


Predictive Accuracy of Intraocular Lens Power Calculation Formulas for Cataract Surgery in Keratoconus: A Systematic Review and Network Meta-Analysis [Letter]

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Dear editor

We read with great interest the recent article by Aljahdali et al titled “Predictive Accuracy of Intraocular Lens Power Calculation Formulas for Cataract Surgery in Keratoconus: A Systematic Review and Network Meta-Analysis”.¹ The authors compare the predictive accuracy of IOL power calculation formulas in keratoconus (KCN) patients undergoing cataract surgery. We commend the authors for their systematic research method, which represents a valuable clinical contribution to KCN research. While the study is commendable, we wish to underscore several aspects that, if elucidated, could enhance the interpretation and impact of the findings.

- 1) “Barret True-K” which should be corrected as “Barrett True-K” appears to be misspelled in Table 1. Meanwhile, the data presentation in Table 1 such as “MAE = 0 eyes” in Holladay 2 formula (Keratoconus adjusted) seems unusual and may warrant verification. This is particularly unlikely to occur in most clinical datasets,^{2,3} due to the inherent biological variability of KCN and the presence of measurement errors in clinical environments. The SRK II formula which shows PE Within ± 1.00 having 0 eyes also appears unusual and may warrant verification, which may suggest data extraction or reporting error. Since it is a classic formula, the proportion within ± 1.00 D is generally far from zero in KCN eyes.⁴ These findings require verification.
- 2) The sample size is not specified. The abstract states that there are seven studies (530 eyes). But the discussion part says there are seven studies involving a total of 560 eyes. It should be clarified whether 530 or 560 is correct with clear explanation of missing data.
- 3) The authors stated that they used a Bayesian random-effects model via MetaInsight v6.2.1. It should be acknowledged that some network meta-analyses (NMAs) have sparse networks and formal inconsistency testing may not always be feasible. Since no assessment of network consistency is presented such as node-splitting and design-by-treatment interaction and no transitivity assumption evaluation is provided, this is a critical omission which need to be reported given that KCN severity, biometric devices, and IOL types varied across studies. In addition, it was found that when one study was removed, the Barrett Universal II showed the lowest Mean Prediction Error (MPE) compared to Barrett True-K Measured in sensitivity analysis. Since removing one study completely changes the top-ranked formula, the results are not robust. This needs much more prominent discussion, not a passing mention.
- 4) The discussion part mentions Melles et al’s finding that SRK/T produces myopic errors in steep cornea.⁵ However, this is cited as an explanation for SRK/T’s unexpected performance in severe KCN, but the original Melles’ paper studied

normal eyes, not KCN. This extrapolation needs to be qualified appropriately. One last thing, reference 18 and 28 in this article are identical citations.⁶ The duplicate citation issue should be verified by the editorial office before publication.

Conclusion

In summary, the study by Aljahdali et al provides valuable clinical evidence for understanding KCN. But data integrity issues, internal inconsistencies, and methodological gaps in the NMA reporting require certain refinements. The core message showing that KCN-specific formulas outperform traditional ones is supported, but the nuanced ranking claims need more cautious interpretation given the current limitations and heterogeneity of the data.

Data Sharing Statement

No new data were generated or analyzed.

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Disclosure

The authors declare no conflicts of interest in this communication.

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