

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



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. ■

Sunil Shah, MBBS, FRCOphth, FRCS(Ed), FBCLA, is an Honorary Professor at the School of Biomedical Sciences, University of Ulster, Coleraine, Northern Ireland; Visiting Professor at the School of Life & Health Sciences, Aston University, Birmingham, United Kingdom; Director, Midland Eye Institute, Solihull, United Kingdom; and Consultant Ophthalmic Surgeon, Birmingham & Midland Eye Centre, Birmingham, United Kingdom. Professor Shah is a consultant to Topcon Europe. He may be reached at tel: +44 1217112020; fax: +44 1217114040; e-mail: sunilshah@doctors.net.uk.