Cross-Linking Closed Leaking Filtering Blebs in Small Study

Collagen cross-linking effectively treated late-onset leaking filtering blebs in a small study of six eyes, according to data presented by Qianqian Wang, MD, at the American Glaucoma Society Annual Meeting in Washington, DC.[1]

Dr. Wang and colleagues collected clinical and demographic information through a retrospective chart review. They measured clinical outcomes by IOP and BCVA, consulted anterior segment optical coherence tomography examinations, and performed pachymetry and spectral microscopy to assess the safety of the treatment. A successful outcome was defined as the resolution of aqueous humor leakage and improvement in hypotony and/or BCVA.

The average duration from trabeculectomy to leakage was 81.3 ±44.8 (standard deviation) months. The average pre-leakage IOP decreased from 10 ±3.5 to 4.2 ±2.7 mm Hg before cross-linking. The corresponding BCVA also worsened from 0.22 ±0.16 (logMAR) to 0.45 ±0.29. After the patients underwent a standard cross-linking procedure, the average postoperative IOP was 7 ±2.7, 8 ±6.4, and 11.3 ±7.4 mm Hg, and the average BCVA was 0.23 ±0.16, 0.2 ±0.17, and 0.39 ±0.45 at 1 to 2 months, at 3 to 6 months, and after 6 months, respectively. Only one eye had persistent bleb leakage after treatment, and it was subsequently addressed with argon laser photocoagulation. All other eyes had successful outcomes, and no adverse events were reported, according to the study.

"By stabilizing the weakened collagen fibers and possibly by altering fibroblasts, collagen cross-linking may result in [a] favorable clinical response in a leaking bleb, a finding confirmed by our experience," the investigators concluded.

1. Wang Q, Harasymowycz P. Collagen crosslinking: a novel therapeutic approach for leaking filtering blebs. Poster presented at: The AGS Annual Meeting; February 27-March 2, 2014; Washington, DC.

Volk Optical Releases Surgical Gonio Lens Designed for MIGS Procedures

Volk Optical recently introduced the Transcend Vold Gonio (TVG) Lens. Developed through the collaboration of Transcend Medical and Steven Vold, MD, the TVG lens provides clear views and ocular control during microinvasive glaucoma surgery and other intraoperative gonioscopic procedures.

According to a company news release, TVG's floating lens feature, with a stabilization ring and multiple pivot points, does not apply pressure to the cornea, eliminating the potential for distortion and providing clear imaging. In addition, a Thornton-style stabilization ring reportedly improves control of the globe during surgery, increasing precision and comfort for the surgeon. The lens can be used in the left or right hand, according to surgeons' preferred dominant hand, the news release said.

Phase 2 Study of Trabodenoson in Combination With Latanoprost Underway

Inotek Pharmaceuticals initiated a phase 2 clinical study of trabodenoson in combination with latanoprost in patients with elevated IOP that remains uncontrolled despite ongoing treatment with latanoprost, according to a news release.

The randomized, double-masked, active-controlled, multicenter trial is comparing trabodenoson plus latanoprost to timolol (the active comparator) plus latanoprost in 120 patients with ocular hypertension or primary open-angle glaucoma. The study will measure the additive or synergistic IOP-lowering effect of trabodenoson when combined with latanoprost, and it will also evaluate the safety and tolerability of the combined treatment regimen. The total treatment time will be 3 months, during which the effect of trabodenoson will be evaluated following twice-a-day and once-daily dosing. Top-line data are expected in the 4th quarter of 2014, the company said.

"Side effects limit the use of existing drug therapies for many patients, and the frequent dosing of non-prostaglandin drugs increases the burden of treatment on patients," Jonathan Myers, MD, associate professor of ophthalmology at Wills Eye Institute and a member of the Trabodenoson Scientific Advisory Board, said in a news release. "Trabodenoson has been shown to lower IOP in patients with primary open-angle glaucoma or ocular hypertension, and the data to date have indicated very good tolerability when given twice daily. It has also demonstrated the potential, to be confirmed in clinical trials, for once-daily dosing."

"Trabodenoson has already been shown to signifi-

cantly lower the IOP of nonhuman primates when added to all the classes of glaucoma drugs commonly used," Rudolf Baumgartner, chief medical officer of Inotek, said in a news release. "These results support the complementarity of trabodenoson's novel mechanism of action, which we believe is acting on the most important outflow path—the trabecular meshwork. Our ongoing clinical study is specifically designed to investigate the synergistic effect of trabodenoson when given in combination with a prostaglandin. These data, together with the available data on trabodenoson's efficacy as a single agent, will be critical in completing what we expect to be a very promising clinical profile for a new glaucoma agent."

Glaucoma Research Foundation Awards More Than $1 Million in Research Grants for 5th Consecutive Year

To mark World Glaucoma Week (March 9-15, 2014), the Glaucoma Research Foundation (GRF) announced more than $1 million in research grants for the 5th consecutive year, according to a news release.

The GRF is awarding $1 million this year to the Catalyst for a Cure research consortium, and eight individual grant recipients will receive $40,000 each in support of their research into the causes of glaucoma and potential new diagnostics or treatments for the disease. This investment reportedly makes the GRF one of the nation's largest private sources of funding for innovative glaucoma research.

"Glaucoma Research Foundation is investing in research to unlock the secrets of glaucoma, to find biomarkers to help detect, diagnose, and treat the disease, and we hope that these findings will one day ultimately lead to a cure," GRF President and CEO Thomas M. Brunner said in a news release.

The multiyear Catalyst for a Cure consortium is a collaborative research initiative composed of four scientists at prominent universities seeking specific biomarkers for glaucoma. This year, $250,000 is being awarded to each principal investigator. The four investigators are

- Alfredo Dubra, PhD, assistant professor of ophthalmology and biophysics, Department of Ophthalmology, The Eye Institute, Medical College of Wisconsin
- Jeffrey L. Goldberg, MD, PhD, professor of ophthalmology and director of research, Shiley Eye Center, University of California, San Diego
- Andrew Huberman, PhD, assistant professor, Department of Neurosciences, Biology, and Ophthalmology, University of California, San Diego
- Vivek Srinivasan, PhD, assistant professor of biomedical engineering, Department of Biomedical Engineering, University of California, Davis

The GRF's Scientific Advisory Committee evaluates Shaffer Grant applications and determines the most promising projects for the organization to fund each year. The recipients are

- Jeff M. Gidday, PhD, Washington University School of Medicine, St. Louis
- Vikas Gulati, MD, Truhlsen Eye Institute, University of Nebraska Medical Center, Omaha, Nebraska
- David Krizaj, PhD, Moran Eye Institute, University of Utah, Salt Lake City
- Yutao Liu, MD, PhD, Duke University Medical Center, Durham, North Carolina
- Stuart J. McKinnon, MD, PhD, Duke University Medical Center, Durham, North Carolina
- Robert W. Nickells, PhD, University of Wisconsin, Madison, Wisconsin
- Colm O'Brien, MD, FRCS, Mater Misericordiae University Hospital, Dublin, Ireland
- Joshua D. Stein, MD, MS, W. K. Kellogg Eye Center, University of Michigan, Ann Arbor, Michigan

New Eye Layer Has Possible Link to Glaucoma

Discovered by researchers at The University of Nottingham in the United Kingdom last year, a new layer in the human cornea reportedly plays a vital role in the structure of the tissue that controls the flow of fluid from the eye.

The findings, published in the *British Journal of Ophthalmology*,[1] could shed new light on glaucoma. Dubbed *Dua layer* after its discoverer, academic Prof. Harminder Dua, it makes an important contribution to the trabecular meshwork (TM) in the periphery of the cornea, according to a news release from the University of Nottingham.

The wedge-shaped band of tissue that extends along the circumference of the angle of the anterior chamber of the eye is made of beams of collagen wrapped in a basement membrane to which trabecular cells and endothelial cells attach. It is well known that IOP is maintained by the balance of aqueous fluid produced by the ciliary body and drainage principally through the TM to Schlemm canal.

The latest research by Prof. Dua and colleagues at The University of Nottingham details the basic anatomy of Dua layer, which is just 15 µm thick but incredibly tough. Composed of thin plates of collagen, the layer sits at

the back of the cornea between the corneal stroma and Descemet membrane.

By examining human donor eyes using electron microscopy, the researchers discovered that the collagen fibers of the layer also branch out to form a meshwork and that the core of the TM is, in fact, an extension of Dua layer.

They hope that the discovery will offer new clues to why the drainage system malfunctions in the eyes of some people, leading to high pressure.

"Many surgeons who perform lamellar corneal transplant recognize this layer as an important part of the surgical anatomy of the cornea," Prof. Dua said in the news release. "This new finding resulting from a study of the microanatomy of the periphery of the layer could have significance beyond corneal surgery."

1. Dua HS, Faraj LA, Branch MJ, et al. The collagen matrix of the human trabecular meshwork is an extension of the novel pre-Descemet's layer (Dua's layer) [published online ahead of print December 18, 2013]. *Br J Ophthalmol*. doi:10.1136/bjophthalmol-2013-304593.

Reimbursement Change for Filtration Device

The Ex-Press Glaucoma Filtration Device (Alcon) now uses the Category I CPT code 66183, rather than its previous Category III designation. According to the company, the new Category I code offers surgeons a national physician fee schedule, reduced variability among payers, an expedited claims process, and greater uniformity for reimbursement rates.

Cessation of Glaucoma Medications Associated With a Significant Increase in IOP

Discontinuation of one to three glaucoma medications was associated with a clinically significant increase in IOP. The effects of cessation of the second and third medications were less compared with the first, according to a study in *JAMA Ophthalmology*.[1]

The study included 603 patients (603 eyes) with primary open-angle glaucoma who were using up to three glaucoma medications. One IOP measurement was taken while patients used their usual IOP-lowering medications (on IOP). Eligible participants underwent a washout of all IOP-lowering eye drops, and the investigators measured the diurnal IOP 2 to 4 weeks later (off IOP).

The mean (standard deviation) on IOPs for participants using none (n = 102), one (n = 272), two (n = 147), or three (n = 82) medications was 24.2 (3.2), 17.5 (3.2), 17.2 (3.1), and 17.2 (3.1) mm Hg, respectively. Patients not using medication demonstrated a mean decrease in IOP of 0.2 (2.8) mm Hg at the off visit. In patients using one, two, and three medications, the mean IOP had increased by 5.4 (3), 6.9 (3.3), and 9 (3.8) mm Hg, respectively, at the off visit. The percentage of patients who experienced less than a 25% increase in IOP was 38%, 21%, and 13% for those using one, two, and three medications, respectively.

A substantial proportion of patients showed only small changes in IOP after medication washout, suggesting either that they were not using the medication effectively or that the medication itself, although used properly, was not lowering the IOP, the authors concluded.

"The efficacy of multiple IOP-lowering medications has been validated in well-controlled clinical studies," Quang H. Nguyen, MD, associate head of the Division of Ophthalmology and director of the Glaucoma Service at Scripps Clinic in La Jolla, California, and a coauthor of the study, told *Glaucoma Today*. "As practicing ophthalmologists, however, what we truly care about is these therapies' real-world effectiveness, especially given the challenge of medication adherence. In the washout phase of the COMPASS Clinical Trial, a study designed to evaluate the CyPass Micro-Stent (Transcend Medical; not available in the United States), we were given the opportunity to look at a large population of glaucoma patients and see the actual performance of their medication regimens. What we found was that, although a second medication has some incremental IOP-lowering effect over one medication, it was less than generally reported, and a third medication provided only minimal additional benefit." ■

Dr. Nguyen acknowledged no financial interest in the products or companies mentioned herein.

1. Jampel HD, Chon BH, Stamper R, et al. Effectiveness of intraocular pressure-lowering medication determined by washout [published online ahead of print January 30, 2014]. *JAMA Ophthalmol*. doi: 10.1001/jamaophthalmol.2013.7677.

Online Survey Results January/February 2014

How would you characterize your practice's response to the potential influx of patients owing to implementation of the Affordable Care Act?

Prepared	21.43%
Currently preparing	21.43%
Will respond when an increase in patients occurs	35.71%
Not expecting to change	21.43%