optical axis. This should reduce glare and haloes, which in my opinion, is a great advantage of the lens,” said Dr Rau.

“Our initial results are promising in showing a high rate of complete spectacle independence, good contrast sensitivity, no haloes, and no disturbing glare. Final assessment depends on data collection from more patients and longer follow-up.”

Dr Rau reported outcomes for 10 patients bilaterally implanted (mean age 67 years). In distance testing at three months postoperatively, mean UCVA was 0.69, mean BCVA was 0.78, and the mean correction was -0.43 D.

“These first procedures were completed over a short period of just two months at the

end of 2009, and without any individually modification in the recommended A-constant. We were targeting a refraction of -0.5 D to avoid a hyperopic outcome, and using the manufacturer’s recommended A-constant, some of the refractions ended up a little more myopic than we intended,” said Dr Rau.

“While at three months, it was difficult to correct the patients successfully to 1.0, in longer follow-up to six months, distance vision has improved. Postoperative refraction is difficult with this lens and so accurate IOL power calculation is important. Now we are using an A-constant of 188.0 and are calculating power with a planned refraction around plano so as not to compromise distance vision,” she told *EuroTimes*.

The group had a mean intermediate UCVA of 0.88 and mean near UCVA of 0.76. Good functional results were also achieved in testing of reading speed with Radner charts under photopic conditions.

Contrast sensitivity was measured using functional acuity contrast method of Ginsburg, and the average contrast sensitivity curve was under normal area.

“These results are noteworthy considering our study group included some relatively older patients,” said Dr Rau.

Results from a questionnaire administered at three months showed a 10 per cent rate of glare. Complete spectacle independence was achieved by 60 per cent of patients, and the rest needed glasses only occasionally in special situations for distance (20 per cent) or reading small print (20 per cent). No patient needed glasses for desktop computer use.

Eight of the 10 patients were very satisfied with the optical results, one patient was satisfied, and one was dissatisfied

“Poor distance vision was the reason for the one patient’s dissatisfaction, but we have to keep in mind some of these first patients had a less than optimal refractive outcome,” said Dr Rau.

Dr Póvoa reported on another group of 17 patients (mean age 66, range) and compared their quality of vision outcomes with a control group of normal eyes without cataract. Mean distance BCVA for the MLentis Plus patients improved from 0.6 preoperatively to better than 1.0 at one and



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Magda Rau MD

three months. Their mean distance UCVA was 0.3 preoperatively and 0.9 at one and three months. At three months, mean near and intermediate UCVA were 0.8 and 0.6, respectively.

The researchers evaluated chromatic perception using a modified Cambridge Colour Test. This showed that chromatic discrimination in all three axes (protan, deutan, and tritan) was significantly impaired before cataract surgery compared with controls, but improved after the procedure so that one and three months postoperatively, there were no significant differences comparing the MLentis Plus group to the controls.

Contrast sensitivity was tested using Pelli-Robson charts and with a novel computerised psychophysical technique (Metrovision) that evaluated photopic and mesopic contrast sensitivity as well as glare.

“The computerised method offers a quantitative assessment of contrast sensitivity. Compared with traditional clinical semi-quantitative methods used to assess visual performance, it has an advantage because the testing steps can be calibrated and dynamically changed in a random manner, unpredictable to the observer. Therefore, it is less prone to artefacts,” said Dr Póvoa.

Both tests showed the cataract patients had significant contrast sensitivity and glare impairment prior to surgery compared with controls. All measurements in the MLentis Plus group improved by one month after surgery, and there was continued improvement in glare between one and three months.

By one month postoperatively there was no significant difference in mesopic contrast sensitivity (Metrovision) between the MLentis Plus patients and controls. However, statistically significant differences remained comparing the one and three-month postoperative results for the MLentis Plus patients and controls for the Pelli-Robson test and photopic contrast sensitivity and glare measured with the computerised method.

“Longer follow-up is required to determine to what degree these findings correspond to patient satisfaction,” said Dr Póvoa.

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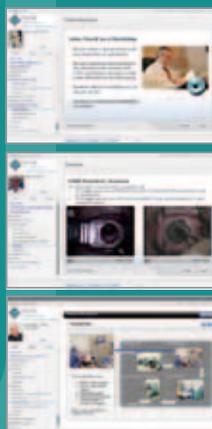
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