

FELLOWSHIP TRAINING IN A COMPLEX FIELD

Defining when and how to treat glaucoma.

BY LAURA VICKERS, MD



A search of the American Academy of Ophthalmology's jobs site produces dozens of active listings for glaucoma positions across the nation in private practices and academic centers. This trend derives from the confluence of multiple factors, including the aging population in the United States and the expected increase in the number of

patients with glaucoma to 79.6 million worldwide in 2020¹ and 7.32 million in the United States alone by 2050.² Over the next 30 years, per capita rates of primary glaucoma are expected to double in several states. Another major factor is the growing complexity of glaucoma management.

COMPLEXITY

The value of training in any ophthalmic subspecialty is enhanced as more complex technical procedures, medications, and diagnostic techniques are developed and introduced into our practices each year. For example, cornea surgeons are now performing deep anterior lamellar keratoplasty, Descemet stripping automated endothelial keratoplasty, and Descemet membrane endothelial keratoplasty; analyzing confocal and anterior segment optical coherence tomography (OCT) imaging; quantifying tear film osmolarity to guide dry eye treatment; performing refractive procedures and solving complex optical problems introduced by postrefractive cataract surgery calculations and refractive enhancements; and keeping up with new laser technologies. The corneal and refractive procedures we perform have become so varied and complex that some surgeons now subspecialize within the field of cornea by focusing on corneal transplants, ocular surface disease, refractive surgery, or some subset of these.

Similarly, the need for glaucoma surgeons and thus the value of glaucoma fellowship training for graduating ophthalmologists are driven in part by the complexity of the diagnostic and therapeutic tasks glaucomatologists now carry out in routine practice. Glaucoma subspecialists face a growing roster of new choices for microinvasive glaucoma surgery (MIGS). Imaging techniques include ultrasound biomicroscopy, high-resolution OCT to examine



the detailed structure of the optic nerve head and anterior chamber angle, and even OCT angiography. As novel surgical and therapeutic options come to market, new but important subtleties in treatment decisions are arising.

How will the delivery of MIGS early in the course of disease affect the management of patients decades postoperatively? When will we operate on patients, and how do we determine the ideal procedure for each individual? Will developments in drug delivery such as a medicated contact lens or a drug-eluting stent or implant alter our selection of medication or laser treatment as first-line therapy? As



AT A GLANCE

- There is a growing need for glaucoma subspecialists in the United States and worldwide. Earlier diagnosis and longer lifespans among patients will change how glaucoma is managed.
- Glaucoma care is growing more complex with myriad new choices for microinvasive glaucoma surgery as well as advanced imaging techniques.
- A nuanced understanding of when and how to treat the disease is the backbone of glaucoma fellowship and will be one of the most essential tools in ophthalmic care in the coming decades.

MIGS procedures become more effective, will a majority of us intervene surgically earlier than in the past? Glaucoma-trained ophthalmologists will be pivotal in determining how best to use newly developed technologies and techniques for treating patients with this disease.

FELLOWSHIP BENEFIT

As we diagnose glaucoma earlier and thus treat patients for longer portions of their lives, our approaches will change dramatically. Differentiating patients with early disease from glaucoma suspects is perhaps one of the subtlest distinctions we learn during fellowship training, and it will remain an essential skill. A nuanced understanding of the disease and when and how to treat patients—the backbone of glaucoma fellowship—will be one of the most essential tools in ophthalmic care in the coming decades. ■

1. Quigley HA, Broman AT. The number of people with glaucoma worldwide in 2010 and 2020. *Br J Ophthalmol*. 2006;90(3):262-267.

2. Vajaranant TS, Wu S et al. The changing face of primary open-angle glaucoma in the United States: demographic and geographic changes from 2011-2050. *Am J Ophthalmol*. 2012;154(2):303-314.

Laura Vickers, MD

- glaucoma fellow, Stein Eye Institute, University of California, Los Angeles
- vickers@jsei.ucla.edu