Comment on: Effect of residual astigmatism on uncorrected visual acuity and patient satisfaction in pseudophakic patients

We discussed the article by Schallhorn et al. comparing the effect of residual astigmatism on visual outcomes and patient satisfaction in patients undergoing cataract surgery or clear lens extraction with astigmatism correction as part of the ESCRS Eye Journal Club.1,2 Although it is intuitive that increasing residual astigmatism would adversely affect the likelihood of achieving an uncorrected distance visual acuity (UDVA) of 20/20 or 20/16 in eyes with an emmetropic refractive target, the authors demonstrated this trend in 17,152 eyes. We would like to highlight several points of discussion relating to the study’s methodology.

The presentation of visual outcomes in terms of the likelihood of achieving UDVA >20/16 or >20/20 risks losing some meaning since 2 groups with different residual astigmatism may differ by these thresholds yet have an identical probability of achieving UDVA of 20/25. Consequently, some presentation of the spread of the raw visual acuity data in each group would be of interest.

The study included patients undergoing cataract and clear lens extraction, presenting a pooled analysis of outcomes. However, the demographics, preoperative visual acuities, ocular comorbidities, visual expectations, and the orientation of preoperative astigmatism were likely to have differed significantly between the 2 groups. Subgroup analysis would have expanded the generalizability of the study and further clarified the threshold of preoperative corneal astigmatism to include in surgical planning in each group. Subgroup analysis by preoperative refraction may have clarified whether myopic patients prefer a low hyperopic over low myopic outcome, which seemed true overall. It is unclear whether patients with ocular comorbidities were excluded. Moreover, inclusion of patients with corrected distance visual acuity worse than 20/30 may compromise the reliability of postoperative subjective refraction.

It is uncertain whether the questionnaire is validated in the assessment of quality of vision and for which distances. Satisfaction in this context is clearly a function of binocular vision and cannot segregate responses exclusively to a single operated eye—the premise on which the analysis was based. This may obscure the influence of residual astigmatism in the dominant eye on measures of satisfaction. It would be of interest to know whether the refractive state of the fellow eye—or indeed binocular UDVA—had any influence on measures of postoperative satisfaction. The inclusion of patients with extended depth-of-focus intraocular lenses may have further complicated this analysis. Response rates of self-completed postoperative questionnaires may be biased by refractive outcomes; consequently, those with poorer visual function may have been underrepresented.3

The prevalent view among cataract surgeons is that the orientation of residual astigmatism is visually significant. An unexpected, and potentially valuable, finding of this large study was that the orientation of residual astigmatism was not a significant predictor of visual outcomes on multivariate analysis, agreeing with another large study.4 This report may help to shift perceptions among cataract and refractive surgeons of the visual impact of the orientation of postoperative astigmatism. Additional analysis grouping patients based on the orientation and magnitude of preoperative corneal astigmatism would be of interest to further qualify these observations.

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REFERENCES

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We would like to thank the authors of the letter for their input that will help to clarify our outcomes. First, our population mainly consisted of patients who had undergone refractive lens exchange. The mean preoperative CDVA was ~0.01 ± 0.15 logMAR, with 86.0% of eyes