

can correct up to 2.00 D of sphere and 2.00 D of cylinder, are guided by both refractive measurements and patient feedback. Multiple adjustments can be performed until the patient is happy.

The LAL is effective when implanted in myopic, hyperopic, and astigmatic eyes<sup>2-4</sup> and in difficult cases, such as eyes after refractive surgery and very short or long eyes. Excellent results have been achieved due to the LAL's ability to provide customized presbyopia solutions, such as adjustable monovision, customized near add, and asphericity control, positioned in the line of sight. A study of the LAL's customized near add function showed that it achieves good uncorrected distance and near visual acuity more frequently than an accommodating IOL.<sup>5</sup>

The LAL, used in conjunction with femtosecond laser-assisted

cataract surgery, is a comprehensive solution to the increasing visual expectations of cataract surgery patients. This technology offers early postoperative correction and adjustment based on individual patient feedback, enriches our portfolio of premium lenses, and is able to deliver the "wow" factor even for challenging or demanding patients.

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## The Aladdin for Precise Biometry

By Sunil Shah, MBBS, FRCOphth, FRCS(Ed), FBCLA

Cataract surgery has evolved into a refractive procedure from which patients demand accurate results. The correct selection of an appropriate IOL is crucial to achieve optimum refractive outcomes. Sources of error can arise from the inaccurate measurement of the biometric parameters of the eye, leading to the implantation of an incorrect IOL; therefore, precise biometry is extremely important to ensure successful outcomes of cataract and refractive surgery.

Since the advent of interferometry techniques, the market has been dominated by the IOLMaster (Carl Zeiss Meditec) and, more recently, the Lenstar (Haag-Streit). The most recent addition to the lineup of optical biometers is the Aladdin (Topcon Europe; Figure 7). For the refractive cataract surgeon who worries about keratometry readings from the earlier devices in regard to astigmatic correction, the Aladdin incorporates Placido-based topography.

The Aladdin was developed with three key points in mind: speed, accuracy, and ease of use. The device uses optical low-coherence interferometry and, because of its design, is thought to be able to measure a very high percentage of eyes regardless of the type of cataract. The topographer analyzes approximately 1,000 data points at a 3-mm diameter. This topography-based keratometry figure is provided for use with IOL calculation formulas.

We have assessed the accuracy and reproducibility of biometry performed with the Aladdin biometer in comparison with the current gold standard device, the IOLMaster 500. Measurements of axial length, ACD, and keratometry were undertaken with the Aladdin and IOLMaster 500 by two experienced practitioners. The results were evaluated and compared to assess the interobserver variability of the Aladdin.

In a study of 100 cataractous eyes comparing the two systems, the mean difference was 0.005 mm for axial length and 0.007 mm for anterior chamber depth. The average Ks



(Courtesy of Sunil Shah, MBBS, FRCOphth, FRCS(Ed), FBCLA)

Figure 7. The Aladdin optical biometry and topography system.

were 0.02 D different. None of these parameters showed any statistically significant difference. The calculated intraocular power was also very similar, with a mean difference of only 0.04 D. Interestingly, in this group, 6% of eyes could not be read by the IOLMaster 500, but all eyes were read

by the Aladdin (data on file with Topcon Europe).

There was no statistically significant difference in predicted IOL powers between the Aladdin and the IOLMaster. Interobserver agreement between the two practitioners was found to be good for each parameter measured by the Aladdin.

### CONCLUSION

The Aladdin is an exciting addition to available biometry instruments. It is extremely fast and convenient to use, especially considering that one automatically gets a topography map within the series of measurements. This device is capable of rapidly becoming a gold standard for biometry among refractive cataract surgeons. ■

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