

Together Under Pressure:
Optometrist, Ophthalmologists and Glaucoma

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1. Financial disclosures: none
2. Introduction
3. The Glaucoma Suspect
 - a. Family history
 - b. History of trauma
 - c. Elevated IOP
 - d. Pseudoexfoliation
 - e. Narrow angles
 - f. Optic nerve cupping
 - g. Optic disc hemorrhage
 - h. Disc asymmetry
 - i. Anomalous optic nerve
 - j. Red disease
4. Family History
 - a. Adult POAG linked to GLC1B, GLC1H, GLC1C, GLC1D , OPTN
 - b. Relative risk of developing glaucoma in a patient with a first degree family relative: 9.2
5. History of trauma
 - a. Glaucoma occurs in 10% of patient with >180 degrees of angle recession
 - b. Chemical burns can damage trabecular meshwork
 - c. After vitrectomy
6. Red disease
 - a. OCT RNFL has its limits
 - b. Media opacities
 - c. Optic tilting
 - d. Anomalous optic nerves
7. The Anomalous Optic Nerve
 - a. Myopic nerve
 - b. Coloboma
 - c. Optic nerve pit
 - d. Compressive lesions
 - e. Drusen
 - f. Papilledema
 - g. AION
 - h. Morning glory disc
 - i. Toxic nutritional optic neuropathy
8. Primary Open Angle Glaucoma
 - a. USA prevalence over 40 years old was 1.86%
 - b. 2.22 million Americans today with estimate of 3.36 million in 2020
 - c. 84K to 116K bilaterally blind in the USA

- d. Globally: 104.5 million with 8 million blind from glaucoma
- 9. Risk factors for progression
 - a. Increasing age
 - b. African ancestry
 - c. Visual field severity
 - d. DM +/-
 - e. **Disc hemorrhage**
 - f. **Follow up IOP**
 - g. CD ratio
 - h. Corneal thickness
 - i. **Pseudoexfoliation**
 - j. Initial IOP
- 10. Normal Tension Glaucoma
 - a. May require further work up
 - b. These progress faster
 - c. Central scotomas may be the first sign of damage
 - d. They may be by definition SEVERE at onset
 - e. Need to identify and treat other risk factors
 - f. Low blood pressure
 - g. Sleep apnea
 - h. Need an aggressively lower target pressure
- 11. Pseudoexfoliation Glaucoma
 - a. Exam:
 - b. Gonio with Sampaolesi's line
 - c. Peripupillary rough
 - d. Phacodonesis
 - e. Much more aggressive
 - f. Timing of cataract surgery is important
 - g. Do not let these patients go more than 6 months
- 12. Treatment considerations
 - a. **Target Pressure**
 - b. Clinical decision where glaucomatous progression is thought not to occur
 - c. Determined by history
 - d. Custom to every patient
 - e. Sets a goal for care
 - f. May change
 - g. There are more **options** for glaucoma treatment
 - h. Medication
 - i. Laser
 - j. Surgery
 - k. **Safety profile** is improving
 - l. Need interventions in the mild or moderate phase
 - m. Treatment **timing** is essential to patient outcome
 - n. There is a point of no return
- 13. Magic numbers

- a. 21: 2 standard deviations above “average”
 - b. IOP is not Gaussian (skewed higher)
 - c. Does not rule glaucoma in or out
 - d. 18: Advanced Glaucoma Intervention Study (AGIS)
 - e. Advanced POAG not controlled with medical treatment were treated with ALT and trabeculectomy
 - f. Patients with IOP <18 had almost no progression
 - g. 10
 - h. Very difficult to get pressure any lower with medication
 - i. Often requires surgery
14. 20%: Ocular Hypertension Treatment Study (OHTS)
- a. Patients with IOP 24 to 32 mmHg in one eye
 - b. Reductions of progression to POAG from 9.5 to 4.4% over 5 years
15. 25% Early Manifest Glaucoma Trial (EMGT)
- a. Newly diagnosed POAG
 - b. Progression was less in treated group 45% than non-treated 62% and occurred later
 - c. 1mmHg reduction reduced risk of progression by 10%*
16. 30% Collaborative Normal Tension Glaucoma Study (CNTGS)
- a. NTG patients had lower risk of progression
 - b. Half of all patients had no progression in 5 years
17. Referrals
- a. Suspects/anomalous discs
 - b. Pseudoexfoliation
 - c. Narrow angles
 - d. Disc Hemorrhage
 - e. Elevated pressure
 - f. Establish target pressure
 - g. Progressive visual fields
 - h. Drop intolerance
 - i. Inflammation
 - j. Infection
 - k. Neovascularization
18. 3 Cases
- a. Suspect
 - b. NTG
 - c. POAG
19. References
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