

Advantages of The Aladdin

How this all-in-one optical biometer edged out the IOLMaster in a personal comparison of technologies.

BY CHRISTOPHER KISS, MD

For years, the IOLMaster (Carl Zeiss Meditec) was the only noncontact optical biometer on the market. Needless to say, most ophthalmologists owned one and considered it the gold standard for IOL power calculations. Several other technologies were released along the way, and surgeons began to diversify their portfolio for preoperative measurements. Today the IOLMaster has some stiff competition, with the main opponent being the Aladdin (Topcon). Recently we decided to purchase a new optical biometer, and below I recount why it was the Aladdin I chose to incorporate into my clinical practice, based on results from a personal comparison of technologies.

COMPARISON

Overview. I recently compared the previous gold standard of care, the IOLMaster, to three other biometry technologies on the market, the Lenstar LS 900 (Haag-Streit), the AL-Scan (Nidek Co.), and the Aladdin, to decide which to purchase for our clinic. The latter technology includes an optical biometer and a Placido-ring topographer, thus allowing surgeons to calculate IOL power and evaluate corneal topography in a single device. The Aladdin can be used to obtain measurements of axial length, corneal radii/keratometry (K readings; Figure 1), anterior chamber depth, cylindrical power, corneal astigmatism, corneal aberrations, and white-to-white. It can also be used to detect corneal diseases, to perform pupillometry, and to conduct a Zernike analysis for extra assessments (Figure 2).

Corneal topography and pupillometry. The biggest advantage that we found in our comparison is that the Aladdin offers topography of the cornea. This is unique to other diagnostic systems on the market. With the other systems, K readings are acquired based on various measurement points, the least of which is surveyed with the IOLMaster. The AL-Scan includes 36 measurement points plus two circles, resulting in some of the more accurate K readings compared with the IOLMaster and the Lenstar LS 900. But the most accurate K readings were obtained with the Placido-disc topography system included with the Aladdin, as



Figure 1. Keratometry screens of the Aladdin.

demonstrated in Figure 1. This system uses 15 concentric lines to seamlessly map the cornea, which is very good for toric IOLs or post-LASIK eyes. But the reason we finally chose the Aladdin was that it also offers dynamic pupillometry, which is also quite unique for biometers.

Ease of use. We also found that the Aladdin was extremely handy and easy to use. The other three biometry devices were also intuitive, but the Aladdin was among the fastest in terms of acquisition of the scan. This is what prompted us to closely analyze this device and consider replacing the IOLMaster with it.

MAKING A DECISION

All the machines are very good at what they do, which is measure the eye and predict the best IOL for each patient. At the end of our analysis, we were left decid-

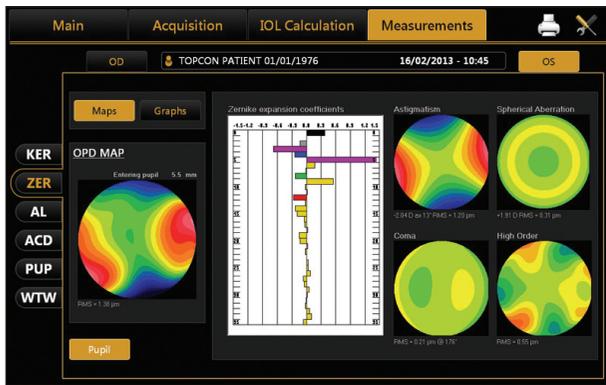


Figure 2. The Aladdin can be used for Zernike analysis, providing additional preoperative assessments.

ing between purchasing the AL-Scan and the Aladdin. We had ruled out the Lenstar LS 900 because it was the slowest and it was also the only system that would have required us to purchase a laptop, as there is no integrated computer. We use a lot of Alcon products, and the company had wanted us to use ray tracing with the Lenstar; however, this was still not enough to convince us to purchase that system.

Biometry is especially important for a practice like ours, doing refractive cataract surgery with multifocal and toric IOLs. We also do a lot of LASIK and LASEK and so the availability of pupillometry with the Aladdin seemed like an appropriate choice for us. In the end, we decided that the Aladdin best fit the specific needs of our clinic. The thing that we were most interested in was keratometry, which in my opinion, is best obtained with topography. However, pupillometry is a close second requirement for our clinic. Paired with the fast acquisition speed and ease of use, the Aladdin was the clear winner in our assessment. Simply put, it was the best fit for a refractive practice like ours.

In addition to biometry, topography and pupillometry are especially important for cataract surgery procedures that include implantation of a multifocal or toric IOL. The charming thing about the Aladdin is that this is all incorporated into one device.

POSTREFRACTIVE CASE STUDY

A patient who previously underwent radial keratotomy presented for cataract surgery. The patient had an extremely flat cornea (K readings, 9.99 and 9.86 mm) and a long eye (27.46 mm). We performed his pre-operative assessment using only the Aladdin. The big advantage of using this machine in this case is that the Camallin-Calossi post-LASIK IOL calculation formula is built into the system. When we used the SRK-T IOL power calculation formula, there was a 3.00 D difference from the IOL power suggested by the Camallin-Calossi formula. We chose to use the post-LASIK formula plus the measurements from the Aladdin and decided to implant a 23.00 D SN60WF IOL (Alcon).

After performing cataract surgery and IOL implantation, the patient ended up plano—a most impressive result considering the patient's challenging refractive issues. We didn't really expect it, but we were happy when we saw the results.

CONCLUSION

Performing refractive cataract surgery in a patient with severely reduced visual acuity preoperatively who achieves quality vision postoperatively, the choice of biometry and the refractive result is not as important. But today this is only a handful of the patients we see. Any time we perform refractive cataract surgery in patients who see 20/20 before surgery, they will not be happy unless they achieve a UCVA of 20/20 afterward. There is no exception, and this is the reason that we chose the Aladdin as a biometer. With a built-in topographer, we can get very accurate refractive results. At the moment, our results are within 0.25 to 0.50 D of intended correction. ■

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