

# GLAUCOMA

## WHEN TO SUSPECT/ RECOGNISE

### Case definition:

Glaucoma is of two types:

- Primary Open Angle Glaucoma (POAG)
- Primary Angle Closure Glaucoma (PACG)

The following patients must be screened for open angle glaucoma:

- Painless progressive fall of vision.
- Patients with frequent change of near vision glasses.
- Inappropriate near vision demand for age.
- Myopes.
- All patients of diabetes mellitus
- All individuals with a family history of Glaucoma.

The following patients must be suspected for angle closure glaucoma:

- Sudden severe ocular pain with vomiting, red eye, cloudy cornea, vertically oval mid-dilated pupil and fall of vision.
- Hypermetropic patients who complain of headaches.
- Headaches while watching a movie in a cinema hall.
- Frequent headaches.
- Patient with history of seeing coloured halos around lights.

## INCIDENCE OF THE CONDITION IN OUR COUNTRY

There are approximately 12 million bilaterally blind in India.[2] Glaucoma is the third most common cause of blindness and it is estimated that 13% of the blindness in India is caused by glaucoma. The disease affects 12 million Indians.[3]

## DIFFERENTIAL DIAGNOSIS

- Primary open angle glaucoma must be ruled out in every case of cataract.
- An acute attack of angle closure glaucoma has to be differentiated from phacomorphic glaucoma and other causes of an acute red eye like acute anterior uveitis, acute conjunctivitis & keratitis.

## DIAGNOSTIC CRITERIA, INVESTIGATIONS, TREATMENT & REFERRAL CRITERIA

### LEVEL 1 : AT SOLO PHYSICIAN CLINIC

#### Clinical Diagnosis

Visual acuity should be checked for all patients suspected of glaucoma. Direct ophthalmoscopy should be done to visualize the optic disc for any change of glaucoma.

#### Investigations

None by a medical officer for primary open angle glaucoma.

**Treatment**

- For acute congestive glaucoma :
  - Two tablets of Tab. Acetazolamide (Diamox) 250 mg stat.
  - One bottle (250-300 ml) of Inj. 20% Mannitol I.V. (fast).
  - Send the patient to an ophthalmologist urgently.
- For all other suspected cases of glaucoma:
  - Refer the patient to an ophthalmologist for confirmation of diagnosis and management.

**Referral criteria**

It would be advisable to transfer all suspected cases of glaucoma directly to an ophthalmologist.

**LEVEL 2 : AT 6-10 BEDDED PRIMARY HEALTH CENTRE**

Same as above.

**LEVEL 3 : AT 30-100 BEDDED COMMUNITY HEALTH CENTRE**

Same as above.

**LEVEL 4: AT 100 OR MORE BEDDED DISTRICT HOSPITAL****(At an eye centre)**

Examination	Remarks
Best corrected visual acuity	Decreased in patients with advanced glaucoma.
Intraocular pressure measurement (Tonometry)	Ideal: Applanation tonometry Acceptable: Pneumotonometer or Schiottz tonometer.
Dilated evaluation of the optic disc	Ideal: Dilated stereoscopic evaluation by slitlamp biomicroscopy, fundus photography. Acceptable : Direct ophthalmoscopy.
Flash light test / slit lamp biomicroscopy (Van Herick Test)	To assess the depth of anterior chamber
Gonioscopy	To differentiate between POAG and PACG. Ideal: indentation gonioscopy using a Sussman, Zeiss or Posner lens. Acceptable: Goldman single or two-mirror lens with "manipulation".
Visual fields by computerized automated static perimetry preferably by Humphrey's perimeter	If the IOP is > 21 mmHg and/or the Optic Disc is suspicious. Ideal: A full threshold test. Acceptable: Frequency doubling perimetry.
Retinal nerve fibre layer analysis	If equipment is available.

**Treatment**

- Primary Open angle Glaucoma:

Medical : Primary drug of choice is 0.5% Timolol eye drops provided the patient is not an asthmatic and does not have cardiac problems. 0.2% Brimonidine becomes the first drug of choice in that case. The next level of medicines are prostaglandin analogues which are given alone or in combination with timolol depending upon the case.

LASER : Argon Laser Trabeculoplasty (ALT) / Selective Laser Trabeculoplasty (SLT) using frequency doubled 532 nm Nd YAG Laser.

Surgical : Cases refractory to best medical management require surgery (Trabeculectomy).

- Primary Angle Closure Glaucoma (Acute attack):

Medical : Inj Mannitol 20% 250-300 ml fast I.V.; Tab Acetazolamide 500 mg stat followed by 250 mg QID; Pilocarpine 2% drops every 15 minutes till pupil constricts, then QID; steroid-antibiotic eyedrops QID. Once the IOP is lowered, cornea becomes clear and eye becomes quiet.

- Iridotomy with Nd YAG laser in affected eye followed by prophylactic laser iridotomy in the fellow eye.
- Those refractory to laser iridotomy are switched on to the same management as for open angle glaucoma.

### SUGGESTED READING

1. R Rand Allingham. Editor. Shields Text Book of Glaucoma, 5th Ed., Lippincott, Williams & Wilkins Philadelphia, 2005.
2. Quigley HA. Number of people with glaucoma worldwide. Br J Ophthalmol 1996;80:389-93.
3. Thylefors B, Negrel AD, Pararajasegaram R, Dadzie KY. Global data on blindness. Bull WHO 1995;73:115-21