How to deal with corneal problems

BARCELONA Dr. José L. Gelli, director of the Cornell and Refractive Surgery Unit in the Instituto Microcirugía Ocular of Barcelona and President of EuCornea in his talk will present strategies how to deal with corneal complications.

How often do corneal complications after refractive surgery occur? Gelli: Refractive surgery – laser surgery techniques as well as refractive intraocular surgery – has proved to be a safe and successful method of correcting refractive errors and making patients independent of visual aids. The complication rates are low. Taking a look to the peer reviewed published literature, for example, microcornea or folds range from 0.2 to 1.8%, epithelial ingrowth from 1 to 10%, infections from 0.02 to 1.5% or acute-chronic endothelial cell loss from 0.8 to 35%. But still in rare cases patients suffer from complications like secondary irregular astigmatism.

How would you define a “risk eye”? Gelli: Surgeons should be aware of the risk of a corneal complication in eyes with subnormal topography (for example irregular astigmatism or keratoconus fustre) if they want to perform refractive laser surgery. For the intraocular refractive surgery a low number of endothelial cells (lower than 2000/mm²), the depth of the anterior chamber, signs of uveitis and a low number of endothelial cells (lower than 2000/mm²) is critical. In my practice as a reference surgeon I will focus on the indications for different strategies to deal with irregular astigmatism.

The complications include for example secondary irregular astigmatism, such as topoguided excimer ablation or intraconal ring segments implantation. I will focus on the indications for different techniques of corneal transplantation, especially the indications for Deep Anterior Lamellar Keratoplasty (DALK) and Penetrating Keratoplasty (PK).

CASTROP RAUXEL/LO 77.2% of spectacle prescriptions in Germany are toric whereas only 2.1% of the implanted IOL are. About 15 to 30% of patients would clearly benefit from a toric IOL. The posterior curvature does modify the total cylindrical power vector. Therefore, it is better to use a total cylindrical power vector including the total – anterior and posterior curvature which is not measured by the keratometer.

How to calculate and align toric IOLs

15 to 30 percent of the patients would benefit from the correction of astigmatism. Therefore, a distinct “one and only” target astigmatism does not exist. The posterior curvature does modify the total cylindrical power vector by approx. 0.3 D on average (Figure 1). It can only be measured by Scheimpflug photography or Anterior Segment OCT (AS-OCT). When comparing an AS-OCT (Carta SS-1000) to a trusted autokeratometer (Lenstar), an hybrid Placido/Scheimpflug device (TMS-5), a Placido topographer (TMS-4) and a Scheimpflug tomograph (Pentacam HiRes) it delivered the most precise results. The Pentacam suffers from a lot of various errors on the result of TIOL implantation. It can be clearly seen that in TIOL of up to 4 D of cylinder power the effect of a 4° misalignment is much smaller than the measurement errors. To avoid SIA, the incision should be kept very small, placed as far away from the apex as possible (temporally) and preferably posterior-limbal or even scleral.

For the implantation of the toric IOL various marking techniques do exist. When aligning the lens manually a mean positioning error of 4° can be achieved with a thorough technique. We prefer the Gerten marker combined with the Neuhann AK marker (Geuder AG, Germany). With the use of digital aids like iris imaging or intraoperative wavefront aberrometry, the mean positioning error further reduced to 2°. However, in the vast majority of toric patients, the clinical impact will be small because measurement errors play a much larger role. If high-tech equipment is not available, stochastic regression (Figure 3) can be used to check the correct TIOL alignment. The use of digital aids like iris imaging or intraoperative wavefront aberrometry can be detected and corrected immediately.

Where to go after a long scientific day

Suggestions for restaurants in Amsterdam

AMSTERDAM After a long day full of discussions about surgical techniques and skills it may be a good idea to prolong the discussion with some friends and colleagues in a nice restaurant.

De Roode Leeuw
Traditional dutch food in a nice warm atmosphere can be found in the “red lion”. Here you can enjoy mussels with french fines as well as a fish soup from Volendam but also a pork filet or lamb chops.

Hare are a few suggestions that might help to spend an agreeable evening.

Het Huize Christina
Good classical cuisine in a traditional building right next to the Leidsegracht in what you go at get Christina. The restaurant also offers special “Boat Boxes” for the picnic during a boat ride along the canals of Amsterdam.

Keizersgracht 236
The Keizersgracht 238 claims to be the best grill restaurant in Amsterdam. It offers beautiful views over the 400 year old canal, and sometimes the atmospheric is casual, but with enough class.

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