James D. Brandt, MD

Dr. Brandt shares his approach to communicating with patients and his outlook for the future.

How do you teach patients about glaucoma and its treatment?

It is extraordinarily important to converse with patients rather than simply dictate the next step and walk out of the room. I talk to patients about whether it is realistic for them to add a second or third medication to their regimen, and I emphasize that other options are always on the table. I encourage patients to come in with a list of questions for me and to contact me via email. Remarkably, few abuse that privilege, and responding to email generally takes less time than would answering the same questions in the clinic.

Most informational materials show examples of visual field loss with black areas of missing vision. The brain is remarkably adept at filling in missing information from surrounding areas, however, and most patients are not aware of much visual field loss until they have bilateral deterioration in overlapping areas.

One trick I use is very simple. I have the patient with, for example, a dense nasal step in his right eye cover his left eye and stare at my nose from about a foot away. I then ask if he can tell if I am wearing an earring in my right ear. He can't, and that realization is a wake-up call that something real is happening. On more than one occasion, this demonstration has been met with a long silence followed by an expletive. Then, the real conversation begins.

You were a principal investigator in the phase 3 trial of oral memantine. Do you anticipate major changes in the pharmaceutical treatment of glaucoma during the next 15 years?

The failure of the memantine study to show a positive result was, I hope, only a temporary setback in the development of a neuroprotective treatment for glaucoma. The failure underscores the incredible difficulties we face when designing studies to follow glaucoma patients, and the glaucoma community will undoubtedly learn a great deal from the data the study generated. One hopes that there will be lessons learned regarding study design, measures of functional and structural progression, etc., before the next candidate is ready to be tested in a large phase 3 trial. Allergan, Inc. (Irvine, CA), is to be commended for having committed the time and money to this trial with no assurance of success.

Compared to just 15 years ago, we have a remarkably robust portfolio of medications for lowering IOP. The problem is our patients do not take drugs properly. The technology of how we deliver these medications has not changed since pilocarpine eye drops were introduced in the 19th century! All of the pharmaceutical companies recognize the challenge, and there is a broad trend toward developing longer-term delivery systems for existing and novel compounds. One exciting aspect of sustained-release approaches to glaucoma medications is that the universe of drug candidates expands significantly: compounds that fail as eye drops because they cannot be tolerated at the doses needed to drive the drug into the eye may work fine at lower concentrations delivered in a sustained fashion.

Ultimately, we all want the ability to administer a medication that will last for 3, 6, or 12 months at a time and

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FAST FACTS

- Professor of Ophthalmology & Vision Science and Director of the Glaucoma Service, University of California, Davis, 1989 to present
- Recipient of the AAO's Senior Achievement Award and Secretariat Award, 2004
- Ocular Hypertension Treatment Study (OHTS) investigator (1994 to present) who championed the inclusion of pachymetry in the OHTS' protocol
- Honored in *Best Doctors in America*, 1998 to present
- Member of the board of directors for the Glaucoma Research Foundation, 1999 to present
- Widely published wildlife photographer, with images in books and magazines around the world. One of his images was chosen to appear on a US postage stamp in 2003 (commemorating the centennial of the National Wildlife Refuge System)

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will relieve the patient of the burden of administering an eye drop daily. I think we are going to realize this goal faster than most ophthalmologists realize, probably within 5 to 10 years. When we do, our management of glaucoma will change profoundly.

How do you expect the surgical treatment of glaucoma to change during the next 10 years?

The really amazing accomplishment of the manufacturers of cataract surgical devices and instruments is that the instruments and technology allow the average or even mediocre ophthalmic surgeon to attain excellent results with a satisfactory margin of safety. We need the same situation in glaucoma. There is a great interest in blebless surgery and accessing alternative drainage targets such as the canal of Schlemm or the suprachoroidal space. Only time will tell whether new technologies will be the clear corneal phacoemulsification/IOL of glaucoma.

What do you consider to be the greatest accomplishment of your career and why?

In the research arena, it would be the findings of the OHTS that central corneal thickness (CCT) is a significant predictive factor for the development of glaucoma.[1] It has been extremely gratifying to see how quickly those findings were translated into clinical practice, with pachymetry becoming widely integrated into glaucoma care within a few years. Unfortunately, many clinicians think that, by tweaking their tonometry measurements with a CCT nomogram, they will have a more accurate IOP measurement. The relationship between CCT and IOP is complex, one revealed only when dealing with large datasets, as we studied in the OHTS. All clinicians should do with CCT in clinical practice is ratchet up (or down) their level of concern about individual patients, but they should not apply these nomograms to individual IOP measurements.

On a personal basis, my answer derives from my longstanding interest in congenital and pediatric glaucoma. I have focused my clinical practice in this area since I arrived at the University of California, Davis, and the pediatric glaucomas compose a large part of my practice. Most ophthalmologists do not realize that, before Otto Barkan, MD, introduced goniotomy in the mid-20th century, congenital glaucoma was a uniformly blinding disease. Having been at the University of California, Davis, for 18 years, I now have patients I operated on as neonates telling me about their college applications. I cannot imagine anything more gratifying as a physician.

What are practitioners' most common misunderstandings of imaging technology?

The thought that these devices can diagnose glaucoma in the absence of corroborating clinical evidence is, in my opinion, the most common (and potentially dangerous) misunderstanding. The limited normative databases against which scans are compared can never cover the remarkably varied appearance and structure of the optic nerve we encounter in normal individuals.

Even in the OHTS' ancillary study of confocal scanning laser ophthalmoscopy (CSLO; Heidelberg Retina Tomograph [HRT]; Heidelberg Engineering GmbH, Heidelberg, Germany), baseline CSLO measurements were only moderately predictive of later conversion to glaucoma; many OHTS subjects with abnormal baseline scans remain without confirmed disease after 15 years.[2] The great promise of the various imaging technologies is the ability to track change over time by comparisons with the patient's own baseline scans. As the OHTS winds down this year, the CSLO data are being analyzed by Linda Zangwill, PhD, and colleagues at the University of California, San Diego, to see whether changes in the HRT's measures paralleled the changes in the optic nerve and visual fields, as determined by the masked reading centers. I certainly hope this will be the case.

Ophthalmologists do not obtain enough high-quality photographs of the optic disc. The imaging technologies are evolving rapidly, and I think I can safely bet that the commercial version of an HRT or optical coherence tomographer (Stratus OCT; Carl Zeiss Meditec, Inc., Dublin, CA) 10 years from now will not be able to do anything with baseline data acquired with today's instruments. Baseline stereo images of the disc will always be useful to the clinician. Just last week, I saw a retired physician who had been told by an optometrist that he might have glaucoma (based solely on an abnormal GDx scan [Carl Zeiss Meditec, Inc.]). I was able to track down stereo photographs taken at our institution 20 years ago and observed no change. The ability to compare his nerves across 2 decades was far more useful than any scan. ❑

Dr. Brandt serves as a consultant to Alcon Laboratories, Inc., Allergan, Inc., and Pfizer Inc., and he has received research support from Allergan, Inc.

1. Gordon MO, Beiser JA, Brandt JD, et al, and the Ocular Hypertension Treatment Study Group. The Ocular Hypertension Treatment Study: baseline factors that predict the development of primary open angle glaucoma. *Arch Ophthalmol*. 2002;120:714-720.
2. Zangwill LM, Weinreb RN, Beiser J, et al, and the Ocular Hypertension Treatment CSLO Ancillary Study Group. Baseline topographic optic disc measurements predict the onset of primary open angle glaucoma: The Confocal Scanning Laser Ophthalmoscopy Ancillary Study to the Ocular Hypertension Treatment Study. *Arch Ophthalmol*. 2005;123:1188-1197.