

March 2013 Digital Show Edition

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The News Magazine of the American Society of Cataract & Refractive Surgery

ASCRS•ASOA show issue

Cataract surgery

The latest on correcting refractive error in cataract patients, including use of the femtosecond laser

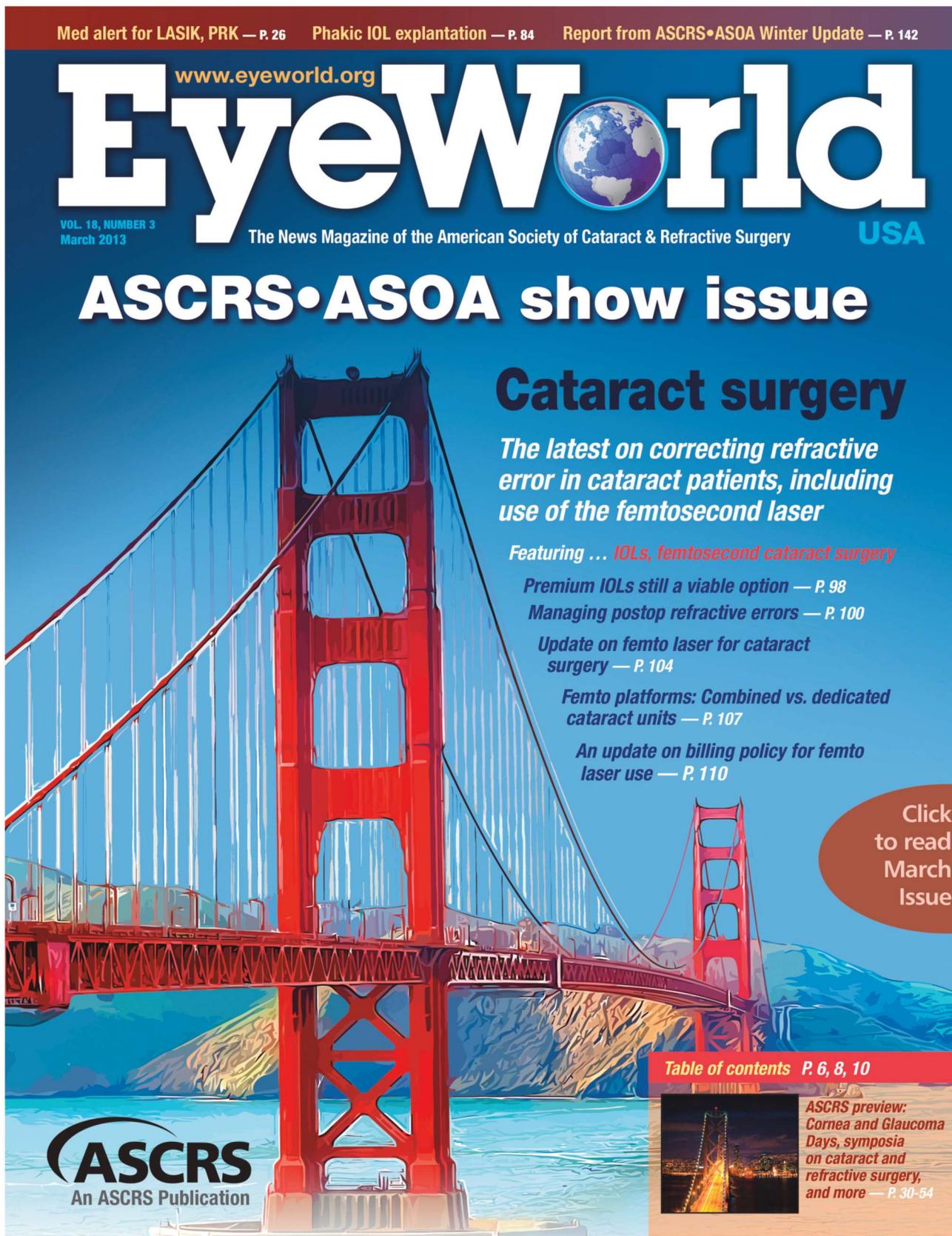
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Tracking and treating pediatric keratoconus with crosslinking

by Vanessa Caceres EyeWorld Contributing Writer

Corneal crosslinking emerging as a treatment to use as soon as feasible

As pediatric ophthalmologists search for better treatments for keratoconus, they are realizing that corneal collagen crosslinking has potential, and the earlier treatment begins, the better it is for the patient.

Although corneal crosslinking in the adult population has received a good deal of attention in recent years, treatment advances typically are slower to reach children, said **Phoebe Lenhart, M.D.**, assistant professor of ophthalmology, Department of Pediatric Ophthalmology and Strabismus, Emory University

School of Medicine, Atlanta. However, a series of articles published last year has put crosslinking for children in the limelight.

Study findings

Dr. Lenhart said two recent larger studies point to crosslinking's benefit in children.

One of the largest studies to date on this topic was published last March in *Cornea*.¹ Led by **Aldo Caporossi, M.D., FRCS**, investigators conducted a trial with 152 patients between 10 and 18 years old, all of whom had keratoconus. The study tracked various pre- and postop measures, such as uncorrected visual acuity (UCVA) and corneal topography. The patients had riboflavin ultraviolet crosslinking performed in an epi-off (epithe-

lium-off) manner. After three years of follow-up, the study showed "significant and rapid functional improvement," particularly in a group of patients with lower corneal thicknesses. Patients also had improvements in K readings and asymmetry index values.

Another large study from **Paolo Vinciguerra, M.D.**, published last September in the *American Journal of Ophthalmology*, tracked visual acuity, topographic, and other outcomes for up to two years in 40 pediatric keratoconus patients.² Investigators found improvements in the patients' UVCA, best spectacle-corrected visual acuity, keratometry, and higher-order aberrations.

Although those are two of the larger studies, they aren't the only recently published studies tracking the benefits of crosslinking in pediatric patients. In a special issue of the *Journal of Refractive Surgery* in November, a number of investigators from outside the U.S. reported favorable results with pediatric crosslinking.

For example, **Farhad Hafezi, M.D., Ph.D.**, chairman of ophthalmology, Geneva University Hospitals, Geneva, Switzerland, and his co-investigator found significant flattening over two years in a group of 42 children between 9 and 19 years old.³ "In the third year of follow up, there was no significant amelioration but there was stabilization," Dr. Hafezi said.

Dr. Hafezi contrasts his research with results from the Caporossi study, which showed continuous flattening for three years. "For the third year, the Caporossi group proclaims full success whereas we are more cautious, stating that children have to be followed very carefully after crosslinking and be retreated if necessary," Dr. Hafezi said.

Dr. Hafezi's research in this area has led him to make another bold treatment conclusion—one that more pediatric experts seem to agree is best going forward. "We have always proclaimed that an adult with keratoconus should first have documented progression of the disease prior to crosslinking treatment," he said. "We suggest modifying this attitude in children. Eighty-eight percent of children and adolescents seen in our practice showed keratoconus progression. In light of this high rate, we recommend not waiting anymore to document progression of the disease but rather to

perform crosslinking immediately, once the diagnosis is made. This way, the disease will be stopped at an earlier stage."

"One of the thoughts out there now is that it might be better to crosslink immediately because advanced keratoconus can be so devastating visually, and one goal is to avoid a corneal transplant," Dr. Lenhart said.

What research remains

Even though the message of early treatment seems reasonable to many, other areas related to pediatric crosslinking require further investigation.

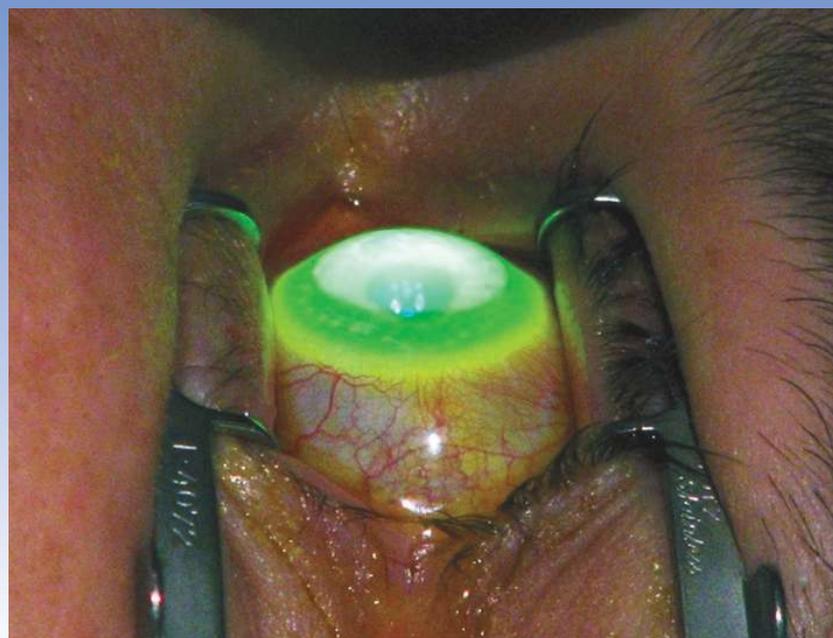
First, the performance of crosslinking with an epi-on versus epi-off approach remains controversial. Epi-on is associated with less post-op pain, a faster recovery, and the ability to crosslink in children using only local anesthesia instead of the general anesthesia some patients require, Dr. Hafezi said. However, "the current epi-on solutions available outside the U.S. do not work properly," he said. Based on experimental findings by Dr. Spoerl, the father of crosslinking, Dr. Hafezi will begin a prospective multicenter trial (Geneva, London, and Dresden) this spring with a new epi-on solution that has promising results.

William B. Trattler, M.D., cornea specialist, Center for Excellence in Eye Care, Miami, performs epi-on and finds it much easier for children than epi-off. Still, "One of the reasons that some centers have had less success with epi-on has been in their technique, where doctors assumed that 30 minutes of riboflavin loading was sufficient for epi-on. In our clinical trial, we find that 0.1 riboflavin requires about an hour for proper loading, and this needs to be verified in the slit lamp prior to initiating the UV light," Dr. Trattler said.

A study published in the November issue of *Journal of Refractive Surgery* and led by **Luca Buzzonetti, M.D.**, ophthalmology department, Bambino Gesù Children's Hospital, IRCCS, Rome, found that transepithelial crosslinking (epi-off) was safe and comfortable for patients.⁴ However, Dr. Buzzonetti also noted that this procedure does not stop the keratoconus progression. Dr. Buzzonetti believes further large studies with a longer-follow period are needed. His study tracked patients for 18 months.



Crosslinked corneal tissue



Crosslinking procedure

Source (all): Phoebe Lenhart, M.D.

“In the coming years, we could probably plan customized crosslinking treatment according to the age of patients and the severity of corneal disease,” he said.

As with any new procedure, particularly in children, safety and long-term outcomes should also be the focus of future research, said **Vasilios Diakonis, M.D., Ph.D.**, University Hospital of Crete, Ophthalmology Clinic, Crete, Greece. Dr. Diakonis and co-investigators published in the November issue of the *Journal of Refractive Surgery* on the 18-month results of pediatric crosslinking in four patients.⁵

Dr. Diakonis also mentions the value of topography screening to diagnose keratoconus, and Dr. Lenhart concurs. “Even some feasibility studies of screening with topography would be a good idea, now that we potentially have a way to treat pediatric patients with keratoconus at an earlier stage,” Dr. Lenhart said.

Dr. Lenhart and Emory University are hoping to get approved this year a clinical trial for the compassionate use of crosslinking for keratoconus in the pediatric population. Additionally, Dr. Trattler runs the CXLUSA (Chevy Chase, Md.) multi-center clinical trial, which allows for treatment of children as young as age 8.

Dr. Hafezi is researching crosslinking performed with a higher intensity and a new chromophore other than riboflavin, ideally to shorten treatment time. He has plans underway to enable general ophthalmologists, not just corneal surgeons, to perform crosslinking. Dr. Hafezi and his wife are the initiators of a project called Light for Sight (www.lightforsight.org), a non-profit group that aims to bring crosslinking treatment to children and teenagers. **EW**

Editors' note: Drs. Buzzonetti, Diakonis, Hafezi, and Lenhart have no financial interests related to this article. Dr. Trattler has financial interests with CXLUSA and CXLO (Chevy Chase, Md.).

References

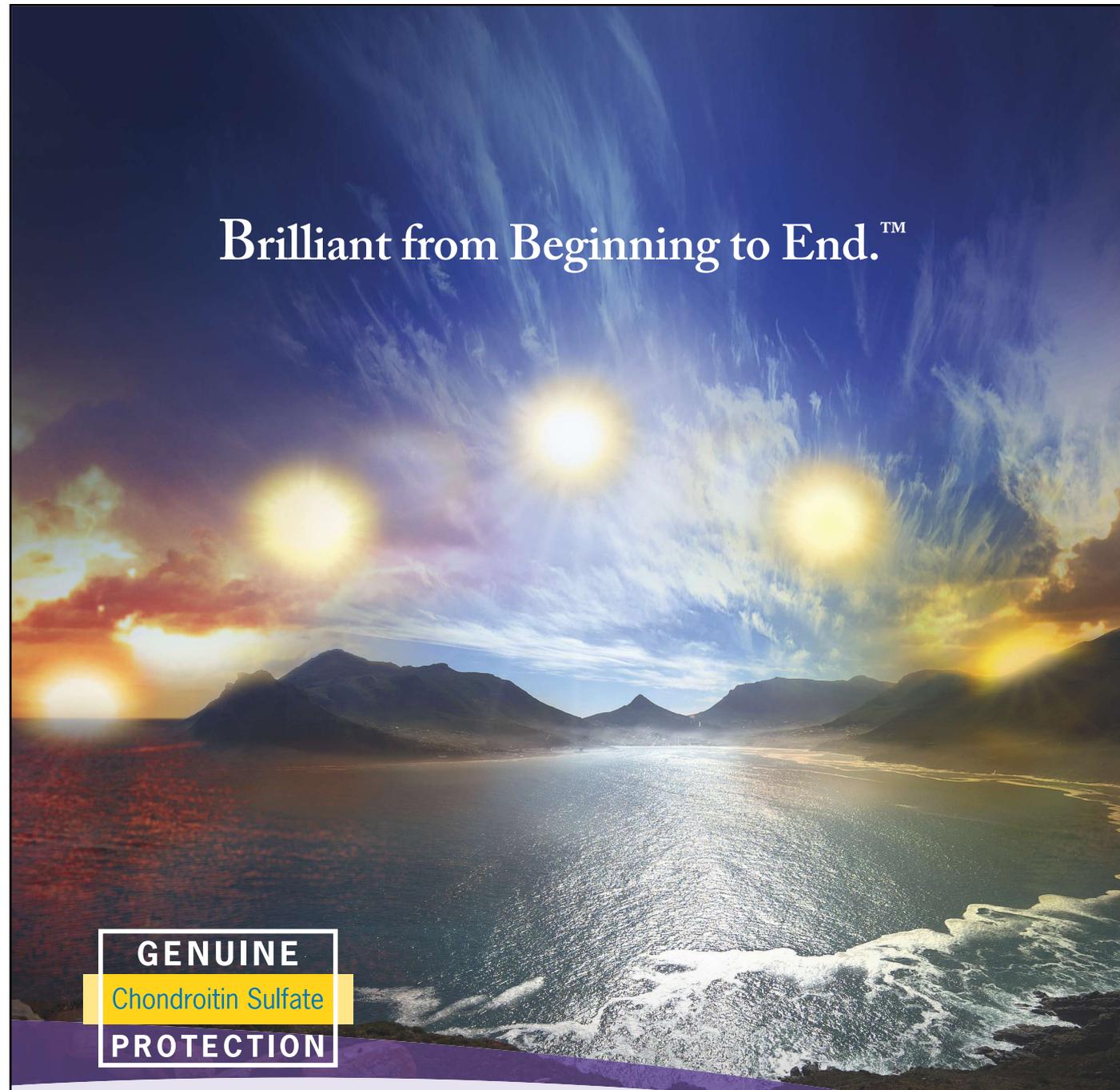
1. Caporossi A, Mazzotta C, Baiocchi S, Caporossi T, Denaro R, Balestrazzi A. Riboflavin-UVA-induced corneal collagen cross-linking in pediatric patients. *Cornea*. 2012;31:227-231.
 2. Vinciguerra P, Albe E, Frueh BE, Trazza S, Epstein D. Two-year corneal cross-linking results in patients younger than 18 years with documented progressive keratoconus. *Am J*

Ophthalmol. 2012;154:520-526.
 3. Chatzis N, Hafezi F. Progression of keratoconus and efficacy of pediatric corneal collagen cross-linking in children and adolescents. *J Refract Surg*. 2012;28:753-758.
 4. Buzzonetti L, Petrocelli G. Transepithelial

corneal cross-linking in pediatric patients: Early results. *J Refract Surg*. 2012;28:763-767.
 5. Zotta PG, Moschou KA, Diakonis VF, et al. Corneal collagen cross-linking for progressive keratoconus in pediatric patients: A feasibility study. *J Refract Surg*. 2012;28:793-796.

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