**STANDARD OPERATING PROCEDURES**

**PRIMARY OPEN ANGLE GLAUCOMA**

 **1. HISTORY :**

* Following points pertaining to the presenting complaints will be obtained:
* H/O Headache/ Eyeache
* Defects in the field of vision
* Frequent change in near vision glasses
* Delayed dark adaptation
* Significant loss of vision in later stages
* Past H/O ocular trauma, surgery, CRVO
* H/O use of Steroids
* Family H/O glaucoma

**2. EXAMINATION :**

**2.1.Visual Acuity**

**2.2.Pupils**

**2.3.Slit Lamp Biomicroscopic Examination :**

* **Anterior Segment :** Essentially Normal
* **Posterior Segment :** Using 90D or 78D
* **OPTIC NERVE HEAD CHANGES :**
* **Cup size :** Vertically oval cup

 Asymmetry of the cups between 2 eyes of > 0.2 is significant

 Large Cup of > 0.6

* **Neuro Retinal Rim :** Thinning of NRR

 Notching of NRR is pathognomic

* **Laminar Dot Sign:** Pores in lamina cribrosa are visible upto the disc margin
* **Vascular Changes :**
* **Bayonetting Sign** : Nasal shifting of retinal vessels which have the appearance of being broken off at the margin
* **Pulsations** of the retinal arterioles at the disc margin are pathognomic
* **Splinter haemorrhages** on or near the disc margin
* **Peripapillary Atrophy**
* **Glaucomatous Optic Atrophy** : In advanced disease, optic nerve head appears white and deeply excavated
* **Retinal Nerve Fibre Layer** **Defect** which may be seen with red free light
* **Documentation of ONH changes is of utmost importance**

 **3. INVESTIGATIONS :**

**3.1 Applanation Tonometry :**

* IOP will be measured using Applanation Tonometry
* Elevated Intraocular pressure > 22 mm Hg on two successive occasions
* Diurnal Variation Test is useful in detection of early cases
	1. **Gonioscopy :**
* Will be done in all the POAG suspects
* Reveals a wide open angle of anterior chamber
* Is pre-requisite for diagnosis of glaucoma to rule out secondary causes like angle closure, angle recession, pseudoexfoliation, pigment dispersion, peripheral anterior synechiae, new vessels, blood in schlemm’s canal and inflammatory precipitates

 **3.3 Visual Field Evaluation :**

* Will be done in all the cases and evaluated according to the standard criteria
* Visual Field Analysis based on Andersons Criteria :
* 3 non edge adjacent points in total or pattern deviation probability plot:
* 2 points P< 5%
* 1 point P< 1%
* PSD P< 5%
* G.H.T - Abnormal
	1. **Fundus Photograph ( Red Free):**
* Aids in documentation of optic nerve head at baseline and follow up visits
	1. **Pachymetry/Central Corneal Thickness [CCT]:**
* Thicker CCT overestimates IOP readings and thinner CCT underestimates
* There is no generally accepted correction formula
* Thinner CCT is independent risk factor for conversion of ocular hypertensive to POAG as proven in Ocular Hypertension Treatment Study
* **Diagnosis of POAG will be based on the above mentioned examination and investigations:**
* Optic Nerve Head changes as described above
* Visual Field Analysis based on Andersons Criteria
* Correlate IOP with CCT
* If IOP <21mmHg , with ONH changes ,with or without VF changes, and DVT is negative, diagnosis of Normal Tension Glaucoma is made
* If IOP > 21mmHg ,with ONH and VF changes, diagnosis of Open Angle Glaucoma is made

 **4. TREATMENT :**

 **Management Goals:**

* Stable ONH and RNFL status
* Controlled IOP
* Stable visual fields

 **4.1 MEDICAL MANAGEMENT :**

* Most appropriate medication with greatest chance of reaching target IOP, with good safety profile, convenient dosing will be chosen
* Timolol 0.5% drops twice a day
* Bimatoprost 0.03% drops HS
* Dorzolamide 2% drops twice a day
* Brimonidine 0.2% drops twice a day

 **4.2. SURGICAL MANAGEMENT :**

* Target IOP not achieved with maximal medical therapy
* Contraindication to medical therapy exists
* Poor compliance
* Will be preferred in the patients from far flung areas and in those who cannot afford medical therapy and frequent follow up visits
* Has an edge over medical therapy in advanced glaucoma
* **Surgical options**:
* Trabeculectomy
* Combined glaucoma and cataract surgery
* Diode Cyclophotocoagulation for end stage glaucoma

 **5. FOLLOW UP ;**

* **ONH changes should be documented on every visit**
* **Target IOP achieved :**

 **MILD [**ONH changes but Normal Visual Fields] :

* + - Follow up every 6months
		- VF every 12 months

 **MODERATE** [ONH Changes with VFD in 1 hemifield and not within 50 of fixation] :

* Follow up every 6 months
* VF every 12 months

 **SEVERE** [ONH Changes with VFD in both hemifields and within 50 of fixation] :

* Follow up every 3 months
* VF every 6 months
* **Target IOP not achieved :**
* We will add or substitute second line medication
* Target IOP will be reassessed
* Surgical treatment when Target not achieved
* ONH evaluation will be done in every visit