

Perspectives on Tertiary Care Glaucoma

Leveraging technology to strengthen collaborative care.

BY KELLY W. MUIR, MD

Along with the happy phenomenon of increased longevity comes the less happy occurrence of medical comorbidity. One in four Americans lives with two or more chronic diseases, and two of every three Medicare beneficiaries battle two or more chronic diseases.¹ Most patients with glaucoma suffer from at least one other chronic disease, potentially a disease with ophthalmic manifestations. The increasing prevalence of diabetes and age-related macular degeneration alone contributes to a substantial proportion of multimorbidity in the glaucoma population.² At the Duke Eye Center—as in others I am sure—many, if not most, of our patients receive care from at least two ophthalmic subspecialists.

Complex eye disease demands complex but coordinated management. Fortunately, technological advances have improved communication and data sharing to allow better coordination of patients' care across subspecialties. The electronic medical record allows real-time sharing of patients' health information, including nonophthalmic care. I have found the electronic medical record to streamline the process of arranging surgery for a patient who needs the attention of multiple ophthalmic surgeons during one trip to the OR. The more exciting use of data sharing and care coordination, however, may be in the integrations of tertiary glaucoma management with general eye care and even primary care.

MODELS OF CARE

My university practice follows a very traditional model: most of my patients see me exclusively for their glau-

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coma care, and I examine them at every visit. There are certainly advantages and disadvantages to this model. Although I enjoy spending time with my patients, I doubt that they enjoy the commute to my office or the associated waiting time. Additionally, seeing every patient at every visit has the potential to extend the intervals between IOP checks longer than I could wish. For these reasons, I have become interested in innovative models of glaucoma care. Fortunately, many smart individuals have made significant strides toward health delivery models that maximize patients' access to glaucoma subspecialty care while maintaining the highest quality of care.

Investigators at the Mayo Clinic have fully integrated general eye care providers into their health care delivery for the glaucoma patient. As such, individuals with stable glaucoma are managed by general eye care providers according to structured protocols. The glaucoma subspecialists review the records of patients with stable disease and see those whose glaucoma is progressing

and/or who need or have had surgery. At present, Cheryl Khanna, MD, is reviewing the process metrics and quality outcomes of this integrated care model and comparing them to those of the more traditional model. The results will be informative.

Faculty at the University of Alabama at Birmingham are leveraging technology to expand collaborative care beyond the walls of the university practice. As part of a clinical demonstration project funded by the Centers for Disease Control and Prevention, Cynthia Owsley, PhD; Lindsay Rhodes, MD; and Christopher Girkin, MD, MSPH, have partnered with eye clinics based in Walmarts in underserved areas. Participating Walmart providers perform a standardized structural and functional assessment of the optic nerve in patients with glaucoma or suspected glaucoma by means of digital photography, automated perimetry, and spectral domain optical coherence tomography. Image analysis and interpretation are performed at the university with feedback provided to the Walmart clinicians.³ In telehealth-speak, the method of data capture and remote reading is known as “store and forward.” Similar methods have been used very successfully to screen people for diabetic retinopathy, as pioneered by investigators at the Massachusetts Eye and Ear Infirmary and the Joslin Diabetes Center.⁴

Karim Damji, MD, and colleagues in Alberta, Canada, have developed a comprehensive teleglaucoma program based on store-and-forward technology. The program includes risk stratification to ensure that participants receive the appropriate level of care, which could involve care by an optometrist in the community with remote consultation of a glaucoma subspecialist at the academic center or an in-person examination by the glaucoma subspecialist.⁵⁻⁷ Physicians in Australia use an expanded teleglaucoma program, which includes live video conferencing as well as store-and-forward methods.⁸

In the United States, the Veterans Health Administration (VA) has championed telehealth programs to improve veterans' access to care and increase their level of satisfaction. For example, the store-and-forward method of screening for diabetic retinopathy has raised the proportion of diabetic patients receiving annual eye examinations.⁹ The addition of live video conferencing in the VA system presents an opportunity to expand ophthalmic telehealth programs from screening alone to the inclusion of disease management. In our local VA network, my fellow subspecialists and I are piloting a program of live video conferencing with patients and general eye care providers at remote sites so that we can provide consultations and reduce

the veterans' need to commute to our tertiary care VA hospital for surgical intervention.

CONCLUSION

Teleglaucoma brings with it worries about the quality of provider-patient relationships as well as medico-legal concerns. Fortunately, investigators at the Wilmer Eye Institute are exploring patients' perceptions of tele-ophthalmology. Current interest in telehealth approaches was reflected in the recent workshop at the 2014 annual meeting of The Association for Research in Vision and Ophthalmology led by pioneers in the field (www.arvo.org/Annual_Meeting/2014/Program/EC2014_Telehealth/).

The potential benefits of teleglaucoma are exciting. They include greater access for patients to subspecialty care, reduced travel time for a population that is often elderly and whose situations are medically complex, and improved collaboration between general eye care providers and glaucoma subspecialists. ■

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