

Standard Treatment Workflow (STW)

GLAUCOMA

ICD-10-H40.9

KEY POINTS

Glaucoma can be asymptomatic

Can lead to irreversible vision loss if not treated in time

Everybody \geq 40 years age to be screened

Everybody with a family history of Glaucoma to be screened

SCREENING CRITERIA

HISTORY TAKING

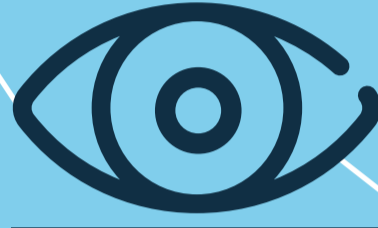
- Unilateral intermittent headache, blurring of vision, eye pain, coloured haloes
- Previously diagnosed /glaucoma suspect
- Treatment history - medical/surgical/laser and compliance with medication/follow up

SIGNS

- Abnormalities of optic nerve head (Cup to disc ratio $>$ 0.7; asymmetry $>$ 0.2)
 - IOP* $>$ 20mmHg
 - Evidence of ocular co-morbidities that could lead to secondary glaucoma
 - Torch light examination : on shadow test - shallow anterior chamber and Iris changes (Iris atrophy and sphincter pupil atrophy)
 - Visual field defects
 - Evidence of previous surgery or laser
 - Evidence of intermittent angle closure glaucoma
- *if normal but associated with other features think of normal-tension glaucoma

HISTORY

- Highest baseline IOP before any treatment
- Systemic Hypertension, Cardiovascular diseases, Transient ischemic attacks, DM
- Systemic and ocular medications used
- Any OTC medication especially steroid for allergy
- Any ocular trauma



DEFINITIVE DIAGNOSIS

EXAMINATION

- Vision
- Refraction
- Ophthalmic examination including pupillary reflexes
- IOP
- Fundus examination
- Anterior chamber depth with direct ophthalmoscope/ slit lamp biomicroscope with 90D

ESSENTIAL

Slit lamp bio microscopy, AC Depth, gonioscopy, Pupillary reflex, Estimation of IOP (3 measurements), Visual field assessment

DESIRABLE

Diurnal variation. Central Corneal thickness

OPTIONAL

UBM, OCT, HRT, GCC for RNFL thickness

EXAMINATION IN OPD

Cupping $>$ 0.7, Asymmetry $>$ 0.2, Notch

Shallow AC

TONOMETRY (repeat twice) + Gonioscopy

IOP 14-18 mmHg

IOP $>$ 20 mmHg

Open angles POAG Suspect

Narrow angles PACS/PAC

Narrow angles + PAS PACC

Open Angles POAG

BE Yag PI

Perimetry + baseline IOP (preferably morning and evening) to determine 'Target' IOP

SUGGESTED MANAGEMENT PROTOCOL BASED ON IOP

$<$ 25 mmHg
First line drug-Prostaglandins/ β -Blocker (look for 15% IOP)

25-30 mmHg
First line drug-Prostaglandins/ β Blocker

$>$ 30mmHg
Prostaglandins + β -Blocker+ Tab Diamox 250mg TDS only x3 days

Review 2 weeks/ switch to another drug if nonresponder

Review 10 days+another drug if required

Review 10 days add brimonidine if required

Review after every 4 mths if 'target' IOP achieved

Review after every 3 mths if 'target' IOP achieved

Review after every 3 mths if 'target' IOP achieved

Fitness for Surgery

- General health stable
- BP \leq 150/90mm Hg
- Blood sugar (mg/dl) FBS $<$ 140, PPBS $<$ 180 / RBS $<$ 200

MANAGEMENT

PHC

- Evaluate for open angle(deep AC), narrow angle (shallow AC) with torchlight
- Detailed history and examinations
- Refraction for BCVA
- Preliminary diagnosis
- Referral to Ophthalmologist as soon as possible if IOP $>$ 21, shallow anterior chamber or cup-disc ratio $>$ 0.7
- Counselling regarding spacing and phasing of glaucoma medication and reporting of side effects if any
- Counsel that surgery is not a cure but a means to lower IOP to stabilize the disease. The follow up is mandatory and will remain, regardless
- Counsel that stabilization of disease is available with regular treatment and follow up

DISTRICT HOSPITAL

- Refraction for BCVA
- Detailed work up including, Slit lamp examination & AC Depth, IOP, Optic nerve head examn
- Gonioscopy, fields and Diagnose, classify, advice as per Flow chart. point to point guided referral
- Surgical intervention such as Yag PI and Trabeculectomy
- Counselling regarding spacing and phasing of glaucoma medication and reporting of side effects if any.
- Counsel that surgery is not a cure but a means to lower IOP to stabilize the disease. The follow up is mandatory and will remain, regardless
- Counsel that stabilization of disease is available with regular treatment and follow up

TERTIARY CARE

- Detailed work up as above
- Optional investigations such UBM, OCT, HRT, GCC for RNFL thickness when necessary
- Surgical intervention, YAG Pi, Trabeculectomy, any other advanced procedure such as tube shunts.
- Ensure Postoperative Follow up and compliance including collaboration with district hospital ophthalmologists
- Counselling regarding spacing and phasing of glaucoma medication and reporting of side effects if any.
- Counsel that surgery is not a cure but a means to lower IOP to stabilize the disease. The follow up is mandatory and will remain, regardless
- Counsel that stabilization of disease is available with regular treatment and follow up

RED FLAG SIGNS FOR URGENT REFERRAL

- Acute angle closure attack*
- IOP* $>$ 30.
- Loss of pupillary reflex with visual impairment.
- Single eyed patient with glaucoma

* initiate initial therapy for acute attack of angle closure glaucoma oral diamox, iv mannitol and pilocarpine 2 percent tds if confirmed narrow angle before yag PI

Intervention: Consult flowchart, pre-op topical broad spectrum antibiotics, QID for 1-3 days

Aim of Glaucoma Management

- Achieve target IOP with minimal fluctuation (Refer NPCB Guidelines)
- Iridotomy in all primary angle closure patients
- Trabeculectomy or referral to higher center if target IOP not achievable

Special instruction for glaucoma medication:

- Punctal Occlusion'
- Not to squeeze eyes after instillation
- 1 drop in conjunctival sac

INDICATIONS FOR SURGERY

- IOP above target despite maximal tolerated medical therapy
- Inability to review regularly
- Unable to afford medications
- Progression of the disease on maximal tolerated medical therapy
- Non compliance

QUALITY ASSESSMENT

- Patient identifier, Age/ Gender
- Compliance with Follow up schedule and medications

ABBREVIATIONS

AC: Anterior chamber
GCC: Ganglion cell complex
HRT: Heidelberg retina tomograph

OCT: Optical coherence tomography
NPCB: National Programme for Control of Blindness
PI: Peripheral iridectomy

POAG: Primary open angle glaucoma
RNFL: Retinal nerve fiber layer
UBM: High-frequency ultrasound biomicroscopy

KEEP A HIGH THRESHOLD FOR INVASIVE PROCEDURES