Author Response: Total Corneal Astigmatism Measurement Precision

We thank Galvis et al.[1] for their thoughtful analysis and attention to our study.[2] We agree that the range of surgical-induced astigmatism related to the incision was wide and reduced the predictability of our results. Even if the mean values were low, the variability in the whole group (from −0.81–0.79 D) was larger than expected. Further studies are warranted to investigate if a smaller incision (e.g., 2.2 instead of 2.75 mm) can reduce such variability and if new technology (e.g., corneal incisions by femtolaser) can help us in this regard.

We followed their suggestion to better understand the outcomes of our study and calculated the absolute value of the curvital error in refractive astigmatism (ERA) (KP Φ): this was 0.54 D in Group 1, 0.41 D in Group 2, 0.39 D in Group 3, 0.37 D in Group 4, and 0.36 D in Group 5. Accordingly, the percentage of eyes with a curvital ERA (KP Φ) within 0.50 D was 55% in Group 1, 67.5% in Group 2, 72.5% in Groups 3 and 4, and 75% in Group 5. Overall, these data showed us that progressively adding information about the posterior corneal astigmatism (Group 2), surgically-induced astigmatism (Group 3), intraocular lens orientation (Group 4), and effect of the effective lens position (Group 5) actually reduces the curvital component of ERA.

We also agree that the larger standard deviations in models based on the rotating Scheimpflug camera are likely to depend on the lower precision of the measurements by this technology (especially for the posterior corneal surface), and that further technological development are needed to improve our results and their predictability.

Giacomo Savini[1]
Kristian Næser[2]

[1]Department of Ophthalmology, G. B. Bietti Eye Foundation IRCCS, Rome, Italy; and [2]Regions Hospital Randers, Randers, Denmark.
E-mail: giacomo.savini@alice.it.

References

1. Galvis V, Tello A, Niño CA, Parra MM. Total corneal astigmatism measurement precision. *Invest Ophthalmol Vis Sci*. 2015;56:5912.
2. Savini G, Naeer K. An analysis of the factors influencing the residual refractive astigmatism after cataract surgery with toric intraocular lenses. *Invest Ophthalmol Vis Sci*. 2015;56:827–835.

Citation: *Invest Ophthalmol Vis Sci.* 2015;56:5913.
doi:10.1167/iovs.15-17849

Investigative Ophthalmology & Visual Science