CATARACT SURGERY IN PATIENTS WITH CORNEAL DISEASE

Often, cataract surgery has unpredictable refractive results when performed in eyes with abnormal corneas. How can outcomes be improved?

BY NEDA SHAMIE, MD; AND ROBERT K. MALONEY, MD

TORIC INTRAOCULAR LENSES FOR CORRECTION OF ASTIGMATISM IN KERATOCONUS AND AFTER CORNEAL SURGERY

Mol IE, Van Dooren BT

ABSTRACT SUMMARY

Investigators analyzed visual outcomes after cataract surgery and toric IOL implantation in eyes with keratoconus, a history of keratoplasty, or a history of pterygium excision. This retrospective study evaluated 17 eyes of 16 patients over a 1-year period. Preoperative astigmatism (mean, 6.70 D) was correctable with spectacles in all eyes and fairly regular, with a bow tie–like pattern on central corneal topography. Topographic astigmatism had been stable and not progressive (≤1.00 D variation in the maximum keratometry [K] value) over a 6-month period. Eyes with severe keratoconus, defined as an average K value greater than 55.00 D, were excluded. Three types of toric IOL were used: AT Torbi 709 (Carl Zeiss Meditec; not available in the United States), Tecnis Toric (model ZCT, Johnson & Johnson Vision), and AcrySof IQ Toric (model SN6AT, Alcon). The Haigis formula was the main method used for calculating IOL power.

Best corrected distance visual acuity 12 months after surgery was 20/40 or better in 94% (16/17) of eyes and 20/25 or better in 59% (10/17) of eyes. Mean refractive cylinder decreased from 6.30 ±4.70 D preoperatively to 1.50 ±1.50 D at 1 year. Before surgery, 65% of eyes had preoperative corneal astigmatism of 3.00 D or more; 1 year after surgery, 5.8% of eyes had refractive cylinder of 3.00 D or more. Patient satisfaction was high, although total refractive correction was not obtained in the majority of patients.

DISCUSSION

Earlier research on toric IOL outcomes emphasized ensuring that preoperative astigmatism was regular and stable.2–4 A number of studies have reported on the utility and safety of toric IOLs in postkeratoplasty eyes,5–8 but such reports in keratoconus have had limited numbers of cases and other limitations.9–12 Cataract surgeons have therefore mostly shied away from offering toric IOLs to patients who exhibit any evidence of keratoconus, even forme fruste, because of the irregular nature of the astigmatism and the concern about progression. Mol and Van Dooren reported positive outcomes with toric IOLs in eyes with keratoconus and with other corneal conditions usually associated with.

STUDY IN BRIEF

Investigators evaluated the 1-year results of cataract surgery with toric IOL implantation in eyes with keratoconus, a history of keratoplasty, or a history of pterygium excision. The results of this small retrospective series suggest that toric IOLs can improve refractive outcomes in selected eyes with underlying corneal disease that typically causes irregular corneal astigmatism but also with stable and mostly regular central corneal astigmatism.

WHY IT MATTERS

Advances in pre- and intraoperative corneal imaging and in toric IOL design have prompted cataract surgeons to explore the safety and efficacy of toric IOLs for selected eyes with corneal pathology. The goal is to offer better postoperative UCVA than can be achieved in this population with monofocal IOLs.
irregular corneal astigmatism. We have likewise found that toric IOLs can help optimize refractive cataract outcomes in patients who have corneal conditions typically associated with irregular corneal astigmatism, provided that the central 3 mm on topography appears regular and bow tie–like in pattern, the astigmatism is stable, and the patient previously tolerated spectacle correction and did not rely on rigid gas permeable contact lenses. Although emmetropia often is not achieved in these eyes, we have noted a significant postoperative reduction in spherical equivalent and refractive astigmatism in these eyes, as did the authors of this study.

Larger studies are needed to confirm that, with proper preoperative evaluation and an open discussion about reasonable expectations, toric IOLs can be a safe and effective option for this subgroup of patients.
known: Corneas continue to flatten over time after CXL, so surgeons must target a more myopic outcome.


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