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Toric IOLs have slight edge over femtosecond laser-assisted astigmatic keratotomy for astigmatism correction in cataract patients

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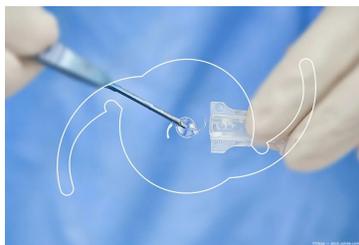


Toric IOLs outperform femtosecond laser-assisted astigmatic keratotomy in reducing postoperative astigmatism and improving UDVA after cataract surgery.

Taiwanese investigators compared femtosecond laser-assisted astigmatic keratotomy (FSAK) to toric intraocular lens (IOL) implantation to treat astigmatism in patients undergoing cataract surgery and found that both were effective to that end.

However, **the toric IOLs offered a slight edge in that they caused less**

postoperative astigmatism and were associated with better postoperative uncorrected distance visual acuity (UDVA),¹ according to first author Wei-Ting Yen, MD from the Department of Ophthalmology, Tri-Service General Hospital and the National Defense Medical Center, both in Taipei City, Taiwan.



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Yen and colleagues conducted a literature search that compared the 2 procedures. The primary outcomes were the postoperative refractive cylinder, correction index, UDVA, the proportion of patients with a residual refractive cylinder of 1.00 diopter (D) or less, and the target-induced (TIA) and surgically induced astigmatism (TIA, SIA). To date studies have compared the 2 procedures to correct astigmatism, but no consensus has been reached regarding which is associated with superior outcomes.

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The investigators explained the rationale for the study of these popular refractive options. "While toric IOLs offer numerous benefits for astigmatism correction, there are cases in which the risk of IOL rotation could make other options more suitable. In situations in which a patient is at a higher risk of IOL rotation, such as in cases with post-traumatic eyes or eyes with long axial lengths, addressing astigmatism on the corneal surface through other methods can be an alternative choice.^{2"}

Arcuate keratotomy³ is performed to correct astigmatism by making precise incisions in the cornea, and it can be performed in conjunction with femtosecond laser technology, because of the precise and predictability of the corneal incisions.⁴ The increasing popularity of FSAK is influenced by the growing prevalence of femtosecond laser-assisted cataract surgery,⁴ they explained.

Similar meta-analyses in the past have reported that toric IOLs provide better visual acuity and less residual astigmatism compared with corneal relaxing incisions.^{5,6} A recently meta-analysis also found that toric IOLs have less residual postoperative astigmatism, but there is no significant difference in the UDVA.⁷ Recently, numerous studies have provided updated information on postoperative residual astigmatism and visual outcomes between toric IOLs and FSAK after cataract surgery.⁸⁻¹⁷ Based on the previous studies, the study under discussion focused on data to December 2023 to compare the two procedures.

Literature review

The authors identified nine studies that reported on a total of 590 patients. "The meta-analysis revealed that toric IOLs could result in less postoperative refractive cylinder and provide better UDVA compared with FSAK. The trial sequential analysis disclosed strong evidence of lower postoperative refractive cylinder in the toric IOL group compared with that of the FSAK group. FSAK showed a smaller correction index and lower mean TIA and SIA compared with toric IOLs," Dr. Yen and colleagues reported.

Based on the literature review, they concluded, "For cataract patients, both FSAK and toric IOLs are effective methods for correcting astigmatism. However, toric IOLs offer less postoperative astigmatism and result in better postoperative UDVA compared with FSAK. The vector analysis of astigmatism showed that toric IOLs can also produce higher TIA and SIA. In addition, neither method was associated with severe untreatable complications. Therefore, the conclusion is that toric IOLs are the preferred choice for astigmatism correction in cataract patients and FSAK serves as a viable

alternative when toric IOLs are contraindicated."

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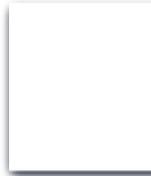
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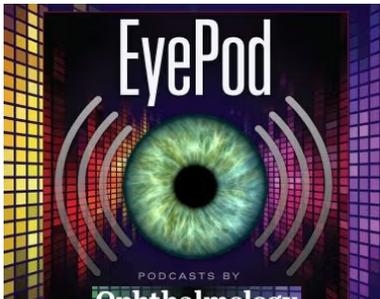
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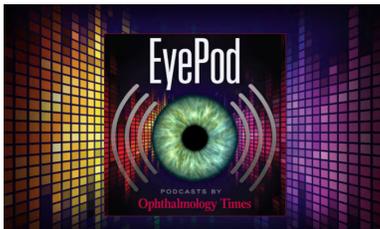
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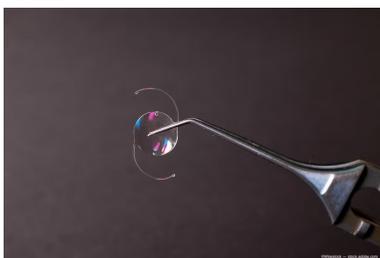
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