Case Studies in Glaucoma

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Juvenile Glaucoma

- Develops age 3 and higher
- Rare: 1 in 50,000
- ADULTS: 1,000 in 50,000

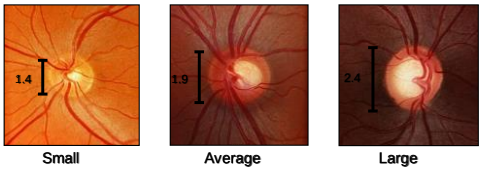
At what age does normal range of 10 to 21 apply?

- Reaches "normal range" around age 12

Where does the 10 to 21 range come from?

- Study by Leydhecker and associates in the early 1960's done using Schiotz tonometry
- Mean IOP 15.5 +/- SD of 2.5
- Therefore 95% of normal population is IOP of 10.5 to 20.5

Optic Disc: Bigger is Better



Small discs can have small cups in glaucomatous eyes

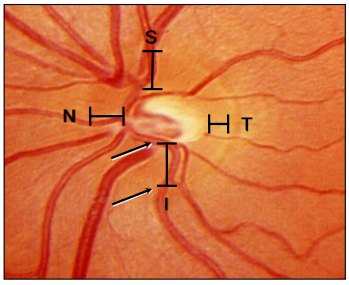
Large discs have large cups in healthy eyes

ISNT RULE

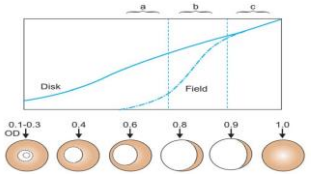
Rim width

Distance between border of disc and position of blood vessel bending

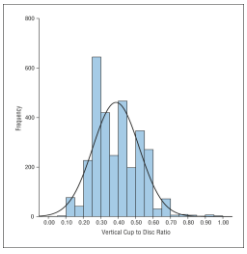
ISNT rule
Inferior >
Superior >
Nasal >
Temporal



At what point do you work up?



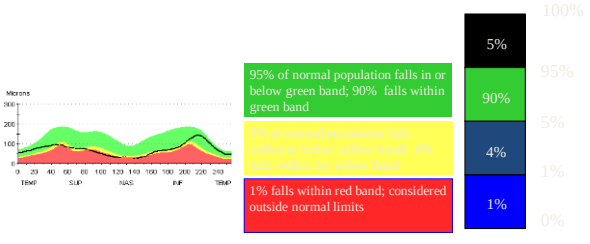
What is normal C/D ratio?



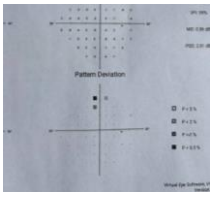
- .30
- 95% of the normal population falls between 0.2 to 0.4

Only 5% of the normal population has a C/D of .50 and greater

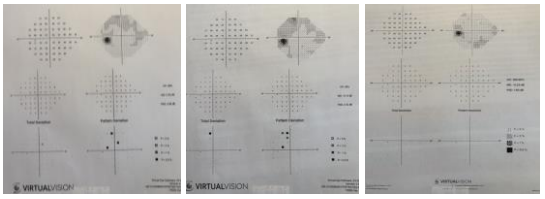
RNFL Thickness



What do you look for on a VF?



What else do you look for on a VF?



Never make decisions on just one VF

Repeat test if needed in 2-3 weeks

In most cases waiting that long is not going to change the clinical outcome

Physio cupping vs glaucoma suspect

- First: rule out glaucoma before you jump to the conclusion of physiological cupping
- Second: physio cupping is only confirmed after years and years of a stable ONH
- Lastly: In terms of liability, there is no such thing as physiological cupping!

Who do I treat 100% of times

- Anyone with consistent, reliable, repeatable and/or progressive changes in ONH, rNFL, or VF

Who do I treat 100% of times

- Anyone with an IOP of 28 or greater
- They still need a workup but this patient gets treated 100% of the times

Who do I treat 100% of times

- Anyone with C/D .80 or above
- C/D: .10 to .30 – low risk
- C/D: .40 to .70 – variable risk
- C/D: .80 and above - glaucoma until proven otherwise

Glaucoma Meds

- Beta Blockers
- Alpha-adrenergics (Alphagan)
- Topical CAI
- Prostaglandin - XLT
- Nitric Oxide + PG (Vyzulta)
- Rho kinase Inhibitors
- Cholinergics (Pilocarpine)

Nitric oxide

- Lowers IOP by directly improving trabecular outflow via direct effects on TM cells

Vyzulta

- Lowered IOP by 35% to 44%, compared with only 26 to 27% with latanoprost alone
- No additional side effects compared to a PG alone; no systemic side effects

Problem with Vyzulta

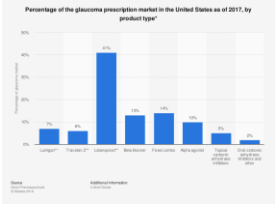
- $$$$$$$$
- Try vyzulta.com - pay no more than $35 or $40

Science Based: Rhopressa

Problem with Rhopressa

- $$$$
- Hyperemia

PG – Most common as 1st line



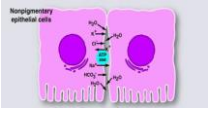
Beta Blockers

- Still 30% market share of glaucoma medications
- Generic beta blockers are relatively inexpensive
- Best use: Adjunctive therapy to PG -- can generally get 1.5 to 2.0 mm hg additional IOP lowering

Brimondine

- ? Possible neuroprotective properties
- Most prescribe as BID dosing
- Can get additional 2.5 mg Hg IOP lowering when added to PG

Carbonic Anhydrase Inhibitors



Carbonic anhydrase catalyzes the hydration of carbon dioxide to carbonic acid that then dissociates into bicarbonate ions and hydrogen.

Sulfa Based drug

When does a glaucoma patient need surgery?

- A truly non compliant patient
- A patient whose glaucoma is progressing despite treatment

What can you do to help increase patient compliance?

Control Costs

Many patients can get a generic topical beta-blocker for $4/month

Most prostaglandins cost $35/month

Savings cards for name brand medications

Limit the # of bottles

- **Optimal Therapy different from Maximal Therapy**
- **Two bottle limit**
  - **Addition of third bottle rarely provides substantial IOP reduction**

Talk to Your Patients

What if patients still don't listen…

Selective Laser Trabeculoplasty

- Uses a "cold" laser
- No thermal damage to tissues

Efficacy of SLT

- 90% successful after 3 years
- Many still at target IOP at 5 years
- Fine print: These studies define success as 20% IOP reduction

Newest Variation in SLT

Conventional Surgery Options

Trabeculectomy

Conventional Surgery Options

Tube Shunts

Stents and Microstents

Conventional Surgery Options

Cyclodestructive Procedures

What's Left?

- Sleeping position

Nutrition

- Eating green leafy vegetables (spinach, kale) and bright colored vegetables have been shown to a mild effect on delaying or preventing glaucoma
- These work much better than vitamins with the same antioxidants

Oral Glaucoma Med: Diamox

- Oral CAI (Acetazolamide)
- Used to manage glaucoma and also to manage altitude sickness
- Available in 250 mg tablet and 500 mg Sequels

My plan for a patient who demonstrates progression

Rule # 1

- Find out why a patient's glaucoma is worse
  - i.e. is it due to noncompliance – surgery next option
  - If a different reason, then additional medications or possibly surgery

Rule # 2

- If the patient is hypertensive, find out if they are on an oral beta blocker
- If so, no value in adding a beta blocker, which also means the combination beta blocker products

My plan for 2nd line therapy

- Cosopt or Simbrinza BID – Yes, we are going from 1 to 3 drops
- Prostaglandins at night time

My target goals

- Everyone I treat: < 16
- Mild glaucoma: <15
- Moderate glaucoma: <14
- Severe glaucoma: <13
- Note to self: This cannot be achieved with monotherapy

Thank you!