Glaucoma in Canada: Challenges and Changing Paradigms

Developments in glaucoma care in Canada reflect a balance between evolving technologies and government regulation.

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Social media technologies allow new ideas and innovations to become instantly available globally. In medicine, however, differences in uptake on a country-by-country basis are restricted by governments, health insurers, and economic forces. In 1984, the Canada Health Act was legislated to ensure “universal coverage [for all ‘insured persons’] of insured procedures for all ‘medically necessary’ hospital and physician services, without copayments.” Each province and territory in Canada is responsible for delivering care to its respective region. Since 1992, several provinces stopped insuring routine eye examinations for middle-aged persons. This change has resulted in decreased utilization of eye care services among this population, significantly so for the socially disadvantaged, and may also potentially affect early glaucoma diagnosis in Canada. In a study of newly diagnosed glaucoma in Canadians, nearly half of the patients had moderate or advanced disease at the initial diagnosis; a late diagnosis was associated with socioeconomic deprivation.

Epidemiology of Glaucoma in Canada

There is a paucity of glaucoma epidemiology research in Canada, with only two population-based clinical assessment studies performed. The first, conducted in 1965, reported a glaucoma prevalence of 2.26% in 17,968 individuals from Scarborough, Ontario. The second, evaluating 291 high-risk individuals in Montreal, Quebec, reported a glaucoma prevalence of 7.2%. Most data, however, have been obtained from health surveys that are limited by self-report bias. In one such study from 2002 to 2003, the self-reported glaucoma prevalence was 2.7% among individuals aged 40 and older (n = 409,000 Canadians). A telephone survey of 975 individuals from Toronto in 2008 and 2009 had a self-reported glaucoma prevalence of 7.5%. A subset of patients from this study who reported not having glaucoma presented for a clinical examination, and an additional 3.9% were found to have glaucoma. These results are higher than glaucoma prevalence estimates from Australia (2.8%), the United States (1.9%), and the United Kingdom (1.4%).

Models of Patient Care

In 2009, the Canadian Ophthalmological Society published the first Canadian evidence-based clinical practice guidelines for the management of adult glaucoma. This document covers all aspects of adult glaucoma, including diagnosis, classification, diagnostic tests, management, and follow-up intervals. In addition, there are 40 recommendations, each with an assigned level of evidence. Ophthalmologists and optometrists provide most of the vision care in Canada. As the scope of practice for...
optometry evolves, the Canadian Glaucoma Society developed a model on interprofessional collaboration in the care of glaucoma suspects and glaucoma patients with the goal of both increasing access and improving quality of care for these individuals in Canada. Both of these documents are available as a free download in English and French on the Canadian Ophthalmological Society webpage at http://www.cos-sco.ca.

Canada is the second largest country based on land-mass, but it ranks 35th in terms of population. This provides challenges to the delivery of eye care, as the distribution of physicians may not mirror the population distribution. Damji et al developed a teleglaucoma program to address the challenges of access to glaucoma care in underserviced areas in northern Alberta, and they plan to expand this program to rural populations elsewhere, including Nairobi, Kenya.

Despite the government’s funding of medications for those aged 65 and over, glaucoma care in Canada is also challenged by problems related to adherence and compliance. Blondeau et al developed patient information sessions with the goal of using education as a tool to address this important issue. This program has been well received and adopted in centers in Quebec. Unfortunately, however, the program has had a limited impact on patients’ persistence.

EVOLVING SURGICAL PARADIGMS

In the Canadian health care system, physicians submit fee claims to their provincial health insurance plans to receive payment. This step provides a relatively reliable data source to study aspects of health care delivery. Based on Canadian claims data from 1992 through 2004, there has been a doubling of the laser trabeculoplasty rate, a decrease in trabeculectomies, and a 12-fold increase in glaucoma drainage devices (Figure). The increase in laser trabeculoplasty rates coincided with the introduction of selective laser trabeculoplasty, whereas the decreasing trabeculectomy rate was associated with the introduction of new medical therapies, specifically the prostaglandin analogues. For glaucoma drainage devices, the change was likely related to the results of the Tube Versus Trabeculectomy Study. There was significant regional variation in the trend data, which could not be explained by differences in provincial remuneration. Comparing Canadian trends to other countries, rates of laser trabeculoplasty in the 1990s in the United States, United Kingdom, France, Australia, and the Netherlands have been stable or decreasing; however, many of these studies were conducted before the introduction of selective laser trabeculoplasty. Australia reported a 60% decrease from 1996 to 2003, and the United States reported a 57% to 61.9% decrease from 1992 through 2000. In both cases, these figures were related to reduced reimbursement. Similar trends to those found in Canada for trabeculectomies and glaucoma drainage devices have been reported in the United States, United Kingdom, Australia, and France.

Many newer glaucoma surgical devices have been approved by Health Canada, including the ExPress Glaucoma Filtration Device (Alcon Laboratories, Inc.), which was approved in 2005, the Solx Gold Shunt (Solx), Trabectome (NeoMedix, Inc.), and the iStent Trabecular Micro-Bypass implant (Glaukos Corporation), all of which were approved in 2009. Data regarding the number of newer procedures performed in Canada are not...
readily available, because there is no specific fee code to distinguish between the type of glaucoma filtration procedures performed.

CANADIAN CONTRIBUTIONS TO INNOVATION IN GLAUCOMA

Canada has a long history of intellectual contributions in the field of glaucoma in both basic science and clinical studies. Some examples include the invention of ultrasound biomicroscopy; studies of the brain and glaucoma, retinal ganglion cell death and neuroprotection, and lymphatics and the eye; major contributions in the areas of ocular blood flow, optic nerve imaging, including biomechanics of the lamina cribrosa, visual field progression; and the discovery of glaucoma genes. Canadian researchers have also played a significant role in a variety of important clinical studies such as the Collaborative Normal Tension Glaucoma Study, the Canadian Glaucoma Study, a variety of studies on selective laser trabeculoplasty, and two international studies comparing glaucoma drainage devices.

CONCLUSION

Canada faces a variety of challenges optimizing the care of glaucoma patients. First, a significant proportion of Canadians with glaucoma are not aware they have the disease, and many of these individuals have moderate to advanced disease at the time of initial diagnosis. Educational programs highlighting risk factors for glaucoma and the importance of treatment for an otherwise irreversible blinding condition targeted to the public and family doctors need to be developed to encourage those at high risk to see an eye care provider. Access to glaucoma care in Canada is challenged by geography, manpower, and economics. Programs such as teleglaucoma and the Canadian National Institute for the Blind Eye Van (a fully equipped mobile medical eye clinic with minor surgical capabilities servicing remote northern Ontario communities) attempt to improve access to glaucoma care in remote areas. Manpower issues are currently improving; legislation was recently passed that allows optometrists in Canada an increased scope of practice to include glaucoma therapeutics. Models of interprofessional glaucoma care have been developed but with limited implementation to date. This could significantly improve access but will only be effective if the quality of patient care is not compromised. In addition, good communication between the patient, optometrist, and ophthalmologist is necessary to both identify who is responsible for the patient and to avoid test duplication. Finally, the costs of providing glaucoma care need to be considered. Especially with the availability of new technology and devices, health care providers increasingly have to make financially responsible decisions when recommending diagnostic tests and surgical devices.

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