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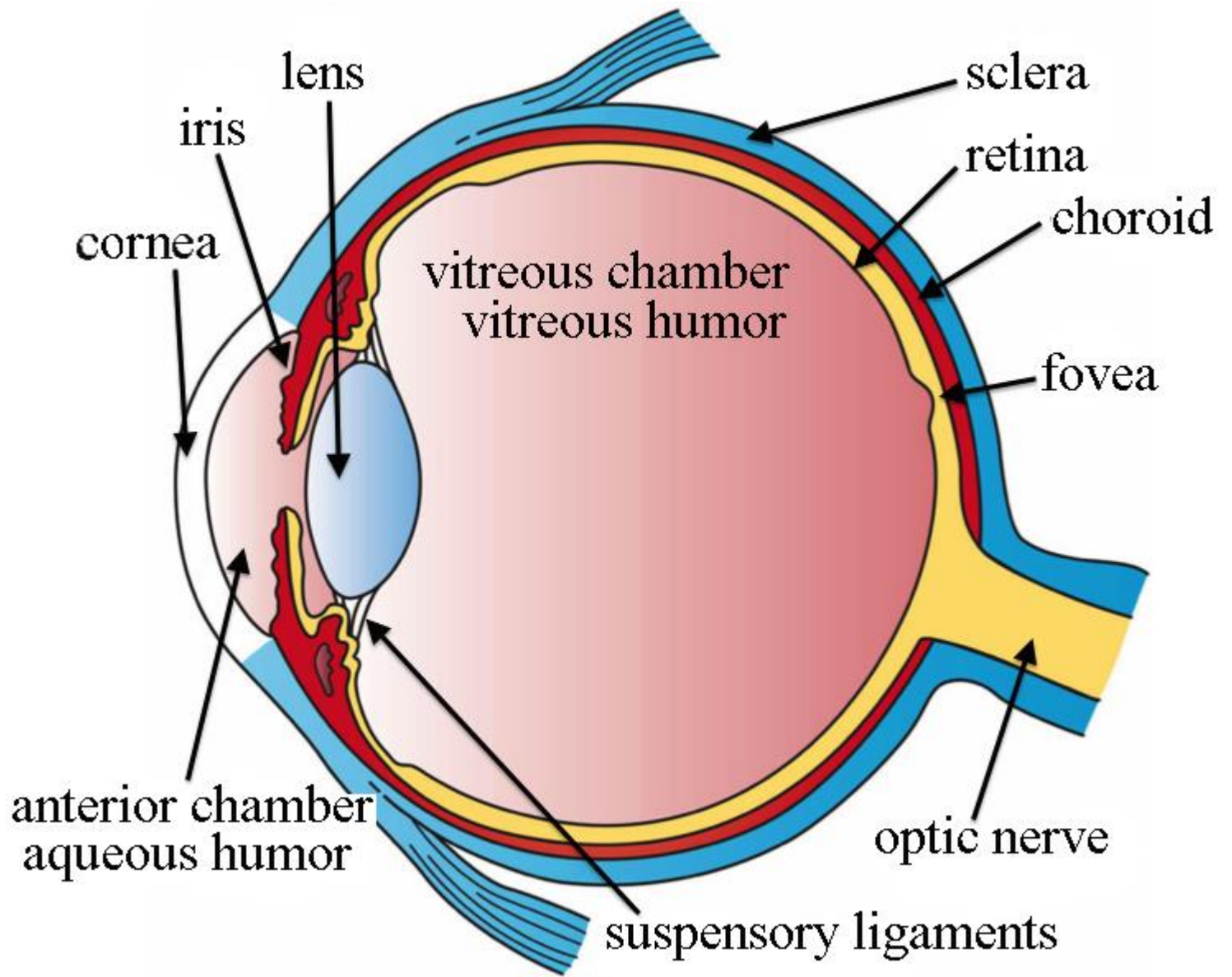
Definition

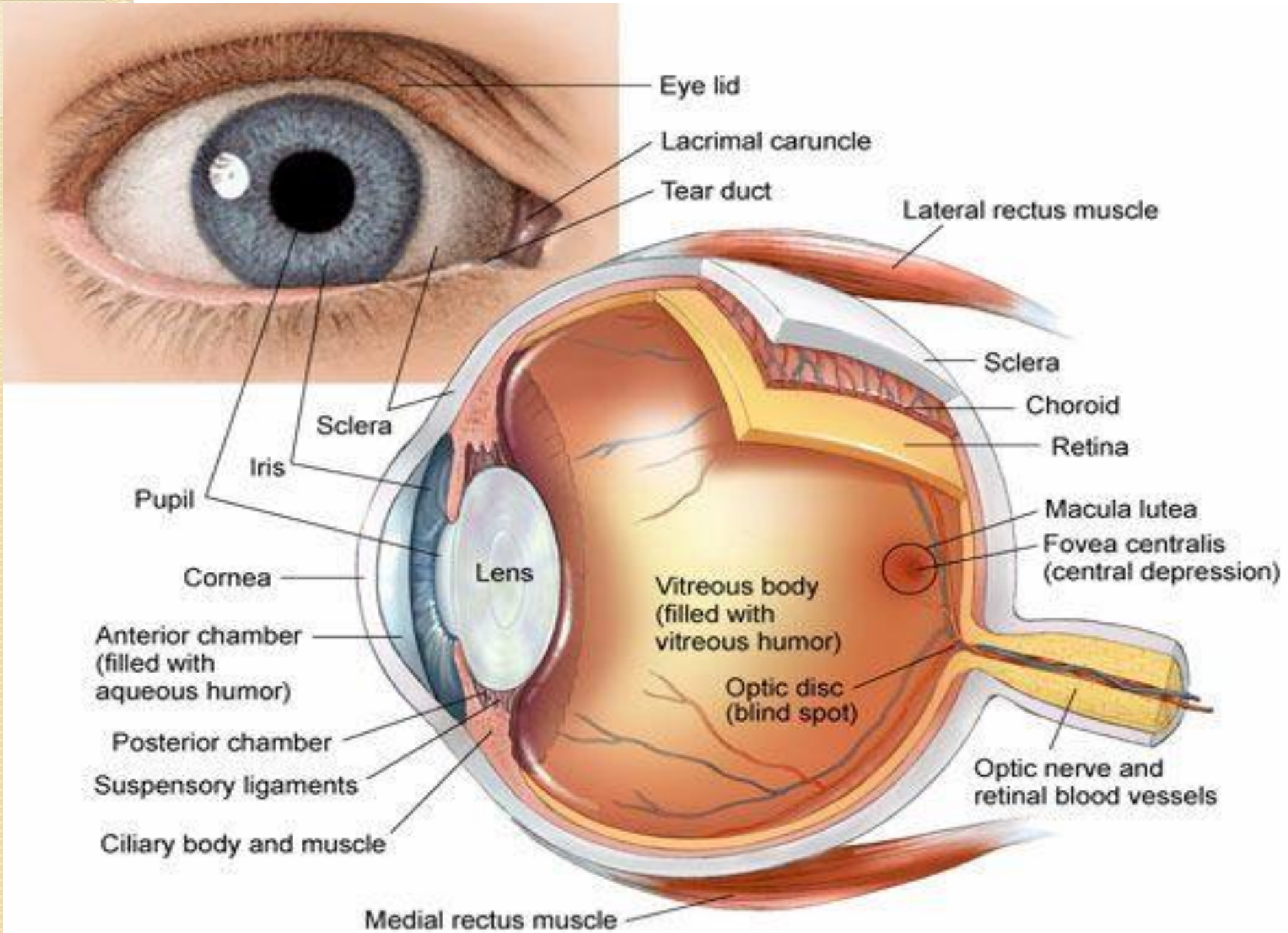
glaucoma is used to refer to a group of ocular conditions characterized by elevated IOP. If left untreated, the increased IOP damages the optic nerve and nerve fiber layer.

IOP is between 10 and 21 mmHg

Epidemiology

- Glaucoma is estimated to affect 3 million Americans, approximately 50% of whom are undiagnosed
- Glaucoma is more prevalent in people older than 40 years.
- There is no cure for glaucoma, but the disease can be controlled.
- Glaucoma can cause blindness if it is left untreated.

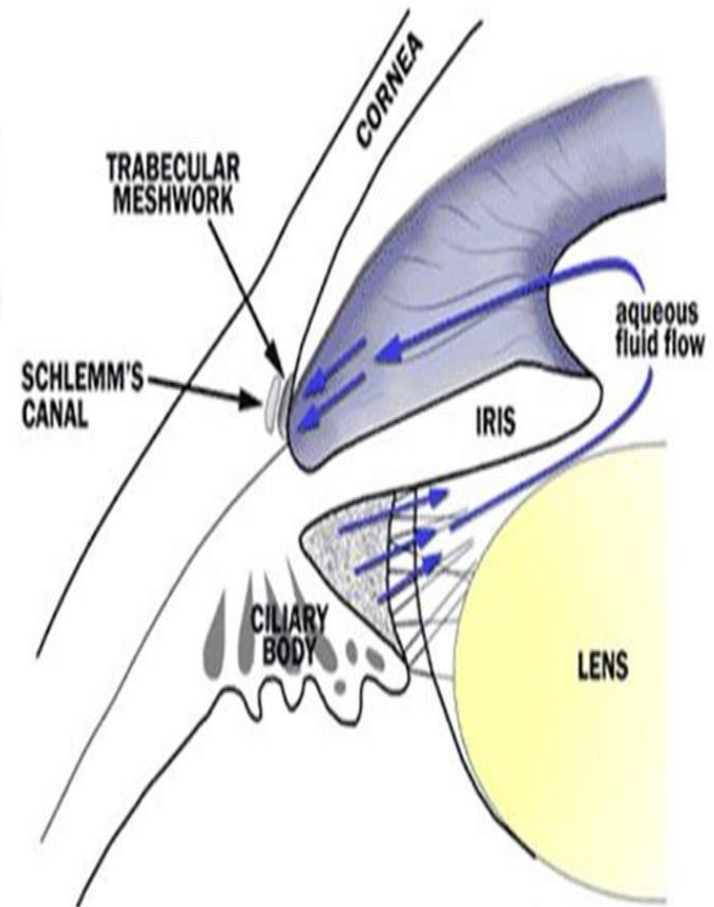




Right Eye (viewed from above)

aqueous humor

The aqueous fluid produced by the *ciliary body* flows between the iris and lens, through the pupil to the drainage angle at the junction of the iris and the cornea, and exits the eye through the *trabecular meshwork* and Schlemm's canal, interscleral channels and episcleral vein.





aqueous humor

- aqueous humor is a colorless, plasma-like fluid produced by the ciliary body.
- It is a structurally supportive medium, providing nutrients to the lens and cornea.
- It differs from plasma in having lower glucose (80% of plasma levels) and low protein



Pathophysiology

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

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

NORMAL VISION



EARLY GLAUCOMA



ADVANCED GLAUCOMA



EXTREME GLAUCOMA



Glaucoma classification

open angle glaucoma

- wide-angle glaucoma
- most common type of glaucoma. 90% of all glaucoma cases
- Asymptomatic symptoms are not noticed
- Adult onset
- IOP > 21 mmHg
- gradual loss of peripheral vision
- the drain structure in eye (called the trabecular meshwork) looks fine, but fluid doesn't flow out like it should.

Angle-closure glaucoma

- Narrow-angle glaucoma
- Rare
- Develops very quickly
- Has symptoms and damage that are usually very noticeable
- Demands immediate medical attention

RISK FACTORS

Risk Factors for Glaucoma

- African American race
- Cardiovascular disease
- Diabetes
- Family history of glaucoma
- Migraine syndromes
- Nearsightedness (myopia)
- Older age
- Previous eye trauma
- Prolonged use of local or systemic corticosteroids
- Thin cornea



Clinical Manifestation

- “silent thief of sight”
- blurred vision or “halos” around lights.
- difficulty focusing.
- difficulty adjusting eyes in low lighting.
- loss of peripheral vision.
- Pain or discomfort around the eyes.
- headache.

SYMPTOMS OF **GLAUCOMA**



Extreme Headache



Distorted Vision



Eye Reddening



Severe Eye Pain



Halos Around Lights

Diagnosis

The patient's ocular and medical history must be detailed to investigate the history of predisposing factors.

Five major types of examinations are used in glaucoma :

- 1- tonometry to measure the IOP .
- 2- ophthalmoscopy to inspect the optic nerve .
- 3- gonioscopy to examine the filtration angle of the anterior chamber .
- 4- perimetry to assess the visual fields.
- 5- Pachymetry to measure the thickness of the cornea



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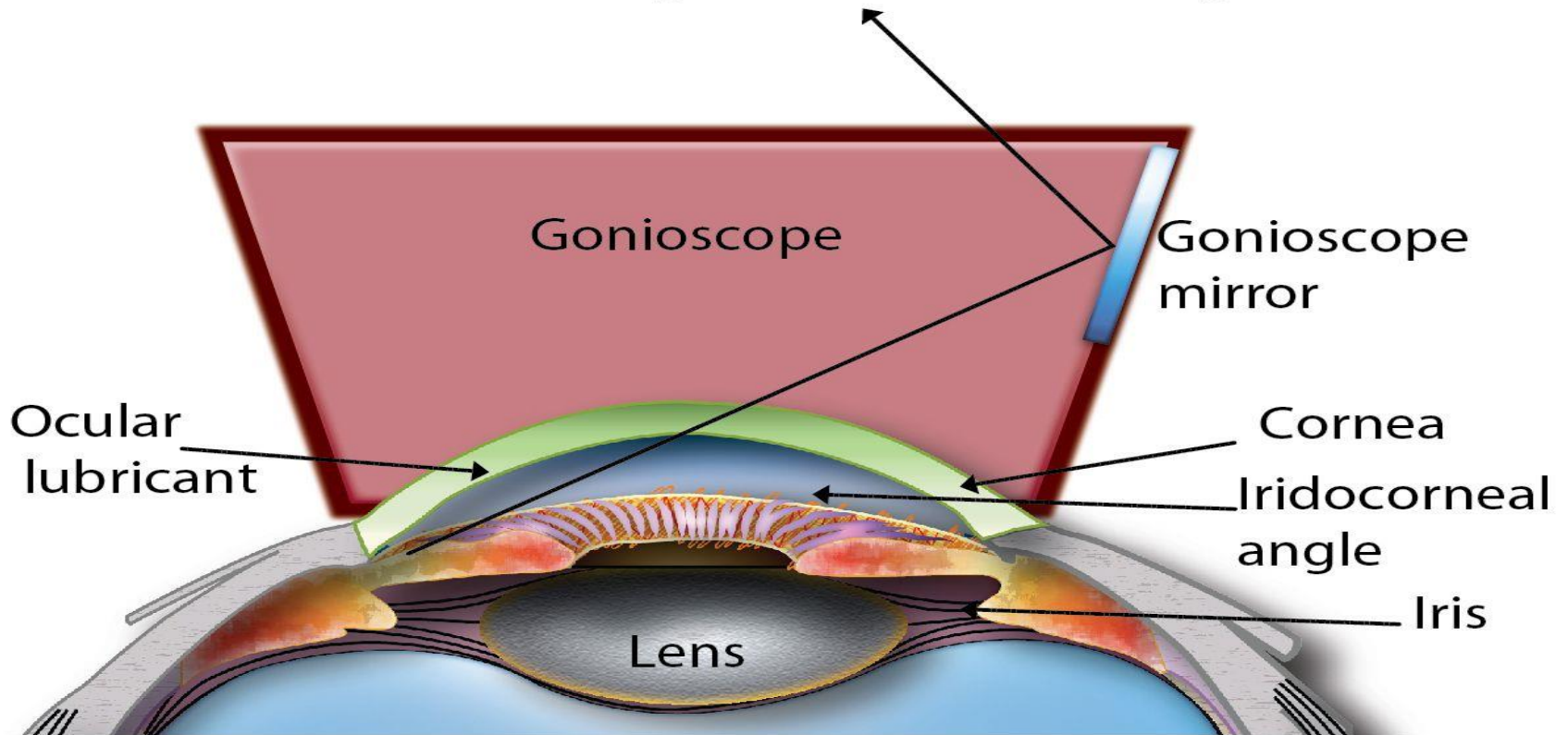


Ophthalmoscopy



Gonioscopy

(Image of iridocorneal angle)



HELP

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Pachymetry



medications

- **BETA ADRENERGIC BLOCKERS:-** Timolol, betaxolol are used to decreased aqueous humor production.
- **CHOLINERGIC (MIOTICS):-** Pilocarpine, carbachol are used to reduce IOP by facilitating the outflow of aqueous humor
- **CARBONIC ANHYDRASE INHIBITORS:-** Dorzolamide, methazolamide or acetazolamide to decrease the formation and secretion of aqueous humor.
- **PROSTAGLANDIN ANALOGS:-** Latanoprost to reduce IOP by increasing uveoscleral outflow.

Glaucoma surgery

- ❑ Trabeculoplasty: The surgeon uses a laser beam to unblock clogged drainage canals, making it easier for fluid to drain out.
- ❑ Filtering surgery: If laser surgery does not help, the surgeon may open channels in the eye to improve fluid drainage.
- ❑ Drainage implant: This may help if glaucoma occurs in children or as a result of another health condition. The surgeon inserts a small silicone tube into the eye to improve drainage.

Nursing Diagnosis

1. Acute Pain related to an increase in IOP
2. Disturbed Sensory Perception (visual) related to damage to the nerve fibers due to increased IOP.
3. Risk for injury related to a decrease in the visual field.
4. Anxiety related to loss of vision, lack of knowledge.

Acute Pain related to an increase in IOP

Nursing Interventions

- Assess the type, intensity and location of pain. Use pain scale to determine the level of analgesic doses.
- Keep the rest in bed in a quiet room and dark with the head elevated 30 ° or in a comfortable position.
- Encourage relaxation techniques.
- Avoid nausea, vomiting, give anti-emetic if necessary.
- Collaboration with physicians in providing analgesic.

Disturbed Sensory Perception

Nursing Interventions

- Assess and record the visual acuity.
- Environment with the ability to adjust the vision.
- Use the clock sound.
- Advise on alternative forms of stimulation such as radio

Risk for injury

Nursing Interventions

- Orient the client to the environment when it arrives.
- Explain the origin of a decrease in peripheral vision and do like bumping into objects.
- Suggest to turn his head to look into each side.
- Arrange the room in order to walk around freely.
- Make modifications to the environment to move all the dangers

Anxiety

Nursing Interventions

- Give the client the opportunity to express about the condition.
- Maintain a relaxed condition.
- Explain the purpose of each action.
- Maintain effective pain control