Two of every five claims are returned due to inaccurate coding
Find Accurate, up-to-date ICD-9 Codes and modifiers + more
Modern Medicine Coding Counselor

PRK after UVA-induced collagen crosslinking yields gratifying results

Patients with keratoconus, post-LASIK ectasia could be effectively rehabilitated, surgeon says

Publish date: Apr 1, 2007
By: Cheryl Guttman

SOURCE:

ARTICLE TOOLS
E-mail this article
Print this article

Las Vegas—UVA-induced collagen cross-linking (CCL) followed by surface excimer ablation shows promise as a safe and effective technique for visual rehabilitation in eyes with keratoconus or post-LASIK ectasia, said A. John Kanellopoulos, MD, at the annual meeting of the American Academy of Ophthalmology.

Dr. Kanellopoulos

Dr. Kanellopoulos, associate professor of ophthalmology, New York University Medical College, and medical director, Laservision-gr.Institute, Athens, Greece, presented results from a case series of 27 eyes that were treated with UVA-induced CCL using technology from a particular company (PriaVision Inc.) to stabilize corneal ectasia. After a delay of at least 6 months, a customized topography-guided, limited PRK was performed using specific software (T-CAT, WaveLight Technologie AG) in 14 of those eyes to normalize the cornea surface and improve best-corrected vision. Mitomycin-C 0.2% was applied for 30 to 60 seconds after the ablation.

At 6 months after the UVA-induced CCL procedure, the keratoconus and ectasia appeared stabilized. In 22 eyes, a reduction of the steep K by at least 2 D was seen, and 22 eyes also showed a decrease of at least 2.4 D in spherical equivalent (SE). Endothelial cell count showed a slight, paradoxical increase, possibly from discontinuing contact lens use. In most patients with an untreated, fellow affected eye, corneal pathology worsened.

Follow-up of 12 to 26 months is available for the eyes that underwent PRK after UVA-induced CCL. At the last visit, mean uncorrected visual acuity (UCVA) improved from 20/400 to 20/60 and mean best-corrected visual acuity (BCVA) improved from 20/100 to 20/40. SE was reduced by 6.4 D, steep K decreased from 54 to 47 D, and the pachometry changed from 450 to 397 µm. Two eyes developed mild haze, he said.

"In my practice, I see no reason not to treat keratoconus with UVA CCL as a temporizing measure in the visual rehabilitation of these patients, but I caution clinicians that this modality has not been investigated in an FDA trial and is not FDA-approved," said Dr. Kanellopoulos. "My experience also shows PRK after UVA CCL provides very gratifying visual rehabilitation. However, I currently perform PRK first, followed by UVA CCL at the same visit, because I believe that approach will offer a window for re-treatment if necessary. Now, longer follow-up and additional studies are needed to see whether this technique can prevent the need for penetrating keratoplasty."

Treatment protocol

The UVA CCL light treatment is performed by first removing the epithelium as for PRK, and then instilling riboflavin 0.1% solution, one drop every 2 minutes. The light treatment is performed using a 370-nm device (Keracure, PriaVision Inc.) at an energy of 300 mW/cm^2 for 30 minutes.

The topographic customized surface ablation procedure was performed using application of 20% ethanol for 20 seconds to achieve epithelial removal. The ablation was planned to correct 75% of cylinder in a small optical zone of at least 5 mm. Depending on corneal thickness, all or part of the sphere is also corrected.

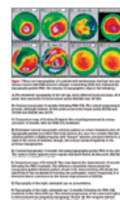
Figure 1

"The goal of the ablation is not to achieve emmetropia but to normalize the cornea in order to improve BSCVA. The topography-guided treatment flattens the apex of the cone but also extends to the periphery, where it causes flattening in order to steepen the diametrically opposite side of the central cornea," explained Dr. Kanellopoulos.

He also noted using the topography-guided treatment instead of a wavefront-guided approach has several important advantages.

"The topography-guided treatment removes about 60% less tissue in these thinner corneas than a similar wavefront-guided treatment would require. In addition, it is essentially impossible to obtain reproducible wavefront maps in eyes with such irregular corneas, and therefore not possible to treat in a customized way," Dr. Kanellopoulos said.

Related Content

Epi-LASIK favored over tPRK for myopia treatment

Surface ablation technique slightly edges out LASIK for treating compound myopic astigmatism

Five-year study of PRK-treated eyes finds no evidence of MMC toxicity

Excimer laser produces positive results in hyperopia

Wavefront surface ablation good choice for unusual topography

More Related Articles

Resource Centers
Allergy & Immunology
Cardiovascular Disease
Clinical Pharmacology
Cosmetic Surgery
Dermatology
Endocrinology & Diabetes
Family Medicine

Two of every five claims are returned due to inaccurate coding
Modern Medicine Coding Counselor
Find Accurate, up-to-date ICD-9 Codes and modifiers + more
CLICK HERE TO LEARN MORE

Clinical Practice QuickTools
Formulary Counselor
Search for Formularies:
Therapeutic Area: Analgesics
State: Alabama
GO
Visit the Formulary Counselor Page
Coding Counselor
Pay-for-Performance
Patient Education

"In our experience so far, it was usually necessary to deliver less treatment than we had planned, which indicates some nomogram adjustment is needed when ablating these rigid, cross-linked corneas," he added.

Asked about the haze that developed in a few eyes, Dr. Kanellopoulos noted that based on preclinical studies examining cytotoxicity of the UVA treatment, it is recommended that the CCL procedure be avoided in eyes with a cornea thinner than 400 µm to avoid endothelial cell damage.

"However, we have to consider some of these PRK treatments are fairly aggressive, and in our practice, a virgin normal eye treated with the same refractive parameters would also be likely to develop some haze," he said.

Order Reuse Permissions RIGHTSLINK

Home | About Us | Editorial Staff | Editorial and Advertising Policy | Our Publications | Terms & Conditions | Contact Us | Privacy Policy
© 2007 Advanstar Communications, Inc. All rights reserved.
Reproduction in whole or in part is prohibited.
Please send any technical comments or questions to our webmaster.