Biometry in high myopia

High myopes are more likely to develop cataract, glaucoma, myopic maculopathy and retinal detachment. Therefore, accurate biometric measurements in highly myopic eyes are of crucial importance for assessing the severity, progression and associated pathologic changes as well as for calculating IOL power. But which method is the most reliable? Researchers compared the repeatability and accuracy of optical biometry (Lenstar LS900 optical low-coherence reflectometry [OLCR] and IOLMaster partial coherence interferometry [PCI]) and application ultrasound biometry in 33 highly myopic eyes.

The mean SE was −11.20 D ± 4.65. The coefficient of variations for repeated axial length measurements using OLCR, PCI and application ultrasound were 0.06 per cent, 0.07 per cent, and 0.20 per cent, respectively. The limits of agreement for axial length were 0.11mm between OLCR and PCI, 1.01mm between OLCR and application ultrasound, and 1.03mm between PCI and ultrasound. The ACD values were 0.29mm, 0.53mm, and 0.51mm, respectively. These repeatability and agreement results were comparable in eyes with extreme myopia or posterior staphyloma. The mean radius of corneal curvature was similar between OLCR and PCI (7.66 ± 0.24mm versus 7.64 ± 0.25mm). The researchers conclude that optical biometry provided more repeatable and precise measurements of biometric parameters, including axial length and anterior chamber depth, than application ultrasound biometry in highly myopic eyes.

Age and refractive outcome

Previous studies suggest that age may play a role in the outcomes of refractive surgery, with older patients achieving more refractive change for the same attempted dioptric correction. Researchers in The Netherlands performed a study to evaluate the influence of patient age on postoperative clinical outcomes in a large population of consecutive moderate to high myopic LASIK treatments of −5.00 D or more of spherical equivalent using the Schwind Amaris laser system. The study of 612 eyes indicated that patient age affected postoperative outcomes in a subtle, yet significant manner. The researchers suggest that an age-dependent adjustment toward greater attempted correction in younger patients and less intended correction in older patients may help optimise refractive outcomes.

Femto KAMRA

Many refractive surgical solutions are appearing for the treatment of presbyopia, the most common refractive error, affecting more than two billion people worldwide. Technological advances include femtosecond laser technology and corneal inlays as a removable non-lens-based surgical approach for the corneal compensation of presbyopia. A recent study looked at the two-year postoperative safety and efficacy outcomes after monocular Kamra corneal inlay implantation in femtosecond laser–created corneal pockets of 24 emmetropic presbyopic patients to improve near and intermediate vision. After 24 months, the mean binocular UNVA improved from 20/50 to 20/25; 20 patients (83 per cent) had a UNVA of 20/25 or better. The mean binocular UIVA was 20/20. The mean UIVA was 20/20 in the surgical eye and 20/16 binocularly after 24 months. Contrast sensitivity under photopic and mesopic conditions remained in the range of the normal population. No patient had detectable central visual field defect. No inlay was explanted. No inflammatory reactions were observed. The ECC and CCT remained stable. The researchers conclude that corneal inlay implanted in femtosecond laser–created pockets was effective and safe for the corneal compensation of presbyopia in emmetropic patients after 24 months.

JCRS SYMPOSIUM
Focus on Technique: What the Anterior Segment Surgeon Needs to Know in 2013

Monday, April 22, 2013
1:00–2:30 PM

Moderators:
William J. Dupps Jr, MD, PhD, Nick Mamalis, MD

- Femtosecond Laser–Assisted Cataract Surgery: Tales from the Learning Curve
  Jason J. Jones, MD, William B. Trattler, MD

- Microincision Glaucoma Devices: Who Should Use Them and When?
  Reay H. Brown, MD, Steven D. Vold, MD

- DMEK Versus DSAEK
  Francis W. Price Jr, MD, Mark A. Terry, MD

- Collagen Crosslinking Technique: What Does the Evidence Support and Where Are We Headed?
  Peter S. Hersh, MD, Theo Seiler, MD, PhD

During the ASCRS Symposium
on Cataract, IOL and Refractive Surgery
San Francisco, California, USA