

TORIC IOL

New study favours multifocal toric platform over multifocal IOL with LRIs

by Cheryl Guttman Krader in Vienna

Implantation of a multifocal toric IOL effectively reduces postoperative dependence on glasses in cataract surgery patients with moderate pre-existing corneal astigmatism, according to the results of a single-centre, randomised, contralateral eye controlled clinical trial reported by Vinod Gangwani MRCOphth, at the XXIX Congress of the ESCRS.

The study was undertaken at Moorfields Eye Hospital, London, UK, along with Mr Vincenzo Maurino and Mr Oliver Findl. 30 patients were enrolled in the study with 1.0 to 2.5 D of astigmatism in each eye. One eye was randomised to implantation of a commercially available multifocal toric IOL (M-Flex-T, Rayner) or to receive the multifocal only version of the same IOL platform (M-Flex, Rayner) combined with limbal relaxing incisions (LRIs) to correct astigmatism. The +3.0 D add version was used for all of the IOLs, and the LRIs were performed using a 600-micron steel blade based on the online Donnenfeld LRI nomogram and corneal tomography



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Vinod Gangwani MRCOphth

(Pentacam, Oculus). Patients and examiners were masked to the surgical procedure performed in each eye.

Analyses of data collected after three months showed that implantation of the multifocal toric IOL was associated with

better refractive and functional outcomes than multifocal IOL implantation with LRIs. Eyes with the multifocal toric IOL had significantly less mean manifest residual cylinder compared with the multifocal IOL-LRI group (-0.41 ± 0.47 D vs. -0.79 ± 0.60 ; $p = 0.002$) as well as significantly greater mean reduction in astigmatism (1.43 ± 0.63 D vs. 0.89 ± 0.77 D). In addition, a higher proportion of eyes with the multifocal toric IOL had less than 0.5 D of residual cylinder than the eyes with the multifocal IOL-LRI (59 per cent vs. 47 per cent).

Distance and near UCVA outcomes were good overall, but the outcomes were slightly better in the multifocal toric IOL group compared with the multifocal IOL-LRI group for both distance logMAR UCVA (0.12 ± 0.15 vs. 0.17 ± 0.15) and near logMAR UCVA (0.41 ± 0.1 vs. 0.37 ± 0.07). However, in this relatively small study, there were only trends for the differences between groups to be statistically significant.

Patient satisfaction was investigated with a 17-item survey. The key questions investigated the need for glasses. All patients reported they did not wear glasses most of the time. Nearly all patients, 95 per cent, said they wore weak reading glasses but only if they were reading for a long time.

“It is estimated that between 15 per cent and 29 per cent of cataract patients have more than 1.0 D of pre-existing astigmatism that contraindicates implantation of a standard multifocal IOL without some additional technique for correcting cylinder. Various options can be used for astigmatic reduction. Toric IOLs are generally considered to offer better predictability, long-term stability, and safety compared with LRIs, whereas LRI surgery is logistically simpler and has lower cost,” said Dr Gangwani, who was an anterior segment fellow at Moorfields when he conducted the study.

“In our study, the clinical results and patient satisfaction with the multifocal toric IOL were excellent. Although ours was a pilot study with only 30 patients, we believe these results support the use of the multifocal toric IOL. However, we believe that patients need to be properly educated and selected for this type of implant. Dysphotopsias are a reality with multifocal optics, and patients must be fully aware of the limitations of multifocal IOLs and the problems arising from dysphotopsia.”

Night vision issues were common in the study population, with 41 per cent of patients reporting glare and 35 per cent of patients reporting haloes. However, the dysphotopsias were generally mild and none of the patients were bothered by the night vision disturbances.

“None of our patients was unhappy after the surgery, but they were all well-informed preoperatively and knew what to expect.



Rayner multifocal toric IOL

Since we only have results from follow-up to three months, we cannot comment on whether their night vision problems improved over time,” Dr Gangwani said.

The patients in the study had a mean age of 76 years (range 62 to 88 years). Mean preoperative astigmatism was 1.85 ± 0.47 D for eyes implanted with the multifocal toric IOL and 1.67 ± 0.60 D for eyes that received the multifocal IOL with LRIs. The difference between eyes was not statistically significant. Mean sphere at three months after surgery was also not significantly different comparing the multifocal toric IOL and multifocal IOL-LRI groups, 0.22 ± 0.52 D vs. 0.12 ± 0.53 D.

Visual acuity outcomes were also analysed for the proportion of patients achieving different levels of UCVA. At three months, 65 per cent of eyes with the multifocal toric IOL compared with 53 per cent of eyes with the multifocal IOL-LRIs had distance UCVA of 6/9 or better. Near UCVA was N8 (logMAR 0.40) or better in 82 per cent of eyes with the multifocal toric IOL, but in only 53 per cent of eyes that had the multifocal IOL with LRIs.

Other evaluations included evaluation of mesopic and photopic contrast sensitivity, which was found to be below normal in all eyes. However, the results were not significantly different between the two groups, and there was also no difference between groups in results of glare testing.

The study also investigated rotational stability of the multifocal toric IOL using retroillumination images obtained at the slit-lamp at one hour, one month, and three months after surgery, and the results were very good. After three months, mean absolute rotation was 2.9 ± 2.3 D.

Dr Gangwani has no financial interests in any of the products mentioned above.

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