A RETROSPECTIVE study by Daniel Elies, cornea and refractive surgery specialist, IMO, Barcelona, Spain, found that the Toric Implantable Collamer Lens (Visian TICL, Staar) provided excellent outcomes, predictability and stability for at least one year for patients with compound myopic astigmatism. Composed of a graft collagen copolymer that is said to be exceptionally biocompatible, the TICL is available for myopia from -3.0 D to -20.0 D with astigmatism ranging from +1.0 D to +4.5 D at the spectacle plane. The foldable lens can be injected through a 3.0mm incision and is positioned in the posterior chamber. A variation of the Visian Implantable Collamer Lens for myopia, the TICL is currently approved in Europe, and an application is pending before the US FDA.

All 63 eyes in 36 patients included in Dr Elies’ study had primary astigmatism with no previous surgery and no abnormal findings before surgery. Mean pre-operative spherical equivalent of the 63 eyes in 36 patients measured -10.58 ± 3.41 D, while mean astigmatism was -3.59 ± 1.38 D. All eyes implanted with the TICL received at least one year of follow-up.

Visual outcomes were very good, Dr Elies reported. At one year, 82.5 per cent of eyes had a spherical equivalent within 0.50 D of intended, with 75 per cent between 0.00 and -0.25, and 93 per cent within 1.0 dioptre. Postoperatively 68.3 per cent had uncorrected visual acuity equal to or better than their pre-operative best corrected visual acuity. One eye lost one line of best-corrected visual acuity, while 60.3 per cent gained at least one line. Measured by refraction, mean astigmatism was reduced to less than 0.5 dioptre with keratometric refractions remaining virtually the same, indicating that the toric lens is primarily responsible for the improvement, Dr Elies said.

Just as important, the results were very stable, showing similar values at one week, six months and one year. All patients followed beyond one year continued to be stable, with some (first three patients) maintaining visual acuity six years after implantation. Dr Elies did report some minor complications. At four weeks, four eyes had intraocular pressure over 21 mmHg due to steroids. Two eyes in one patient developed adenovirus keratoconjunctivitis. Five eyes showed tilted IOLs, with one showing more than five degrees of rotation, requiring repositioning. Dr Elies saw no cataracts or lens opacities in this group.

Staar reports that clinically significant anterior subcapsular cataracts develop in about 1.3 per cent of eyes implanted with its myopia collamer ICL. Dr Elies speculated that the lack of cataracts in his series might have been due to selecting lenses on the large size, resulting in more vault. Overall, 49.2 per cent of eyes showed a vault between one and two corneal thickness.

“W hen you have more vault, you have less cataracts,” he said. “In my opinion, collamer toric ICL implantation seems to be a good method to correct moderate to high myopic compound astigmatism, being a safe, efficient, stable, and predictable procedure,” concluded Dr Elies, who disclosed a consulting arrangement with the manufacturer.

**Iris-claw lens could be easier**

Dr Marinho acknowledged the advantages of the toric ICL. But he also pointed out a drawback: precise fitting of the lens is required for the stability and proper functioning of posterior chamber phakic lenses. He believes that a foldable iris-claw design, such as the Artiflex toric (Optec), which is about to begin clinical trials, may provide a more manageable solution for intraocular treatment of compound myopic astigmatism.

“The ICL is extremely size-dependent. With the iris-claw, one size fits all,” he noted.

He has found both the foldable Artiflex non-toric phakic IOL and the non-foldable toric Artisan to be very stable, but the large incision required for the non-foldable toric lens risks induced astigmatism. The new foldable toric Artiflex is intended to solve the incision size problem while retaining the design’s stability, he added.

Composed of a polysiloxane optic with PMMA haptics, the toric Artiflex measures 8.5mm with a 6.0mm optical zone. It will be available for myopia ranging from -1.00 to -13.5 D, and cylinder corrections of -1.00 to -7.50 D. Two versions will be produced, one with the cylinder correction parallel to the axis of the haptics, and the other with the correction perpendicular.

Depending on the axis of the patient’s error, the surgeon can choose the version that requires the least manipulation inside the eye to align the cylinder correction with the patient’s axis. The toric Artiflex was scheduled to enter European clinical trials in late September, with Dr Marinho participating.

“This is a very promising lens and we hope to have results at the ESCRS Berlin meeting in 2008.”

marinho@mail.telepac.pt
danielies@hotmail.com