

## Response to comment on: Accuracy of the Barrett Universal II formula integrated into a commercially-available optical biometer when using a preloaded single-piece intraocular lens

Dear Editor,

We would like to thank the readers for providing insightful feedback on our report.<sup>[1]</sup> We would like to clarify the abovementioned comments about the report.

The protocols for studies of intraocular lens (IOL) formula accuracy recommend including only one eye from each study subject.<sup>[2]</sup> The selection criteria applied if one eye is chosen should be described clearly in the paper.<sup>[3]</sup> Our inclusion and exclusion criteria, which are the same as those of many studies, could include patients with diseases other than cataracts. As the refraction accuracy decreases with visual acuity,<sup>[2]</sup> we thought that eyes with better visual acuity after surgery were simply affected by the refractive error. This is certainly a little different from the protocol;<sup>[3]</sup> however, as written in the protocol, we clearly describe our selection criteria in the paper.

Because we used the reference value provided by the manufacture as the IOL constants, lens constant optimization was not performed, including A constant of the SRK/T formula. The IOL constants for Vivinex™ iSert® XY1 IOL are not listed in ULIB, nor were they listed in IOLcon when the study began. After confirming this with the manufacturer, we started this study. However, the MAE of SRK/T formula in this study is 0.045, which can be regarded almost as zero, and the lens constant optimization would not have changed the conclusion in this study. Our conclusion is that the Barrett Universal II formula might be less accurate when using a Vivinex™ iSert® XY1 IOL of 24.5 D or greater.

The protocol recommends Cochran Q test for analyzing differences in prediction error between the formulas.<sup>[3]</sup> Prior to submitting the original paper, we used Cochran Q test for comparison of percentage of eyes within  $\pm 0.50$  of prediction error. In addition, the post-hoc analysis of McNemar's test with Bonferroni correction was performed for multiple comparisons of the formulas.

In the short and medium axial length group, the percentage of eyes within  $\pm 0.50$  D prediction error was not significantly different between the four formulas. In the long axial length subgroup, the percentage of eyes within  $\pm 0.50$  D prediction error was significantly different between the four formulas ( $P = 0.011$ ). The Barrett Universal II formula had a higher percentage of eyes within  $\pm 0.50$  D prediction error than the Holladay 1 formula ( $P = 0.014$ ). In the low power subgroup, although the Cochran's Q test confirmed a statistically significant difference between the four IOL power formulas in the percentage of eyes within  $\pm 0.50$  D prediction error ( $P = 0.021$ ), McNemar's test with Bonferroni correction showed no significant difference in any two groups. In the

medium power subgroup, there was no significant difference in the percentage of eyes within  $\pm 0.50$  D prediction error. In the high power subgroup, there was no significant difference in the percentage of eyes within  $\pm 0.50$  D prediction error ( $P = 0.079$ ).

As we thought that including all the results would be too much and might confuse the readers, we included only the absolute error statistics in the paper.<sup>[1]</sup>

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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### References

1. Mieno H, Hieda O, Ikeda T, Hayashi S, Hashida M, Urabe K, *et al.* Accuracy of the Barrett Universal II formula integrated into a commercially available optical biometer when using a preloaded single-piece intraocular lens. *Indian J Ophthalmol* 2021;69:2298-302.
2. Hoffer KJ, Aramberri J, Haigis W, Olsen T, Savini G, Shammas HJ, *et al.* Protocols for studies of intraocular lens formula accuracy. *Am J Ophthalmol* 2015;160:403-5.
3. Wang L, Koch DD, Hill W, Abulafia A. Pursuing perfection in intraocular lens calculations: III. Criteria for analyzing outcomes. *J Cataract Refract Surg* 2017;43:999-1002.

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