Comment on: Comparison of surgical repositioning rates and outcomes for hydrophilic vs hydrophobic single-piece acrylic toric IOLs

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We discussed the article by Haripriya *et al* comparing surgical repositioning rates between the AcrySof hydrophobic and Auroflex hydrophilic monofocal toric intraocular lens (IOLs),[1] as part of the ESCRS Eye Journal Club (3rd March 2021). We congratulate the authors on their work, describing the largest published cohort of patients implanted with hydrophilic toric IOLs. However, we would like to highlight some assumptions made in the study that relate directly to its primary aim (i.e. the effect of IOL material on rotational stability), and aspects of methodology which may affect its interpretation.

We would caution against the assumption that the AcrySof SN6AT hydrophobic (Alcon Laboratories Inc., Fort Worth, Texas) and Auroflex FH560 hydrophilic (Aurolab, Madurai, India) monofocal toric IOLs differed only in the polarity of the acrylic from which they are manufactured. The hydrophobic IOL has a 13.0 mm overall diameter for all cylindrical and spherical powers with single arm loop haptics, whereas the hydrophilic IOL has an overall length of 12.0 mm for 18.5-30D models, and 12.5 mm for 10-18D models with bulkier closed-loop dual haptics. Differences in haptic design[3] and length have been shown to independently influence rotational stability of an IOL, which may represent confounding factors between the two groups.

The variation in surgical marking techniques prior to toric IOL implantation between studies, and within studies, is a likely source of error in the evaluation of post-operative rotational stability. Systematic differences in the accuracy of corneal axis marking has been shown between different methods.[5] Moreover, it is likely that inter-surgeon variability may exist in the accuracy and reproducibility of manual corneal axis markings. Video capture at the conclusion of surgery may distinguish pre-

operative or intra-operative errors (i.e. misalignment due to inaccurate corneal axis marking or errors in IOL alignment) from post-operative IOL rotation.[3] In this regard, it is useful to highlight that the study primarily assessed axis misalignment rather than post-operative rotation between the IOL groups.

The large rotational deviation (mean 50.2º and 47.5º for each group undergoing repositioning surgery) is far higher than in other similar studies, implying that the axis misalignment may be heavily influenced by factors other than post-operative IOL rotation. Moreover, in Table 1, at least 3 individuals had 85-90° of axis misalignment, suggesting possible confusion between K_{max} and K_{min}. The surgical repositioning rate reported (1.5% and 1.8%, respectively) appears low given the degree of misalignment (mean 50.2º and 47.5º) in those who underwent repositioning surgery, considering that surgery was offered for those with >15º of misalignment.

If studies presented post-operative IOL misalignment data as a histogram according to the degree of rotation (i.e. in 5-degree bins) this would allow a more objective comparison between studies. Even if criteria for repositioning were standardised across studies, there may be socio-economic factors that might influence the decision to proceed to surgery; Oshika *et al* reported a lower degree of mean axis misalignment (26.4º+/-21.9º) in those undergoing repositioning surgery with the AcrySof monofocal toric IOL[7], although this is far higher than is typically reported in European/US settings.

References

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