STANDARDS OF PRACTICE

GLAUCOMA TREATMENT STANDARDS

Name:	Glaucoma Treatment Standards
Date Approved:	08/05/2014
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Number:	SP-C-13
Type:	Clinical Standards (C)
Reference:	Professional Bylaws (11.1) A member providing antiglaucoma treatment must have a working relationship with an ophthalmologist who is accessible for consultation, collaboration and transfer of care when referral is required as per the bylaws and the Saskatchewan Association of Optometrist's Glaucoma Treatment Standard of Practice.

Introduction

The expanded scope of practice of Saskatchewan optometrists, effective January 1, 2016 includes prescribing privileges of all oral and topical Schedule I Drugs of the Saskatchewan College of Pharmacists (with the exception of narcotics and as amended or replaced from time to time), for the assessment, measurement, diagnosis, treatment, management, and correction of disorders and diseases of the human vision system, the eye and its associated structures.

When an oral drug is prescribed, it is required that:

1. When dispensed, the prescription is posted on the Pharmaceutical Information Program (PIP) database. For training and registration to access PIP, contact the help desk at 1-800-316-7446 and register under a private clinic access (not a joint service agreement).
2. The patient's primary healthcare provider (when known) is notified of the treatment initiated.
3. The effect of the prescribed drug is monitored. In general, if there is no marked improvement in the patient's eye condition within the expected or appropriate time, the patient should be referred to the appropriate healthcare practitioner.

Patient-Centered Model of Care

Under the "Patient-Centered Model of Care", Saskatchewan optometrists have enhanced authority to prescribe Schedule I Drugs of the Saskatchewan College of Pharmacists Drug Schedules (with the exception of narcotics and as amended or replaced from time to time) and the authority to independently diagnose, treat and manage glaucoma.

The decision to diagnose, treat, co-manage or refer depends on the optometrist's level of competence and the type and severity of the patient's condition. Optometrists are regulated to practice within their level of comfort and expertise.

Optometric Standards of Care stress the following key principles of inter-professional collaboration in glaucoma care:

- Patient-centered approach
- Timely access to appropriate eye care professionals
- Ongoing commitment of high-quality standards of care
- Evidence-based approach to care
- Collegial relationships
- Effective, clear and timely communication
- Optimal utilization of professional competencies and finite resources
- Duplication of tests and services kept to a minimum

Recommended Standards of Care for Glaucoma Management

1. Glaucoma suspects with low to moderate risk as defined by:
    a) Ocular hypertension (IOP<27mmHg)
    b) Suspicious optic nerves
    c) Suspicious visual field defects
    d) Presence of conditions such as pseudoexfoliation or pigment dispersion

2. Glaucoma suspects with high risk as defined by:
    a) Ocular hypertension (IOP>27mmHg)
    b) Very suspicious optic nerves (e.g. notching, disc hemorrhages)
    c) Suspicious visual field defects
    d) Elevated IOP caused by secondary causes (e.g. pseudoexfoliation, pigment dispersion, uveitis, or steroid induced)

Low, moderate and high-risk glaucoma suspects can be diagnosed, treated and monitored by optometrists. If the attending optometrist initiates therapy and therapeutic treatment goals are not met in a timely manner, consultation with an ophthalmologist to discuss treatment plans is required.

3. Stable glaucoma as defined by:
    a) IOP within target, no visual field or disc progression for three or more years

Stable, including moderate to advanced glaucoma patients can be monitored and treated by an optometrist. Given the increased likelihood of needing laser or surgical care, periodic consultation with an ophthalmologist is advisable for patients with advanced disease. Any signs of unstable disease would initiate a referral to an ophthalmologist.

4. Unstable glaucoma as defined by:
    a) Progressive visual field defects or progressive optic nerve damage
    b) Patients not achieving target IOP

If a patient on anti-glaucoma treatment is managed by an optometrist and there is a repeatable, clinically significant change in the threshold visual field, it is required that the optometrist refer the patient to an ophthalmologist. The optometrist should communicate the medications used, all pertinent test results, and clinical findings.

If the patient on anti-glaucoma treatment is managed by an optometrist and there is a reasonable, significant change in the appearance of the nerve fiber layer, it is required that the optometrist refer the patient to an ophthalmologist. The optometrist should communicate the medications used and the imaging results.

If a patient on anti-glaucoma treatment is being managed by an optometrist and the IOP is greater than the established target IOP with appropriate treatment, it is required the optometrist refer the patient to an ophthalmologist. The optometrist should communicate the medications used and the resulting IOP.

Once the ophthalmologist assesses the patient and makes the appropriate management changes, they can be referred back to the optometrist for further follow-up and the monitoring of stability.

5. Acute glaucoma is defined by:
    a) Primary acute glaucoma
    b) Very high IOP from other causes such as pseudoexfoliation, pigment dispersion, uveitis or neovascular glaucoma

Optometrists can initiate acute treatment including oral medication, but immediate referral to an ophthalmologist is required. In remote locations where evacuation is not possible due to weather, available transportation or general health limitations, treatment may be conducted by an optometrist and the patient observed for reduction of IOP or adverse events in conjunction with discussion and or guidance from an ophthalmologist.

Optometric practitioners diagnosing, treating and managing glaucoma patients are required to be proficient in and have the instrumentation to perform and interpret the following tests:

1. Applanation tonometry with regularly calibrated tonometers
2. Gonioscopy to detect angle abnormalities
3. Optic nerve stereoscopic evaluation with either a Goldmann contact fundoscopy lens or a non-contact 66, 78 or 90 diopter lens
4. Visual field evaluation with standard automated perimetry and threshold testing
5. Imaging technology is strongly recommended
6. In-depth knowledge of glaucoma treatment including effectiveness, side effect profile, and contraindications of all glaucoma medications, as well as indications and complications of incisional and laser surgeries performed by an ophthalmologist

Communication and sharing results of all pertinent findings and testing is the key to effective, cost-efficient patient care. The Saskatchewan Association of Optometrists believes collaborative care is essential to patient welfare.

Goals of Treatment

- Acute glaucoma
    - eliminate pain and improve vision, lower IOP quickly
- Chronic glaucoma

    - prevent, stop or slow loss of vision with minimum effect on the patient's quality of life
- Primary Open-Angle glaucoma
    - Initial goal of treatment is reduction of IOP by 20% to 40% but the target may be set higher than 40 % if there is severe optic nerve damage or if the patient is relatively young, i.e. in 40's, since they will have the disease for a long period of time

The Canadian Ophthalmological Society (COS) *Model of Interprofessional Collaboration in the Care of Glaucoma and Glaucoma Suspects* written by the Canadian Glaucoma Society Committee on Interprofessional Collaboration in Glaucoma Care (*Can J Ophthalmology*. 2011:46[Suppl 1]:S1–S9.) recommends the following upper limits for initial IOP target based on stage of patient's glaucoma:

- Suspected: 24 mm Hg with at least 20 % reduction from baseline
- Early: 20 mm Hg with at least 25 % reduction from baseline
- Moderate: 17 mm Hg with at least 30 % reduction from baseline
- Advanced: 14 mm Hg with at least 30 % reduction from baseline

Treatment should be individualized, including consideration of the patient's age, medical history, concurrent medications, compliance issues; as well as the consider drug effectiveness, side effects, dose frequency and cost.

Treatment Choices

- First line: beta-blockers or prostaglandin analogs
    - Beta-blockers – betaxolol, levobunolol, timolol
    - Prostaglandin analogs – bimatoprost, latanoprost, travoprost
    - Prostaglandin analogs are more potent, better tolerated, have fewer contraindications
- Second line: Alpha adrenergic agonists or topical carbonic anhydrase inhibitors
    - Alpha agonists – apraclonidine, brimonidine (apraclonidine recommended for short-term use only)
    - Carbonic anhydrase inhibitors – brinzolamide, dorzolamideo
    - Substitute for or combine with first line agents
- Third line: Parasympathetic agent, oral carbonic anhydrase inhibitors
    - Parasympathetic – pilocarpine, carbachol
    - Oral carbonic anhydrase inhibitors – acetazolamide, methazolamide

When prescribing, the goal is to use the minimum number of medications with minimum dosing frequency need to reach the target IOP.

Agents from each of the five drug classes can be combined, increasing as necessary up to a point of maximal tolerated medical therapy.

If the target IOP is not achievable with maximal tolerated medical therapy, laser or incisional surgery should be considered and referral to an ophthalmologist is required. Drainage shunts may be required in refractory cases.

Glaucoma occurring during childhood often causes amblyopia and blindness. It requires aggressive treatment to prevent permanent vision loss. Surgery may be the preferred therapy. Refer pediatric patients to an ophthalmologist.

Indications for Monitoring, Adjusting Treatment by an Optometrist

- After initiating treatment, it is recommended to re-examine the patient 4-6 weeks after starting a new beta-blocker or prostaglandin to evaluate the effectiveness as well as any ocular and/or systemic side effects
- Topical carbonic anhydrase inhibitors, alpha-agonists, and parasympathetic agents quickly achieve maximum effect, and re-examination can be done any time after first three days of therapy
- Severe optic nerve damage and/or high IOP require more frequent follow-up
- Once the IOP has been reduced adequately, IOP and visual field should be checked every 3 to 6 months and nerve fibers analyzed annually
- Intolerance of the prescribed medical regimen
- Non-adherence to the prescribed medical regimen (cost, inconvenience, etc.)
- Development of contraindications to individual medicines
- If IOP is at target and the optic nerve status is stable, consider reducing the medication regimen

Indications for Adjusting Therapy, Consultation or Referral to an Ophthalmologist

- Target IOP not achieved and potential benefits of a change in therapy outweigh risks for the patient
- Progressive optic nerve damage despite achieving the target IOP. If optic nerve damage and/or visual field is deteriorating consider lowering the IOP target pressure.
- Check for compliance with medications before adding additional therapy