ASTIGMATISM MANAGEMENT

New tools raise the bar in astigmatism management

by Dermot McGrath in Vienna

New technologies allied to improved surgical techniques are helping surgeons to deliver more predictable, accurate and reproducible outcomes in the treatment of astigmatism according to a number of studies presented here.

“For better outcomes with toric IOL implantation we know that we need more accurate surgery and the latest generation of technologies will certainly help us to achieve that,” Roger F Steinert MD told delegates attending the XXIX Congress of the ESCRs.

Dr Steinert, the Irving H Leopold professor and chair of ophthalmology, professor of biomedical engineering and director of the Gavin Herbert Eye Institute at the University of California, noted the critical importance of accurate toric IOL alignment in treating astigmatic patients.

“If the alignment is off by just 15 degrees, we lose half of the IOL effect and 30 per cent misalignment means that we have lost all of the effect as well as picking up some higher order aberrations,” he said.

The traditional method of marking the eye for toric IOL implantation introduces a number of variables that undermine the likelihood of obtaining precise and reproducible outcomes, said Dr Steinert.

“Marking the limbus must be performed preoperatively with the patient in an upright position. Once the patient is draped, it can be hard to determine the coronal or horizontal plane. Cyclotorsion is another big problem and it is the rule, not the exception, in a supine patient. We did a study a few years ago and found that the mean deviation was four degrees, but that it was not unusual to see as much as 15 degrees of cyclotorsion, so patients will vary quite a bit,” he said.

For the marking of the eye, Dr Steinert said that there are a wide variety of instruments currently on the market such as the Mendez gauge, the Dell marker or the Steinert-Rumison marker, which do the job adequately. He advised surgeons using ink marks to select the 3 o’clock and 9 o’clock positions rather than 6 and 12 o’clock, because the latter positions require the surgeon to manipulate eyelids and may lead to greater inaccuracy.

Taken collectively, all of these factors lead to an increased chance of eventual toric IOL misalignment.

“The variables start to add up with the estimation of what is truly horizontal and vertical, the possible spread of the ink marks and problems of cyclotorsion. This is really what is driving the technological drive to see if we can come up with something better,” he said.

**New devices**

Dr Steinert said that new technology platforms such as the Osher Toric Alignment System (Haag-Streit Inc), the TrueVision 3D Visualization and Guidance System, Callisto (Carl Zeiss Meditec AG) and the ORA(WaveTec Vision) should all help to significantly reduce the risk of misalignment.

“The technology now coming onto the market is showing us some pathways for improvement but we need to continue to balance clinically significant improvements against cost, as there is capital outlay, user fee and time involved in these new devices as well,” he concluded.

The need to move from subjective refractive assessment to more objective measurements was also emphasised by Roberto Zaldivar MD in a separate presentation.

Dr Zaldivar focused in particular on the benefits of using the OQAS (Optical Quality Analysis System, Visiometrics SL, Spain), noting that the device offers an effective means to measure accurately and objectively patients’ quality of vision.

“This device introduces a new concept that we call super refraction. Most ophthalmologists consider normal vision as 20/20 but we know now that all 20/20 visual acuities are not the same,” he said.

Dr Zaldivar said that the OQAS devices gives surgeons an exciting tool for improving refractive and surgical results.

“It is mandatory to keep improving our preoperative information in order to obtain better visual quality for our patients postoperatively. With this system, I think we are finally moving to an exciting new era of objective refraction,” he concluded.