

Surgical treatments range from cross-linking to keratoplasty when keratoconus progresses

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POINT / COUNTER

What are the advantages of epi-on vs. epi-off corneal cross-linking?

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Epi-on reduces risk

If you were having a cross-linking procedure, assuming you did not have to, would you want your corneal epithelium scraped off? I have asked this question internationally on many occasions, for which I notice few raised hands for epi-off, assuming epi-on treatment is effective. However, not all epi-on proprietary technology is effective.

Assuming effective transepithelial technology, the only exception to preferring epi-on corneal cross-linking is in cases in which cross-linking is to be combined with another procedure that would require the epithelium to be removed, such as PRK. Any treatment in which you do not remove the epithelium is clearly less invasive and problematic than any treatment in which you do.

Effective epi-on treatment reduces or eliminates the risks of delayed epithelial healing, slow visual recovery, infection, haze, scarring and corneal perforation. Epi-off is also very painful.

With effective epi-on cross-linking, patients generally return to their normal activities the next day, along with vision that is the same as or better than their preop vision. This is in contrast to epi-off treatment, for which the downtime is on the order of 1 week or more, and the return to preop vision may take months. In addition, with epi-on, patients typically experience only 4 to 6 hours of discomfort compared with epi-off, which consists of roughly 4 to 7 days of discomfort, light sensitivity, foreign body sensation, tearing and the inability to drive or work. My epi-on patients also require nothing stronger than a single dose of an oral nonsteroidal.

The advantages of a highly effective, noninvasive and safer transepithelial (epi-on) cross-linking procedure radically shift the risk-benefit ratio for treating patients with ectatic diseases. With increased safety and similar efficacy to epi-off, we see no reason to wait for progression and vision loss in a patient who has been diagnosed with ectasia.

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Disclosure: Rubinfeld reports a financial interest in CXL-USA LLC and CXL Ophthalmics LLC.

References:

Rubinfeld R, et al. Quantitative analysis of trans-epithelial corneal riboflavin loading. Presented at International CXL Congress; Dec. 5, 2015; Boston.

Rubinfeld R, et al. Mastering transepithelial and epithelial-off corneal collagen crosslinking for keratoconus and post-LASIK ectasia. Presented at American Academy of Ophthalmology meeting; Nov. 15, 2015; Las Vegas.



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