

GLUCOMA

DEFINITION:

A group of eye disorders, glaucoma is characterized by high intraocular pressure (IOP) that damages the optic nerve.

Primary glaucoma has mainly two forms :

1. Open angle glaucoma (chronic, simple, or wide angle glaucoma)
2. Angle –closure glaucoma(Acute or narrow angle glaucoma) Angle –closure glaucoma occurs suddenly and may cause permanent or irreversible vision loss in 48 to 72 hours.

Risk Factors for Glaucoma

1. Family history of glaucoma
2. African American race
3. Older age
4. Diabetes mellitus
5. Cardiovascular disease
6. Migraine syndromes
7. Near-sightedness (myopia)
8. Eye trauma
9. Prolonged use of topical or systemic corticosteroids

Pathophysiology

There are two accepted theories regarding how increased IOP damages the optic nerve in glaucoma.

1. The direct mechanical theory suggests that high IOP damages the retinal layer as it passes through the optic nerve head.
2. The indirect ischemic theory suggests that high IOP compresses the microcirculation in the optic nerve head, resulting in cell injury and death

Clinical Manifestations

- Glaucoma is often called the silent thief of sight because most patients are unaware that they have the disease until they have experienced visual changes and vision loss.
- The patient may not seek health care until he or she experiences blurred vision or “halos” around lights, difficulty focusing, difficulty adjusting eyes in low lighting, loss of peripheral vision, aching or discomfort around the eyes, and headache.

Assessment and Diagnostic Findings

- The purpose of a glaucoma workup is to establish the diagnostic category, assess the optic nerve damage, and formulate a treatment plan.
- The patient's ocular and medical history must be detailed to investigate the history of predisposing factors.

There are four major types of examinations used in glaucoma evaluation, diagnosis, and management:

1. Tonometry to measure the IOP, ophthalmoscopy to inspect the optic nerve.
2. Gonioscopy to examine the filtration angle of the anterior chamber
3. Perimetry to assess the visual fields.
4. Slit-lamp examination- to examine the structure of the eye. Including the cornea, iris, vitreous and retina.
5. Fundus photography- taking the image of the retina of the eye with fundus camera.

Medical Management

client with Glaucoma

- The aim of all glaucoma treatment is prevention of optic nerve damage through medical therapy, laser or non-laser surgery, or a combination of these approaches.
- Lifelong therapy is almost always necessary because glaucoma cannot be cured.
- Although treatment cannot reverse optic nerve damage, further damage can be controlled. The treatment goal is to maintain an IOP within a range unlikely to cause further damage.
- For open-angle glaucoma , initial treatment aims to reduce IOP pressure by decreasing aqueous humour production with medications.

- This include:
 1. Beta- blockers (Timolol : used cautiously in asthmatic clients or clients with bradycardia)
 2. Epinephrine (contraindicated in angle- closure glaucoma)
 3. Miotic eye drops (cause pupillary constriction)

SURGICAL MANAGEMENT

- Clients who don't respond to drug therapy may benefit from argon laser trabeculoplasty or from a surgical filtering procedure called trabeculectomy.
 - In laser trabeculoplasty for glaucoma, laser burns are applied to the inner surface of the trabecular meshwork to open the intratrabecular spaces and widen the canal of Schlemm, thereby promoting outflow of aqueous humor and decreasing IOP.
 - The procedure is indicated when IOP is inadequately controlled by medications
 - In trabeculectomy, the surgeon dissects a flap of sclera to exposure the trabecular meshwork.
 - He removes a small tissue block and performs a peripheral iridectomy, which produces an opening for aqueous outflow under the conjunctiva and creates a filtering bleb.
- ◆ An emergency, angle- closure glaucoma requires immediate treatment to lower high IOP.
- ✓ Initial drug therapy such as
 1. acetazolamide
 2. Pilocarpine
 3. I.V Mannitol or oral glycerine.
 - ✓ If these medications fail to decrease the pressure, laser iridotomy or surgical peripheral iridotomy must be performed on emergency basis to save client vision. ◆ If the patient has severe pain, treatment may include narcotic analgesics can use.

Complications

If untreated glaucoma can progress from gradual vision loss to total permanent blindness.

Nursing management

- Nursing care of the client with glaucoma focuses on normalization of IOP, maintenance of optimal vision, absence of complications, and adequate knowledge to comply with treatment and follow-up.
- For the client with angle-closure glaucoma, give medications as ordered and prepare physically and psychologically for laser iridotomy or iridectomy.
- Administer prescribed pain medication.
- After trabeculectomy give medications as ordered to dilate the pupil.
- After surgery protect affected eye by applying an eye patch and eye shield.
- Monitor the client IOP regularly.
- Fear related to potential for blindness.
- Identify source of fear
- Seek knowledge about glaucoma from an appropriate source to help reduce his / her fear.
- Explain all procedures and treatment, especially surgery, to help reduce the client anxiety.