Discussion

The fact that the IOLMaster 700 performs 6 radial scans helps to optimize the axial length measurement when compiling the results. This seems to be the main reason to explain our results. Likewise, the fact that SWEPT Source OCT technology is used, has the advantage that the entire eyeball is scanned, and the different structures to be found in the entire visual axis are recognized. This facilitates the proper axial length measurement, even in the presence of some dense cataracts. Furthermore, unusual eye geometries such as tilt or decentration of the crystalline lens can be detected and taken into consideration in the choice of IOL model. The fixation check of the IOLMaster 700 is another advantage of this new biometer. It enables the examiner to check whether the image is being obtained in the right position and to reduce the risk of refractive surprises due to incorrect measurements caused by undetected poor fixation. Finally, the possibility of visually verifying of which structures of the eye have indeed been measured is of great help.

Conclusion

The IOLMaster 700 is more effective in obtaining biometric measurements in eyes with less transparent ocular media. The check for decentration or tilt of the crystalline lens, the fixation pattern, and the visualization of the measured structures all help to eliminate potential sources of error and, therefore, to optimize cataract surgery outcomes.

References

IOLMaster 700 from ZEISS

The new IOLMaster 700 from ZEISS with SWEPT Source Biometry allows irregular geometries of the eye or insufficient fixation to be already identified during the diagnosis. Apart from optical biometry, it also offers OCT imaging across the entire length of the eye. The ZEISS IOLMaster 700 enables cataract surgeons to view the complete longitudinal section of the eye, from the cornea to the retina. Irregular eye geometries, for example tilting of the lens axis, are therefore easier to identify. It is expected that this will facilitate a reduction in refractive surprises.

The unique Fixation Check provides more confidence in biometry. Surgeons now can reduce the risk of refractive surprises due to incorrect measurements caused by undetected poor fixation. Compared with previous procedures, in which the measurement result was derived from an A scan curve, the image-based measurement with the ZEISS IOLMaster 700 brings both physician and patient added safety, as the expected refractive outcome can be more reliably predicted.

As with the ZEISS IOLMaster 500, this new device also simplifies the workflows prior to cataract surgery. The Reference Image eliminates the need for manual pre-operative and intraoperative marking of the astigmatism axis on the patient’s eye before implantation of a toric IOL, as well as manual data transfer. Both were previously necessary for alignment of the toric lenses.

The ZEISS IOLMaster 700 is fully compatible with previous versions and provides access to the database of the User Group of Laser Interference Biometry (ULIB). This database contains the lens constants of more than 270 IOL models and is based on more than 50,000 cataract operations. The unique telecentric keratometry allows particularly robust and reproducible measurement of the corneal surface.

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