

Correcting Low Amounts of Astigmatism Can Improve Outcomes for Contact Lens Patients

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Introduction

While discomfort is the primary reason patients drop out of contact lens wear, one out of four former wearers dropped out because their vision wasn't as good as glasses. Many practitioners continue to fit "low cylinder" patients with spherical lenses for various reasons including concerns about toric contact lens stability, comfort, and cost.

The purpose of this study was to evaluate the performance of PureVision Toric contact lenses on patients that had been wearing spherical contact lenses.

Methods

Adapted soft spherical contact lens wearers with astigmatism were refit with PureVision Toric contact lenses. Lens fitting characteristics and vision were recorded by practitioners at the Initial visit, the 2-Week visit and the 1-Month visit. Patient responses were also collected throughout the study. At the 2-week and 1-month visits, forced choice preference was collected on a variety of performance attributes.

Results

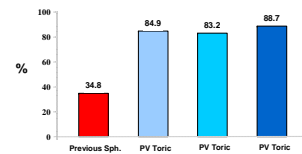
A total of 152 patients were refit from spherical lenses to PureVision Toric lenses. Of these, 55 (36.2%) were males and 97 (63.8%) were females. Ages ranged from 14 to 66 years with the average age being 34.2. The average number of years patients have worn lenses was 10.2 years. 76.4% of patients replaced their lenses weekly, bi-weekly, or monthly. 5.7% of patients replaced their lenses quarterly or bi-annually, and 17.9% reported some other replacement schedule. The average spherical power from the refraction was -3.25 D. The average cylinder power was -1.00 D.

Visual Acuity

The proportion of spherical lens corrected eyes with 20/20 or better visual acuity was 34.8%. Visual acuity was compared by analysing differences in the number of lines read between the spherical lenses worn upon entry into the study and the visual acuity while

wearing the PureVision Toric lenses at the Initial, 2-Week and 1-Month visits. A significantly greater proportion of eyes ($p < 0.05$) achieved 20/20 or better acuity with the PureVision Toric lenses, 84.9%, 83.2%, and 88.7% at the Initial, 2-Week, and 1-Month visits, respectively, Figures 1.

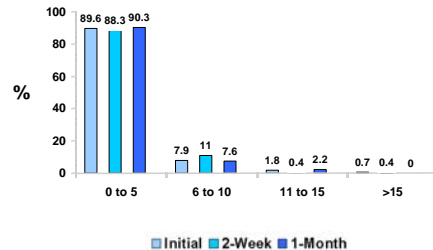
Figure 1: Percentage of eyes with 20/20 or greater visual acuity.



Orientation

At the initial visit, the orientation of the lens ranged from 0 to 5 degrees for 89.6% of the lenses. Rotation of 0 to 5 degrees was reported for 88.3% and 90.3% of lenses at the respective follow-up visits, Figure 2.

Figure 2: Orientation of lenses for eyes at Initial, 2-Week, and 1-Month visits.

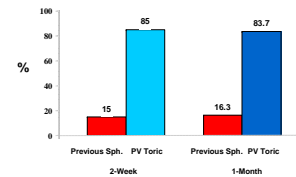


Practitioners were asked if the base curve was acceptable for the patient. The base curve was reported to be acceptable for 94.7% and 96.5% of the eyes, at the 2-Week and 1-Month visits, respectively. Practitioners agreed that the PureVision Toric lens provided an acceptable fit for 97.4% of eyes and provided excellent stability for 96.7% of eyes at the 1-Month visit.

Preference

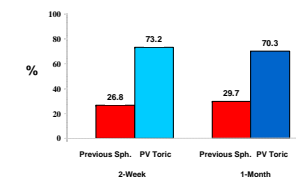
Following PureVision Toric wear, 85.0% and 83.7% of patients preferred the vision provided by PureVision Toric lens at the follow-up visits ($p < 0.05$), Figure 3.

Figure 3: Preference for "Vision Consistently Sharp".



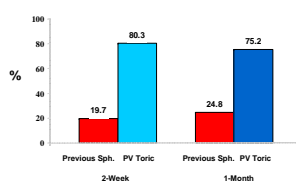
For overall comfort, 73.2% and 70.3% of patients preferred the PureVision Toric lenses at the 2-Week and 1-Month follow-up visits ($p < 0.05$), Figure 4.

Figure 4: Preference for "Overall Comfort".



Patients expressed an overall preference of 80.3% and 75.2% at the 2-Week and 1-Month follow-up visits ($p < 0.05$), Figure 5.

Figure 5: Preference for "Overall Preference".



Discussion

Although patients with low amounts of astigmatism may be fit with spherical lenses, compromises to vision can result in reduced satisfaction with the performance of the lenses and potentially lead to the patient dropping out of lens wear. A unique feature of the PureVision Toric lens is the Advanced Lo-Torque™ design. This design has a number of attributes that help orient the lens toward 0° and minimise rotational forces being applied by the lids during the blink. These attributes include a 360° comfort chamfer which reduces mass at the base of the lens and helps equalise the thickness around the lens periphery, a refined optic zone which minimises variations in thickness profile with power by adjusting the anterior and posterior optic zone diameters. In addition, the PureVision Toric lens has an aspheric front surface that is designed to reduce the positive spherical aberration of the eye. The results of this clinical study indicate that the Advanced Lo-Torque design will result in a greater proportion of patients achieving 20/20 or better visual acuity when compared to spherical lenses and the lens orientation remains consistent across visits.

While good visual acuity plays an important role in defining the performance of the toric contact lens, comfort is also key. Patients adapted to the lens geometry of a spherical lens may determine that improved vision at the expense of comfort is not an acceptable option. Although the comfort preference scores were not as dramatic as the preference scores for vision, 7 out of 10 patients preferred the overall comfort of PureVision Toric lenses.

The design features of the PureVision Toric lens contribute to excellent visual acuity and comfort. Together these elements play a role in the patients overall preference for the PureVision Toric lens over the habitual spherical lens that they entered the study wearing. The results of this study would support the view that PureVision Toric provides dependable rotational stability, good visual acuity and is preferred over spherical lenses for the patient with low amounts of astigmatism.

Conclusion

The PureVision Toric contact lenses offers advanced optics and stabilizing geometry that can provide improved visual outcomes for patients with "low" amounts of astigmatism. The benefits of improved vision do not appear to come at the expense of comfort. As practitioners consider the cost of patient dropout due to poor visual outcomes, they should consider the benefits of fitting advanced toric lenses on patients with low amounts of astigmatism.