

News in Review

COMMENTARY AND PERSPECTIVES

Global Consensus on Keratoconus

It took the participation of cornea specialists from 21 countries; multiple rounds of Delphi-style questions, responses, and revisions; and face-to-face discussions.

What emerged from that complex international project

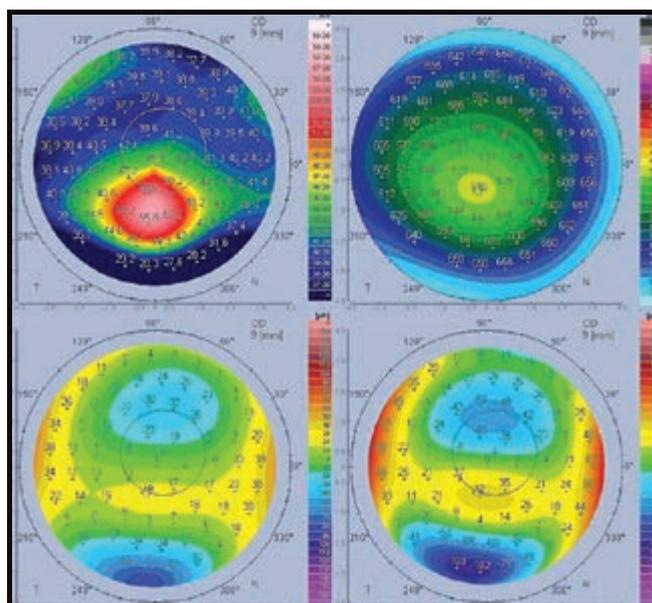
was worth the effort: a global consensus on keratoconus (KC) and ectatic diseases.¹

Christopher J. Rapuano, MD, said that the idea was talked about at meetings for years, but he credits José A. P. Gomes, MD, PhD, in São Paulo, Brazil, for putting the talk into action. “He realized that there’s a disconnect between what’s in the literature and what people are doing, not only in South America, but around the world,” said Dr. Rapuano, who is chief of the cornea service at Wills Eye Hospital. “The idea was to assimilate all this information and make it useful to clini-

cians.” Here are some of the highlights of the consensus document.

To manage KC, first define it. In order to determine what interventions are effective—and when they should be attempted—the condition and its progression must be consistently defined.

Moderate to severe KC is easy to diagnose, said Dr. Rapuano: “You can see it at the slit lamp; you don’t even need topography.” But recognizing mild, subclinical disease depends on more recently developed technologies, such as Scheimpflug imaging or optical coher-



DUAL SCHEIMPFLUG. Imaging shows KC features, such as inferocentral anterior corneal steepening (top left) and inferocentral posterior elevation (bottom right).

ence tomography, which can detect posterior corneal abnormalities. Indeed, the panel agreed that the mandatory findings for KC diagnosis include posterior corneal elevation abnormalities, in addition to abnormal distribution of corneal thickness and noninflammatory corneal thinning.

The panel also identified risk factors for KC, including Down syndrome, family

history, connective tissue disorders, ocular allergy, and mechanical factors such as eye rubbing and floppy eyelid syndrome.

Treatment algorithm. The group developed a treatment flowchart that proceeds from nonsurgical steps through corneal transplant surgery, as needed. Dr. Rapuano noted that, in this schema, the progression to more invasive therapy

is based on whether the patient can achieve *satisfactory* vision. “One important point was that even though a patient can see 20/30 in your office with a contact lens, it’s not necessarily satisfactory BCVA. If the patient can’t tolerate the lens for more than an hour, surgery may be indicated.”

An underappreciated recommendation. Two nonsurgical measures were graded as “most important.” The first is deceptively simple: Counsel the patient to avoid eye rubbing. “I feel strongly, as do many cor-

nea specialists around the world, that eye rubbing is an important component of either causing keratoconus or making it worse. But I think that message is not fully appreciated by the general ophthalmology community,” said Dr. Rapuano.

The second is to prescribe topical antiallergy medications and lubricants for patients with allergies, he said, because allergic itching promotes eye rubbing and, thus, contributes to KC progression.

Surgical choices. The group found that ante-

rior lamellar keratoplasty (ALK), especially deep ALK, (DALK), and penetrating keratoplasty are the most commonly performed surgeries for KC. Some type of ALK is now attempted in more than 60 percent of KC patients eligible for surgery.

Role of cross-linking. Although corneal cross-linking (CXL) is not FDA approved in the United States, it is available to and performed by almost 85 percent of the panelists, who rated it “extremely important” for patients of any age who have progression.

Consideration of CXL appears early in the treatment flowchart and is sometimes used together with other therapies for KC. “Out in the rest of the world, it’s a standard treatment for patients with keratoconus,” said Dr. Rapuano, “even before documented progression, if they are deemed to be at high risk for progression.” —Peggy Denny

1 Gomes JA et al. *Cornea*. 2015; 34(4):359-369.

Dr. Rapuano reports no related financial interests.

Intravitreal Injections

Bimanual Lid Retraction Is a Comfortable Choice

As the number of intravitreal (IVT) injections has skyrocketed over the past decade, the retina community has continued to refine injection protocols to increase safety and efficiency and reduce treatment burden on patients. A group of retina specialists at Wills Eye Hospital recently reported on an eyelid retraction technique that appears to increase patient comfort without compromising safety.¹

Genesis of study. An earlier study had described this bimanual technique of lid retraction and also observed that it was not associated with an increased endophthalmitis rate.² According to Allen Chiang, MD, an attending retina surgeon at Wills Eye Hospital and Mid-

Atlantic Retina, a number of patients informally expressed their discontentment with the speculum, “so we set out to analyze their experience more formally.”

Eye-to-eye comparison. In this prospective study of 36 patients (72 eyes) undergoing bilateral IVT injections, 22 patients received an injection in the first eye with use of the speculum, while the other 14 had bimanual retraction for the first-eye injection. The retraction technique was switched for the second eye. All other aspects of the procedure—including antisepsis with povidone-iodine and use of topical anesthetic—were identical for both eyes.

Patients completed a pain



SPECULUM ALTERNATIVE. With this bimanual technique, care should be taken to avoid pressure on the globe or eyelid glands.

survey immediately after both injections, and had a telephone interview two hours later. The responses bore out earlier anecdotal observations: 30 patients (83.3 percent) preferred bimanual retraction, six had no preference (16.7 percent), and none preferred the speculum. Each patient served as his or her own comparator, thus avoiding the problem of differing levels of pain perception between individuals.

Implementing the technique. Dr. Chiang noted

that the technique is easy to learn, but implementing it depends on having a trained technician available to lend a hand—or, in this case, both hands. At Wills, the technician in charge of prepping the patient for IVT injection is the one who performs the lid retraction.

Dr. Chiang sees this in the context of ongoing “tinkering” in the retina community in developing nuances in the IVT injection procedure. “While this may not be a huge game-changer,” he said, “we wanted to show an alternative method of retraction that allows one less manipulation with a foreign object and that was preferred by patients in this study with regard to pain and discomfort.”

—Peggy Denny

1 Rahimy E et al. *Ophthalmology*. 2015 Feb. 26. [Epub ahead of print.]

2 Fineman MS et al. *Retina*. 2013;33(9):1968-1970.

Dr. Chiang reports no related financial interests.

Cataract Surgery Prophylaxis

More Strong Evidence for Intracameral Antibiotics

Once more, and with compelling statistical significance ($p < .00001$), a research study has concluded that intracameral cefuroxime markedly reduces the incidence of endophthalmitis after cataract surgery.¹ This systematic review of a decade of published studies also looked at the effectiveness of two other prophylactic antibiotic regimens.

- Topical antibiotics: There is no evidence they are effective for this use, the researchers concluded.
- Intracameral moxifloxacin: They found low-quality evidence that intracameral injection of moxifloxacin

at the end of surgery might prevent 0 to 1 case of endophthalmitis per 1,000 cataract surgeries.

Danish public health initiative. Working on behalf of Denmark's public health authority, the authors reviewed endophthalmitis studies published during a 10-year period ending in 2014. The researchers analyzed outcomes from randomized clinical trials of intracameral cefuroxime, as well as relevant nonrandomized studies of antibiotic use in cataract surgery.

Contrasting rates of endophthalmitis. The review bolstered the evidence supporting the use of in-

tracameral cefuroxime. "Patients not receiving intracameral antibiotics have nearly six times the risk of endophthalmitis compared with patients who receive intracameral antibiotics," said coauthor Line Kessel, MD, PhD, FEBO, an ophthalmologist and researcher at Copenhagen University Hospital Glostrup, in Glostrup, Denmark.

"In our study, we found that the rate of endophthalmitis was 1 out of 485 surgeries when intracameral antibiotics were not used, compared with 1 out of 2,855 when intracameral antibiotics were used."

But the review contained little comfort for surgeons in the United States and other countries where, in the absence of a commercially available cefuroxime product, topicals remain widely used.

"There is no evidence that topical antibiotics pro-

tect against endophthalmitis, and yet this is the only antibiotic administration used by most surgeons. The rate of endophthalmitis in the USA is twice of that in Europe," said Dr. Kessel.

A possible substitute. If cefuroxime is not an option, she recommended that surgeons use intracameral moxifloxacin instead of a topical antibiotic, even though evidence for the effectiveness of this substitution is limited.

"The difference between the effectiveness of moxifloxacin and cefuroxime appears to be much smaller than the difference between no intracameral antibiotics and cefuroxime," Dr. Kessel said. —Linda Roach

1 Kessel L et al. *Acta Ophthalmol.* 2015 March 16. [Epub ahead of print.]

Dr. Kessel reports no related financial interests.

Glaucoma Risk Factors

Ancestral Lineage Linked To Ocular Blood Flow

A study of retrobulbar circulation in patients with open-angle glaucoma (OAG) has found differences suggesting lower blood flow as a possible reason for greater disease severity and faster progression in patients of African descent.

Ethnic differences in blood flow. Researchers from Indiana University reported that significantly lower blood flow values

were identified in all retrobulbar blood vessels in OAG patients of African descent compared with those of European descent, despite similar IOP and visual field parameters between the groups.¹

Color Doppler ultrasound revealed lower mean values among patients of African descent in:

- Peak systolic velocity of blood in the ophthalmic, central retinal, and nasal

and temporal short posterior ciliary arteries

- End diastolic velocity in the central retinal artery

Further research is needed to determine what role these differences might play in glaucoma progression.

Focus on the person first. Meanwhile, regardless of ancestry, OAG patients should be treated foremost as individuals, "each with a unique set of risk profiles to consider," said the study's senior author, Alon Harris, MS, PhD, FARVO. Dr. Harris is professor of ophthalmology and cellular and integrative physiology, director of clinical ophthalmic research, and Letzer Endowed Chair in Ophthalmology at Indiana University School of Medicine.

"Look beyond their eye and see if you can consider their whole health and personal profile. A 'sick body' elevates the risk of a 'sick eye' and vice versa, while a 'healthy body' may help maintain a 'healthy eye,'" Dr. Harris said. —Linda Roach

1 Siesky B et al. *J Glaucoma.* 2015;24(2):117-121.

Dr. Harris has received lecture fees from Alcon and MSD; is a consultant for Biolight, Isarna Therapeutics, Merck, Nano-retina, ONO Pharmaceuticals, Pharmedlight, and Sucampo; and has equity interest in Adom and Oxymp.

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