PRACTICAL APPROACH TO MEDICAL MANAGEMENT OF GLAUCOMA

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TERMINOLOGY

- POAG: PRIMARY OPEN ANGLE GLAUCOMA
- NTG: NORMAL TENSION GLAUCOMA
- OH: OCULAR HYPERTENSION
- PRE PERIMETRIC GLAUCOMA
- TARGET IOP

POAG : PRIMARY OPEN ANGLE GLAUCOMA

- Chronic progressive optic neuropathy.
- Characteristic optic disc changes.
- Corresponding visual field defects.
- IOP only treatable factor.
- It’s a diagnosis of exclusion.

NTG: NORMAL TENSION GLAUCOMA

- Same as POAG
- Except that
  - CCT corrected IOP is less than 22 mmhg applanation on dirurnal variation.

PREPERIMETRIC GLAUCOMA

- Disc changes (cupping) present.
- Nerve fiber layer (NFL) changes present.
- No defect on white on white perimetry.

BASIC PRINCIPLES

1. Establish a diagnosis.
2. Establish a baseline IOP.
3. Set a target IOP.
4. Initiate therapy to lower IOP to target.
5. Follow up.

ESTABLISH A DIAGNOSIS

- CEE Comprehensive Eye Examination
- No substitute to CEE
- CEE comprises of
  - Slit lamp biomicroscopy
  - Goldman applanation tonometry
  - Gonioscopy, preferably indentation & dynamic
  - Indirect ophthalmoscopy
  - Stereoscopic examination of optic disc & NFL

APPLANATION TONOMETRY

- Single reading not reliable, poor sensitivity & specificity.
- Repeat IOP.
- Diurnal variation.
- Goldman / Perkins are standard.
- Schoitz outdated, very limited role in modern glaucoma management.

GONIOSCOPY

- Diagnosis of POAG is by exclusion.
- Indentation gonioscopy more useful.
- Dynamic procedure should be repeated
- Rule out
  - Narrow angle
  - Closure
  - Secondary glaucoma

OPTIC DISC & RNFL ANALYSIS

- Best by 60 D or 90 D lens (stereo biomicroscopy).
- Red free illumination for Retinal Nerve Fiber Layer.
- Stereo photographs of optic disc are gold standard.

IMAGING TECHNIQUES

- AIGS (Association of International Glaucoma Societies) does not support the use of
  - HRT - HEIDELBERG RETINAL TOMOGRAPHY
  - GDX VCC - SCANNING LASER POLARIMETRY
  - OCT - OPTICAL COHORENCE TOMOGRAPHY

  for all patients, but yes in hands of experts for selected cases.

ESTABLISH A BASELINE IOP

- IOP
  - Only known causable and treatable factor.
  - One time recording of IOP misleading.
  - Repeat IOP.
- DVT (diurnal variation test)
  - 3 hrly recording of the IOP over 24 hrs.
- CCT Central Corneal thickness
  - To rule out OH & NTG

SET A TARGET IOP

- Early Manifest Glaucoma Treatment Study
  - 25% reduction in IOP reduces progression og glaucoma from 62% to 45%

- Collaborative Initial Glaucoma Treatment Study (CIGTS)
  - Recommends IOP reduction by 35%

CUSTOMIZATION OF TARGET IOP

- Structural damage of Optic Disc & RNFL.
- Functional damage on white on white perimetry.
- Baseline IOP at which damage occurred.
- Age
- Presence of additional risk factors.

FORMULA FOR TARGET IOP

- Rule of thumb
  - 20% reduction for mild cases.
  - 30 % for moderate cases.
  - 40 % for severe cases.

TO LOWER IOP TO TARGET LEVELS

Following factors to be kept in mind

- Efficacy
- Compliance
- Safety
- Persistence
- Affordability
- If cost effective & minimum dosage then compliance improves.

20% REDUCTION

- Beta blockers are treatment of choice.
- Efficacy of these drugs reduce if patient is already on systemic beta blockers.

35% REDUCTION

- Prostaglandin analogues
- Latanoprost 0.005% requires cold chain except new Latoprost RT.
- Bimatoprost 0.03% most effective of all PG analogues but more side effects, hyperemia, trichomegaly, darkening of lids and iris pigmentation.
- Travoprost 0.004%

PROSTAGLANDIN ANALOGUES

- Don’t use them in inflammatory glaucomas.
- If no response then try switching brands because some patients respond.
- They are now the most preferred line of management in Non inflammatory glaucomas.

MORE THAN 40% REDUCTION

- Combinations are most preferred.
- No single drug can reduce the IOP lower than 40%.
- Brimonidine tartarate (alpha 2 agonist)
- Dorsolamide (carbonic anhydrase inhibitor)
- Beta blockers
- Prostaglandin analogues
- Use in combinations which have minimal dosage and are cost effective.

DOSAGE

- Beta blockers - twice daily
- Alpha 2 agonists - three times a day if used as single therapy and twice daily if in combination.
- Dorsolamide – same as alpha 2 agonists.
- Prostaglandin analogues – single dose, preferably at night.

SYSTEMIC DRUGS

- Mannitol 20% - IV fast 100 ml to 300 ml
- Acetazolamide 250 mg. tablet up to 4 times a day.

SIDE EFFECTS TO BE MENTIONED TO PATIENT

- Beta blockers - dryness, itching, punctal compression after putting drops to prevent systemic side effects, systemic (bronchiospasm)
- PG Analogues - hyperemia, trichomegaly, darkening of lashes, iris, skin of lids. (all are reversible), irritation, burning sensation and lid oedema.

MOST IMPORTANT

- An information leaflet regarding glaucoma and counseling the patient and relatives.
- Its your approach that makes the patient go ahead for treatment and regular follow up.
- Give time to your glaucoma patient.
- Praise the lower IOP value in follow up visits and the effort he/she has put in taking the treatment.

THANK YOU