EVIDENCE-BASED CLINICAL PRACTICE GUIDELINE

GLAUCOMA

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ALBERTA college of OPTOMETRISTS

Glaucoma Clinical Practice Guideline

The objective of this Clinical Practice Guideline (CPG) is to provide guidance to Doctors of Optometry on the assessment, diagnosis, treatment, co-management, on-going independent management and referral of glaucoma patients. It is based on the best available and most current optometric and medical clinical evidence and research. It is not intended to replace professional discretion and judgment; nor is it intended to be used as an all-encompassing clinical manual. Clinicians must base their assessment, diagnostic, management and treatment regimens on the specific needs of the patient at a specific point in time.

We wish to acknowledge the Canadian and American Associations of Optometry, the Canadian Ophthalmological Society and the American Academy of Ophthalmology for their previously published CPG's used in the development of this guideline.

Glaucoma is a term that describes a group of progressive optic neuropathies caused by a variety of different factors and exhibiting a multitude of different signs and symptoms. Glaucoma is a chronic condition that can lead to severe irreversible loss of vision if not diagnosed at an early stage and treated appropriately. Its presentation is often characterized by a loss of retinal nerve fibers, change in optic disc structure, change in visual field sensitivity, and increased intra-ocular pressure. As documented and clinically proven in the optometric and medical literature, it is not necessary for all findings to be present for a diagnosis of glaucoma to be made. It is important to distinguish between open and closed angle glaucoma, just as it is important to determine primary versus secondary causes of glaucoma.

Glaucoma can occur at any age and is often called the "silent thief of sight" as its initial presentation does not usually produce vision loss, redness, pain or other easily observed signs or symptoms. As such, it is incumbent on every optometrist and other health care practitioner to continually educate patients about the importance of a need for routine comprehensive eye examinations with dilation. Patients who exhibit risk factors such as: a family history of glaucoma, use of certain medications, certain pertinent ocular or systemic conditions, etc. should be checked on a more frequent basis.

Goals

It is the goal of every optometrist to:

1. **Identify those patients at risk for developing glaucoma, diagnose glaucoma as early as possible, minimize the damaging effects of glaucoma and preserve a patient's vision for as long as possible.**

2. **Collaborate and communicate with patients, legal guardians and/or other health care practitioners in order to:**
    - **Increase access to competent vision care services,**
    - **Maximize a patient's visual status and quality of life,**
    - **Improve patient compliance and outcomes,**

- **Reduce the possibility of duplication of tests and services, and,**
- **Provide vision care services in the most efficient and effective manner.**

General Guidelines

1. **Optometrists who graduated after January 1, 2015 and passed the CACO/OEBC exam, and all others who have successfully completed the ACO Advanced Scope of Practice Certification Course related to glaucoma (or similar course approved by the ACO Council) may utilize the following models of care for glaucoma suspects and glaucoma patients:**
    - **Independent diagnosis, treatment and management.**
    - **Co-management with an appropriately certified optometrist or ophthalmologist.**
    - **Referral to an appropriately certified optometrist or ophthalmologist.**

2. **Co-management of patient care with an appropriately certified optometrist or ophthalmologist requires the following:**
    - **Agreement to enter into a co-management model of care and discussion of protocols between practitioners.**
    - **Appropriate sharing of test results.**
    - **Appropriate communication of any recommendations given or changes in management.**
    - **Agreement on patient follow-up (practitioner and timeline).**
    - **Appropriate communication and follow-up of any changes to glaucoma status and/or complications.**

3. **Circumstances where an optometrist must refer glaucoma patients to an appropriately certified and trained ophthalmologist include:**
    - **Glaucoma type and severity that is outside the optometrist's level of competence.**
    - **Glaucoma that is not responding to conventional pharmaceutical treatment.**
    - **Glaucoma that requires surgical management outside current scope of practice.**

Initial Assessment Guideline

In addition to those tests and procedures conducted during a comprehensive eye examination, the following specific history/procedures should be performed and documented over the initial assessment period when deemed necessary for patients who are at risk, or showing early signs of developing glaucoma:

- **Family and personal (ocular and general) health history.**
- **History of other pertinent risk factors**
- **Relevant information and data from previous assessments.**
- **Corrected visual acuities.**
- **Pupil responses.**
- **Central corneal thickness.**
- **Intraocular pressure including record of time of day.**
    - **Intraocular pressure measurements obtained through alternative methods, such as rebound tonometry (ie. iCare), are acceptable, provided that their results align with the gold standard of applanation tonometry via Goldman or Perkins.**
    - **Non-contact tonometry is insufficiently correlated with applanation tonometry measures to meet the standard of care for exclusive use in glaucoma-related care.**
- **Assessment of the anterior chamber angle and anterior uvea.**
- **Gonioscopy is considered the current standard of care to diagnose glaucoma, as it provides information on both the openness and specific features of the angle.**
- **Assessment of the retina, optic nerve, crystalline lens and other structures that may impact risk (dilated fundus examination is considered the current standard of care).**
- **Computerized threshold visual fields. The Humphrey Field Analyzer (HFA) is considered the gold standard to which other perimeters are compared.**
- **Stereoscopic optic nerve head photography (preferred) or standard fundus photography.**
- **Imaging analysis of the optic nerve and macula including analysis of the Retinal Nerve Fiber Layer (RNFL), Ganglion Cell Complex (GCC, and optic nerve head metrics via Optical Coherence Tomography (OCT) or similar technology.**
- **Any other supplemental testing as per the professional discretion and judgment of the optometrist appropriate to that specific patient.**

Specific On-Going Management Guideline

Depending on risk-level, type, severity and progression rate, the following procedures should be performed and documented when deemed necessary on glaucoma suspects and glaucoma patients on a regular basis: Note, the same standards of care apply to on-going management as initial assessment.

- **If using intraocular pressure lowering medications, documentation of time of last dose, compliance and any adverse reactions.**
- **Corrected visual acuities.**
- **Pupil responses.**
- **Intra-ocular pressure including record of time of day.**
- **Assessment of the anterior chamber angle and anterior uvea. (Gonioscopy is considered the current standard of care).**
- **Assessment of the retina, optic nerve, crystalline lens and other structures that may impact risk.**
- **Computerized threshold visual fields. Progression analysis should be performed. The Humphrey Field Analyzer (HFA) is considered the gold standard to which other perimeters are compared.**
- **Stereoscopic optic nerve head photography (preferred) or standard fundus photography.**
- **Imaging analysis of the optic nerve and macula including analysis of the Retinal Nerve Fiber Layer (RNFL), Ganglion Cell Complex (GCC), and optic nerve head metrics via Optical Coherence Tomography (OCT) or similar technology.**
- **Any other supplemental testing as per the professional discretion and judgment of the optometrist appropriate to that specific patient.**

Summary

Optometrists, through routine comprehensive eye exams, play a crucial role in detecting patients at risk of developing glaucoma, diagnosing glaucoma as early as possible, and minimizing the effects of glaucoma to preserve a patient's vision. Management of glaucoma will require periodic follow-up visits to properly monitor for progression. In order to be successful in managing these patients, optometrists should:

- **Communicate with the patient’s family doctor.**
- **Consult with a certified optometrist or ophthalmologist when appropriate.**
- **Continue to educate and instruct the patient to ensure maximum compliance with their glaucoma management.**