

Glaucoma how to manage

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Disclosures

- **Speakers bureau** Optovue, Bausch and Lomb, Haag Streit
- **Consultant** Haag-Striet, ZeaVision, VectorVision, Optovue
- **Research** ZeaVision, Optovue, VectorVision

Glaucoma



Definitions

- “Ocular tissue damage at least partially related to intraocular pressure”
- A chronic, bilateral, often asymmetrical disease in adults, featuring acquired loss of optic nerve fibers and abnormality of visual field with an open anterior chamber angle.

Goals

- Document status of optic nerve structure and function
- Target pressure- so damage is unlikely to happen
- Maintain IOP below target pressure
- Monitor status of the optic nerve and reset target pressure if deterioration occurs.
- Minimize side effects of management and impact on vision and general health and quality of life.
- Educate and engage the patient in management

Gold standard

- Simultaneous stereo photography!
 - Problems?



Glaucoma evaluation

- Anterior chamber evaluation
 - Angle evaluation
 - Corneal thickness
- Macula evaluation
- Retinal Nerve fiber layer
- Optic disc photography

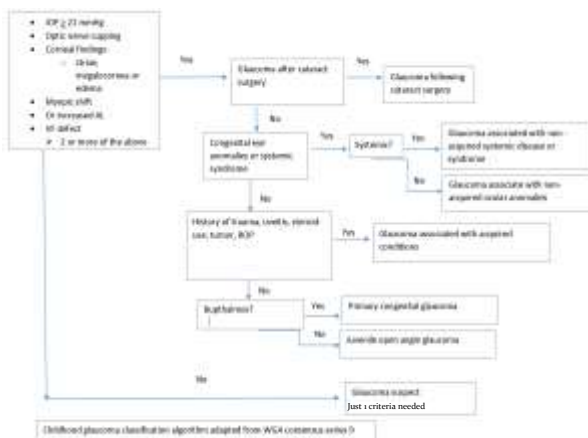
Pediatric cases what do I do?

Definitions of glaucoma- two or more required

- IOP > 21 mmHg
- Optic disc cupping: neuro retinal rim narrowing, progressive increase in CDR, CD asymmetry ≥ 0.2 when optic disc are similar in size
- Corneal findings of Haab striae, corneal edema
 - corneal diameter
 - ≥ 11 mm in new born
 - ≥ 12 mm in child < 1 year of age
 - > 13 any age
- Progressive myopia or myopic shift
- Reproducible visual field defect consistent with glaucoma

Glaucoma Suspect at least 1 required

- IOP > 21 mmHg on two separate occasions
- Suspicious disc appearance of glaucoma ie. Increased CDR
- Suspicious visual fields
- Increased corneal diameter or axial length in normal IOP



Intraocular pressure

- Normal neonates IOP lower than adults
- Increases to adult levels by teenage years

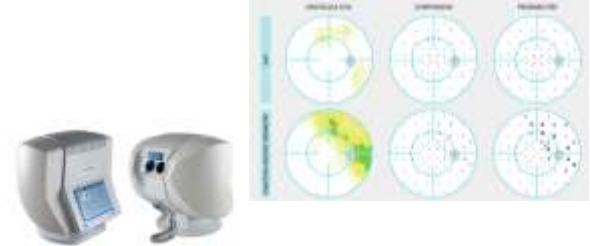
Age in years	IOP in mmHg ¹
Birth	9-6
0-1	10.6
1-2	12.0
2-3	12.6
3-5	13.6
5-7	14.2
7-9	14.2
9-12	14.3
12-16	14.5

¹ Perazzo G, De Mizio G, Peruzzi R. Intraocular pressure in children. J Pediatr Ophthalmol Strabismus 1992;29:75.

Visual fields

Early detection fields

- Magno cellular testing- Like pulsar testing



Special features of Pulsar

- Patient can use their own glasses
- More resistant to blur
- Early detection of defects
- Progression analysis is also present
- Remember its most suitable for early glaucoma when a patient has advanced glaucoma switch to white-on-white perimetry

Learning curve in visual fields

- Learning curve can be substantial
- At least two visual fields are needed to establish baseline

Patient has cataract what do I do with Visual fields?

ORIGINAL ARTICLE

Effect of Cataract Opacity Type and Glaucoma Severity on Visual Field Index

Hye Jin Chung¹, Jong Hoon Choi¹, Young-Chun Lee², and Su-Young Kim³

- Visual field parameters improved after cataract surgery
- MD, PSD and VFI- less influenced in nuclear sclerosis
- MD, PSD and VFI – greater effect in cortical cataract, particularly for early glaucoma

Journal of Glaucoma, Volume 27, Number 10, October 2018
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Cataract in glaucoma patient

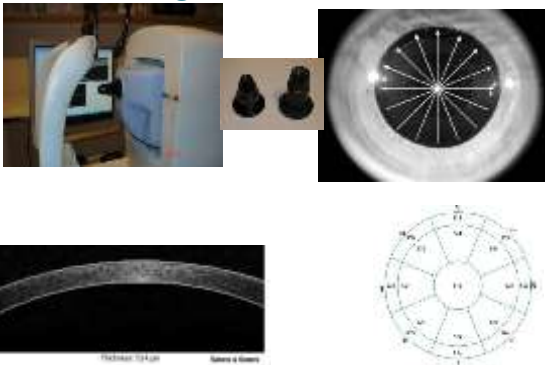
- Dilate as much as possible
- Depend on PSD plot more than total deviation
- Use imaging modalities more.

Sources of error

- Miosis: decreases threshold peripherally, increases variability centrally
- Lens opacities
- Uncorrected refractive error –decrease in contrast sensitivity
- Spectacles
- Ptosis

20

Anterior segment OCT

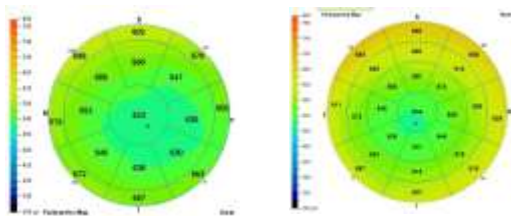


Difference between optical and ultrasound pachymetry measurements

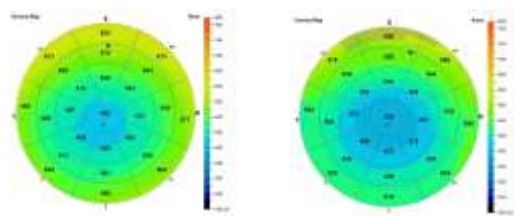
Author	Difference in OCT and ultrasound values
Kim et al <i>AJO</i> 2008	26 microns
Wang et al <i>J Refract Surg</i> 2008	38 microns
Gunvant & Darner <i>Medical Imaging</i> 2011	13 microns

Kim, H.Y., Budenz, D.L., Lee P.S, et al. " Comparison of central corneal thickness using anterior segment optical coherence tomography vs ultrasonic pachymetry, *Am J Ophthalmol*, 145:228-232 (2008).
 Wang, J.C., Bunce, C., and Lee, H.M. " Intraoperative corneal thickness measurement using optical coherence pachymetry and corneo-gage plus ultrasound pachymetry *J Refract Surg*, 24(6):600-4 (2008).
 P.Gunvant, R Darner: Evaluation of corneal thickness measurements obtained using optical coherence tomography and ultrasound technique and determination of specificity in keratoconus screening *Medical Imaging*: 7966: B1-B8

Corneal Thickness Maps



Stromal thickness



Glaucoma Symptom Scale

How often experienced any of the following problems over last 4 weeks?
(Please indicate by checking the appropriate response.)

Table 2. Item Level Responses*

Symptom	Glaucoma Group	Reference Group	P
Seeing	475 (57)	127 (26)	.15
Distances/objects	72 (55)	23 (25)	.84
Homogeneous lighting	77 (56)	34 (36)	.84
Halos of surrounding lights	73 (44)	4 (20)	.23
Shining	88 (45)	17 (28)	.40
Dryness	88 (23)	14 (28)	.40
Hard to see in darkness	103 (52)	44 (28)	.01
Other colors visible	700 (78)	140 (47)	.87
Halos around lights	58 (38)	8 (14)	.01
Hard to see in daylight	57 (48)	7 (18)	.01

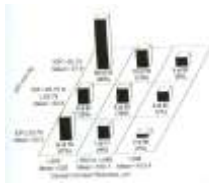
*p² tests were used to compare the distribution of positive values.

Lee B et al. Arch Ophthalmol 1998

Evaluate the cornea and conjunctiva

- Look at Epithelium
- Pay attention to dry eye and glaucoma –particularly if multiple meds
- Even when patient does not complain they may have sub-clinical dry eyes.
- Extreme dryness changes in stromal thickness
 - Erroneous estimates of risk ??

How to use CCT data in glaucoma management?



- Error in IOP measurements
- Ocular hypertensive patients
 - Thinner cornea at greater risk of developing glaucoma

The Scoring Tool for Assessing Risk (S.T.A.R. II) calculator



Probability of conversion in 5- years
<5% observe and monitor
5 to 15% consider treatment
>15% treat

- OHTs and EGPS data
- Intended for use only in untreated OHT patients
- Age (30-80)
- IOP 20-32 mmHg
- CCT 475 to 650 microns
- PSD 0.50 to 3.00 dB
- C/D ratio vertical 0.00 to 0.8

Gonioscopy

- A = Above Schwalbe line, totally occluded angle.
- B = Behind the Schwalbe line, peripheral iris is in contact with TM.
- C = Scleral spur Iris root at the level of scleral spur
- D = Deep anterior ciliary body seen.
- E = extremely deep

Guidelines recommend once a year procedure



Iris insertion



Angle approach

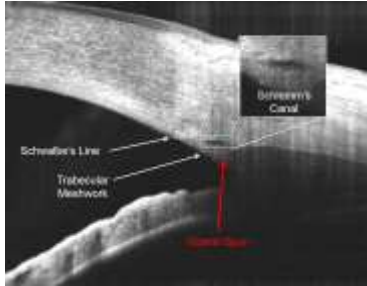


Curvature of peripheral iris

Angle Measurement with Quantification



Anterior segment Angle Analysis



Current practice patterns

- Unacceptable high pressures will inevitably destroy optic nerve tissue
- Safe levels of IOP by any means warranted
 - If these don't work or not sufficient
 - drugs like – prostaglandins
 - reduction in inflow – beta blockers
- Maximal medical therapy
- Consider surgery

When do I see my patient back?

- Depends multiple visits while diagnosing glaucoma
- Once treatment started depending on treatment
 - PGA 1 month follow-up Beta Blockers Alpha 2 2 –weeks to a month.

Once established when do I see my patient?

- Once established need regular follow-up
- IOP check 4 times a year
- Two visual fields twice a year
- OCT twice a year
- Fundus photos twice a year
- Gonioscopy once a year
- Pattern ERG twice a year

Maximal tolerated medical therapy

- **β-Blockers**
 - Timolol
 - Betaxolol
 - Levobunolol
 - Carteolol
 - Metipranolol
- **Carbonic Anhydrase Inhibitors (CAIs)**
 - Systemic:
 - Acetazolamide
 - Methazolamide
 - Topical:
 - Dorzolamide
 - Brinzolamide
- **Adrenergic Agonists**
 - Nonspecific:
 - Dipivefrin (epinephrine) – also increases conventional outflow
 - α₂-Agonists:
 - Brimonidine – also increases uveoscleral outflow
 - Apraclonidine – also increases uveoscleral outflow
- **Conventional/Trabecular**
 - Cholinergic agonists (parasympathomimetics):
 - Pilocarpine
 - Echothiophate iodide
 - Carbachol
 - Prostaglandin derivatives:
 - Bimatoprost
 - Latanoprost
 - Nonspecific adrenergic agonists:
 - Dipivefrin (epinephrine)
- **Nonconventional/Uveoscleral**
 - Prostaglandin derivatives:
 - Latanoprost
 - Bimatoprost
 - Travoprost
 - α₂-Agonists:
 - Brimonidine

Do we really have the luxury to use them all?

- Stage of disease
 - Visual field status
- Stage of nerve damage
 - Rim tissue remaining
- Type of glaucoma
 - POAG – medical first makes sense
 - Secondary glaucoma
 - Congenital glaucoma
 - Complete angle closure

} treated differently
- Adherence, compliance, persistence issues
- Effect of medications and future outcomes of surgery

Target pressure

- A theoretical value below which visual field and ONH appear stable (not deteriorating).
- Calculated from highest recorded IOP.
- Conventionally 20-30% decrease in IOP.
- 40% or more if severe glaucoma

Where should the IOP be?

- No real number
- Start with 30% drop
- Monitor for progression
- Advanced glaucoma you want IOP to be less than 12
- Pressure should not fluctuate much

Medications

- First line drugs- prostaglandin analogs, prostonoid
- Second line: Beta blockers, Alpha 2 agonist, Carbonic anhydrase inhibitor, rock inhibitor
- Combination Rocklatan (PGA+ rock inhibitor)
- Third: Combination with prostaglandin
 - Eg: PGA (Travatan z) and CAI+ Beta blocker (COSOPT)
- PGA + brinzolamide/brimonidine (Simbrinza)

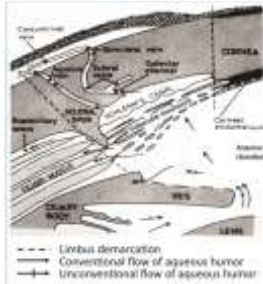
New drugs

Latanoprostene Bunod- Bausch and Lomb (Vyzulta™)

- Latanoprostene bunod (LBN, BOL-303259-X) is a nitric oxide (NO)-donating prostanoid FP receptor agonist

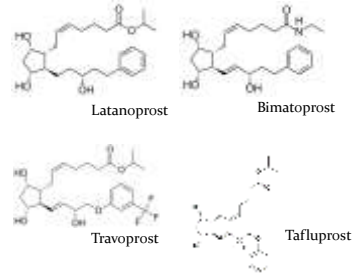
Prostaglandin analog group

Aqueous humor dynamics



Various prostaglandin analogs

- Latanoprost (formerly XALATAN 0.005%, Pfizer, New York, NY)
- Travoprost (TRAVATAN Z 0.004%, Alcon, Fort Worth, Tex.)
- Bimatoprost (LUMIGAN 0.03%, Allergan, Irvine, Calif.)
- Tafluprost (ZIOPTAN, Akorn Illinois)

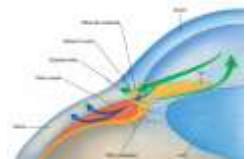


Prostaglandin analogs (PGs)

- All PGs have similar structure
- They are prodrugs of Prostaglandin $F_{2\alpha}$
- Converted by corneal enzymes into its active form
- Activates the $F_{2\alpha}$ prostaglandin receptors on ciliary body

Mechanism of action

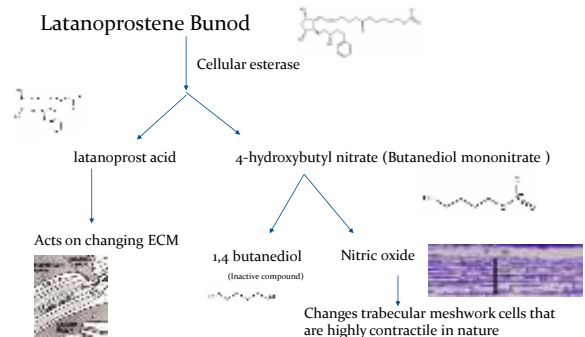
- Increases outflow through uveoscleral pathway.
- Small percentage increase in conventional outflow.
- Does not reduce aqueous production



Latanoprostene Bunod- Bausch and Lomb (Vyzulta™)

- Latanoprostene bunod (LBN, BOL-303259-X) is a nitric oxide (NO)-donating prostanoid FP receptor agonist

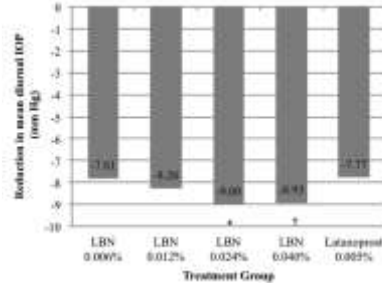
Mechanism of action



Latanoprostene Bunod FDA and international trials

A randomised, controlled comparison of latanoprostene bunod and latanoprost 0.005% in the treatment of ocular hypertension and open angle glaucoma: the VOYAGER study

Robert N Weinreb,¹ Tuyen Ong,² Baldo Scascelati Sforzolini,² Jason I Vitvitor,² Kuldev Singh,² Paul I Kaufman,² for the VOYAGER study group



Acta Ocul (2015) 33:1125-1130
DOI 10.1007/s12242-015-0889-y

ORIGINAL RESEARCH

Evaluation of the Effect of Latanoprostene Bunod Ophthalmic Solution, 0.024% in Lowering Intraocular Pressure over 24 h in Healthy Japanese Subjects

Makoto Arata · Baldo Scascelati Sforzolini · Jason Vitvitor · Robert N. Weinreb · KRONUS study

Acta Ocul (2015) 33:1125-1130

A Study Eye

Time	Baseline (mmHg)	Day 12 (mmHg)
8 AM	14.5	13.5
12 PM	14.0	13.0
4 PM	13.5	12.5
8 PM	13.0	12.0
12 AM	13.5	12.5
4 AM	13.0	12.0
8 AM	13.5	12.5
12 PM	13.0	12.0
4 PM	13.5	12.5
8 PM	13.0	12.0
12 AM	13.5	12.5
4 AM	13.0	12.0

B Treated Fellow Eye

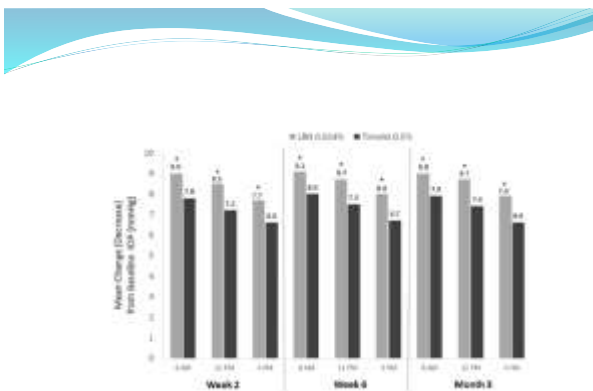
Time	Baseline (mmHg)	Day 12 (mmHg)
8 AM	15.5	14.5
12 PM	15.0	14.0
4 PM	14.5	13.5
8 PM	14.0	13.0
12 AM	14.5	13.5
4 AM	14.0	13.0
8 AM	14.5	13.5
12 PM	14.0	13.0
4 PM	14.5	13.5
8 PM	14.0	13.0
12 AM	14.5	13.5
4 AM	14.0	13.0

Latanoprostene Bunod 0.024% versus Timolol Maleate 0.5% in Subjects with Open-Angle Glaucoma or Ocular Hypertension

The APOLLO Study

Robert N. Weinreb, MD,¹ Baldo Scascelati Sforzolini, PhD,² Jason Vitvitor, PhD,² Jeffrey Liebmann, MD³

Sample size 420 (387 completed)
Timolol Maleate 0.5% or Latanoprostene Bunod 0.024%
IOP measured at 8 AM, 12 noon and 4 PM at week 2, 6, and 3 months



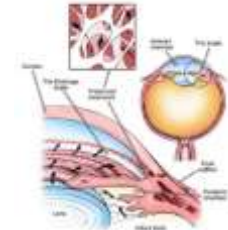
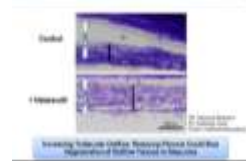
Summary findings of Latanoprostene Bunod (LBN)

- LBN Statistically superior IOP lowering vs. Latanoprost (> 1 mmHg) in a Phase II study
- LBN Statistically superior IOP lowering vs. Timolol in 17/18 time points in two Phase III studies
- LBN marked and sustained (24h) IOP lowering in healthy normotensive subjects
- LBN No significant AEs (average 5-7% hyperemia rates across all studies)
- LBN Nocturnal IOP significantly lower than baseline and significantly lower than timolol maleate

Rhokinase inhibitors

Mechanism of action

- Changes to trabecular meshwork-cytoskeletal modulating drugs

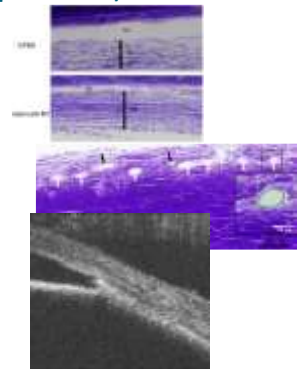


Ripasudil (K-115)

- Approved in Japan-2014
- Works on TM
- IOP lowering via changes TM
- Not approved in USA – studies far away.

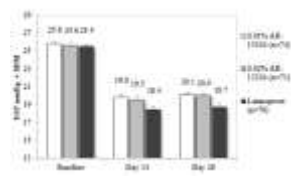
Netarsudil (AERI pharma) Rhopressa™

- Another class of ROCK-inhibitor Small-molecule
- Alter TM cells
- Alters norepinephrine transporter (NET)-
 - NET inhibitor to lower aqueous production
- Changes episcleral venous pressure



Double-masked, Randomized, Dose-Response Study of AR-13324 versus Latanoprost in Patients with Elevated Intraocular Pressure

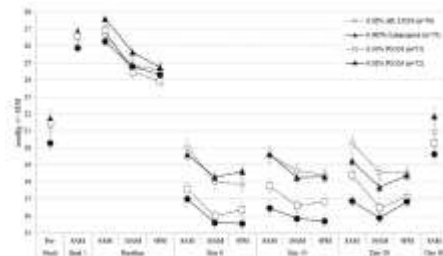
Jason Bucherich, MD,¹ Harvey B. Dzhinov, MD,² Brian Levy, OD, MS,³ Casey C. Kojczyk, MD,⁴ Gary D. Nivnick, PhD,⁵ for the AR-13324-CS202 Study Group⁶



- Diff-IOP approx. 1 mmHg
- Conjunctival hyperemia- 52-57%
- Increased lacrimation 5-7%
- Conjunctival hemorrhages 5-6%

Ophthalmology 2015;122:302-307

Fixed-dose combination of AR-13324 and latanoprost: a double-masked, 28-day, randomised, controlled study in patients with open-angle glaucoma or ocular hypertension



Lewis SA, et al. Br J Ophthalmol 2016;100:338-344.

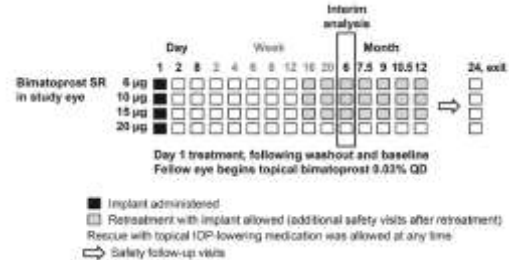
Summary

- Rhokinase inhibitors are a new class of drug .
- Rhoressa- shows promise as second line drug to PGA
- Roclatan- Shows IOP lowering effect better than Latanoprost and Rhoressa.
- Side effects conjunctival hyperemia
- Cornea issues- Erosions, changes in endothelium and cornea verticillata

Sustained release

Bimatoprost Sustained-Release Implants for Glaucoma Therapy: 6-Month Results From a Phase III/II Clinical Trial

RICHARD A. LEWIS, WILLIAM C. CHRISTIE, DOUGLAS G. DAY, E. RANDY CRAVEN, THOMAS WALTERS, MARINA BEJANI, SUSAN S. LEE, MARGOT L. GOODWIN, JANE ZHANG, SCOTT M. WHITCUP, AND MICHAEL R. ROBINSON, FOR THE BIMATOPROST SR STUDY GROUP



Dose	Drop in IOP mmHg
6 µg	7.2
10µg	7.4
15 µg	8.1
20 µg	9.5
Fellow eye topical bimatoprost 0.3%	8.4

- 91% no rescue tx needed-16 weeks
- 71% no rescue tx needed-6 months
- All doses comparable to bimatoprost 0.03% at 16 weeks

Selective laser trabeculopalsty

SLT and glaucoma

- Great first or second line option.
- Non-compliant individuals
- Individuals that fluctuation of IOP is a concern
- In theory can be repeated to lower IOP.
- Is the IOP lowering the same second attempt?

RESEARCH ARTICLE Open Access

Repeatability of selective laser trabeculoplasty for open-angle glaucoma

Brian A. Francis^{1*}, Hils Loewen¹, Bryan Hong¹, Laurie Duchin¹, Navin Kapoor¹, Robert Kraatz¹, Jason Sacharatz¹, Sunita Radhakrishnan¹, Andrew Koch¹, Jitendra Kulkarni¹, Farid Kheifets¹ and L. Jay Katz²

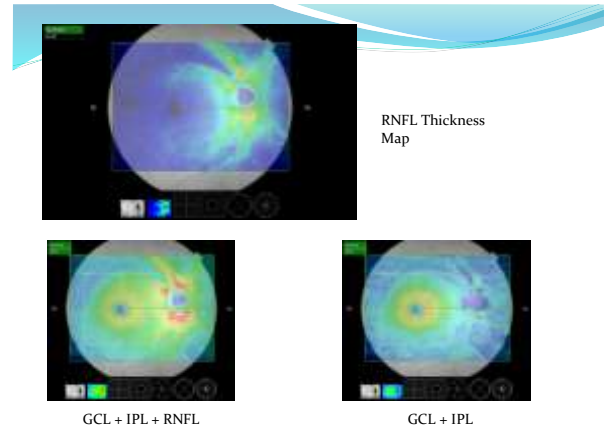
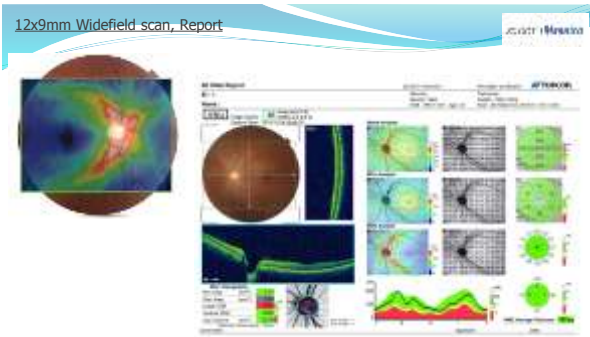
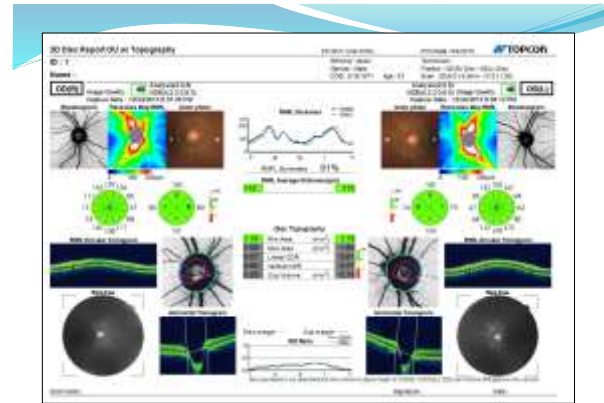
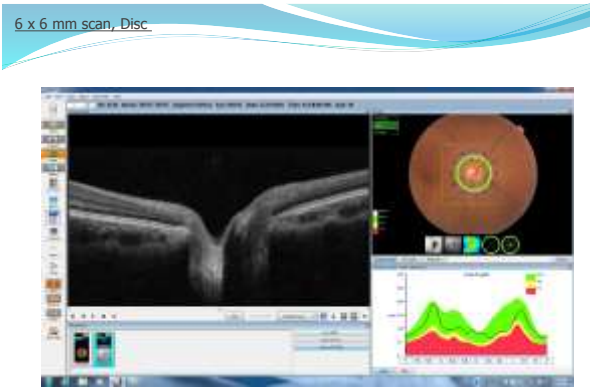
- Inclusion criteria prior SLT with diminution of response over time
- N=137

Table 2 Significance of within treatment change (p < 0.05), IOP (mmHg) pre- and post-SLT selective laser trabeculoplasty

IOP	Baseline (n = 137)	3/7 Mon (Quadrant) (n = 137)	3/7 Mon (Quadrant) (n = 137)	Post-treatment (n = 137)
0-12 months (n = 137)	16.3 (8.0)	16.3 (8.0)	16.3 (8.0)	0.03
12-18 months (n = 137)	16.3 (8.0)	16.3 (8.0)	16.3 (8.0)	0.03

* Francis BA et al. BMC Ophthalmol (2018) 18:104
DOI 10.1186/s12884-018-0104-9

Optic Disc and Nerve fiber layer



OCT Angiography

Disc Overview Report Brings New Information to Glaucoma Management

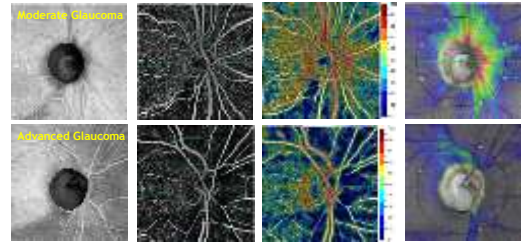
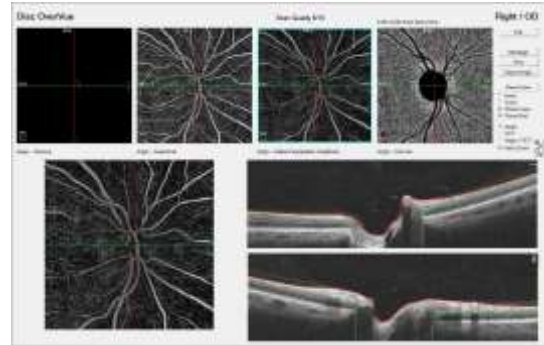


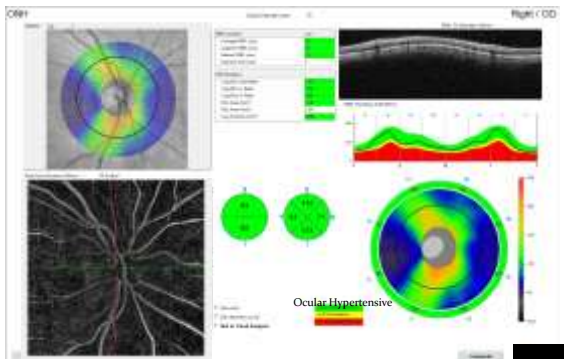
Image Courtesy: Drs. Weinreb, Nadelman, Goldbaum, Zangwill, UCSD, San Diego, CA (USA)

Some examples of disease

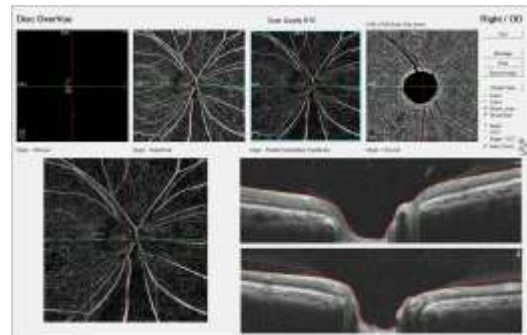
BC-OHT

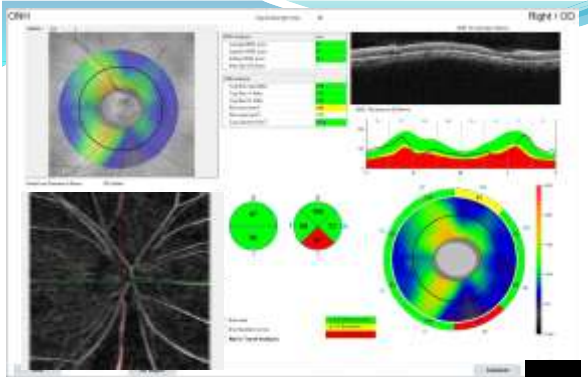


BC-OHT

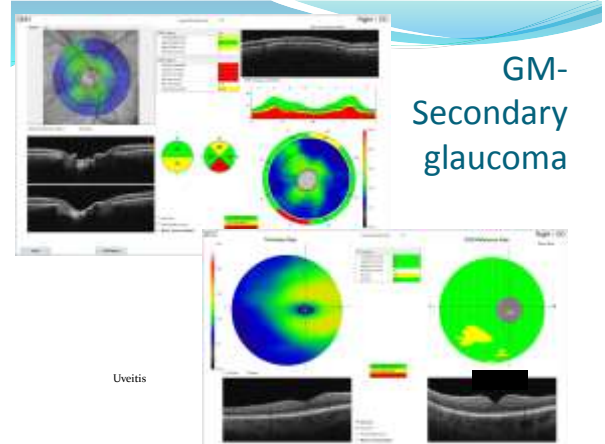


DL

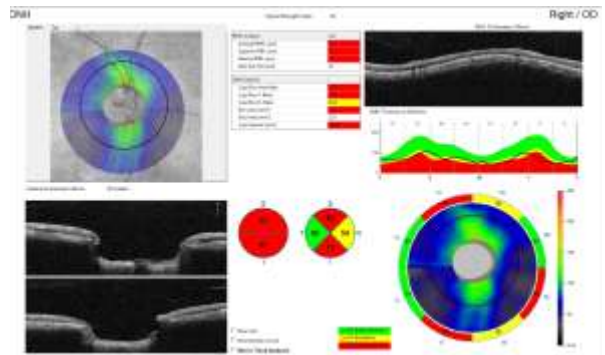
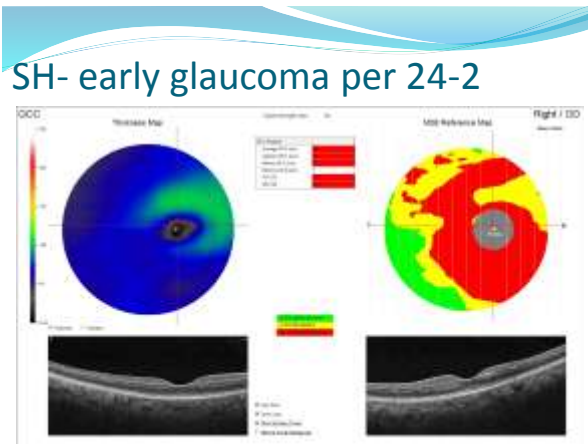
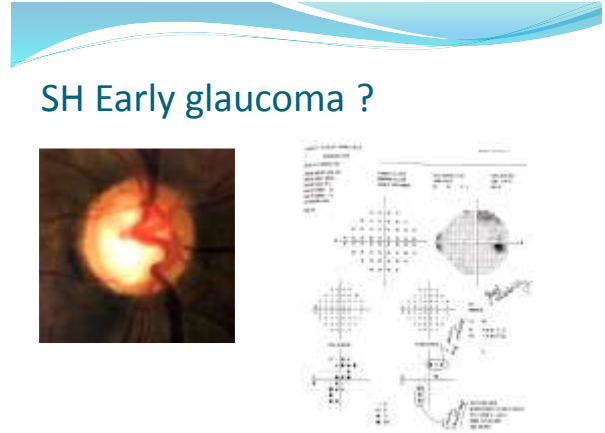
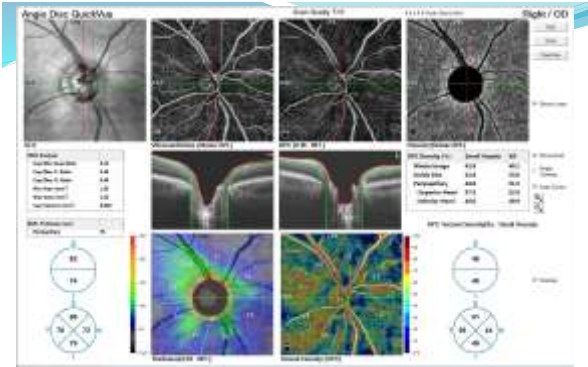


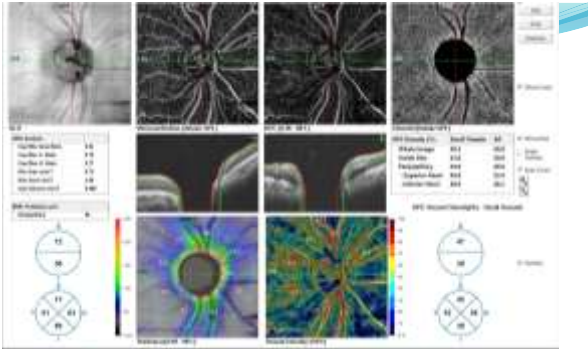


Early glaucoma per visual fields



Uveitis





Does vessel density reduction occur first, or does it follow other damage?

Cause or effect?

- Not sure ... evidence building up in favor of

Conclusions: Peripapillary and parafoveal vascular changes precede functional decline. The extent of VD reduction and RNFL thinning varies in different peripapillary sectors and longitudinal studies are required to better understand the temporal relationship of vascular and RNFL loss.

Prodan et al | Glaucoma • Volume 27, Number 6, June 2018

Structure and Function correlation

What does RPC correlate best with?

- Visual fields?
- Retinal Nerve fiber layer?
- Inferior RPC probably the best correlation
- Correlation not strong
- Take home- We are looking at a new Biomarker

Prodan et al | Glaucoma • Volume 27, Number 3, March 2018

Changes with intraocular pressure

IOP can alter blood flow but...

Dieral Variations of Peripapillary and Macular Vessel Density in Glaucomatous Eyes Using Optical Coherence Tomography Angiography

Wang H, Zhou L, Li X, et al. Invest Ophthalmol Vis Sci. 2014;55(12):3811-3817. doi:10.1167/14.12.3811

J Glaucoma • Volume 23, Number 5, April 2014

Influence of Large Intraocular Pressure Reduction on Peripapillary OCT Vessel Density in Ocular Hypertensive and Glaucoma Eyes

Wang H, et al. Invest Ophthalmol Vis Sci. 2014;55(12):3811-3817. doi:10.1167/14.12.3811

J Glaucoma • Volume 20, Number 1, January 2011

Valsalva Maneuver and Peripapillary OCT Angiography Vessel Density

Wang H, et al. Invest Ophthalmol Vis Sci. 2014;55(12):3811-3817. doi:10.1167/14.12.3811

J Glaucoma • Volume 23, Number 7, July 2014

- Small IOP fluctuations no effect
- Holding your breath during measurements no effect
- Large IOP reductions
 - Treatment efficacy
 - Neuroprotection ?

Early glaucoma changes

RPC bed and early glaucoma

- The density of RPC bed is declined in early glaucoma
- The RNFL and GCC may also show changes in early glaucoma.
- Questions remains if one may actually be always earlier than other...?
 - Possibly not given glaucoma is such a heterogenous disease!

So how and what do I use from OCT angiography data?

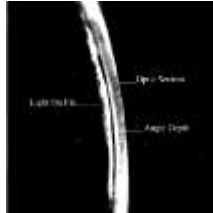
Lots of information

- OCT angiography provides a wealth of structure and function information
 - Radial Peripapillary Capillaries
 - Macular region capillaries network
 - Montage
 - GCC, RNFL, ONH, SLO image, Vitreous and choroid
 - Progression

Narrow angles, angle closure and elevated pressure

Narrow angles

- Grade 1 Van Herrick
- 1: $1/4$ – Angle closure likely, VH grade 1
- 180 degrees no structure visible
- Perform indentation gonioscopy
- Laser PI



Elevated pressure

- Angle closure or
- No angle closure but marked elevated pressure

In office Treatment of elevated IOP

- Alpha -2 agonist- Brimonidine
- Beta blocker- Timolol (caution in asthmatics) or Betaxolol
- Carbonic anhydrase inhibitor – Dorzolamide (Caution sulpha allergy contraindication)
- Each medication given every 15 minutes
- Perform 3 times

Oral medications

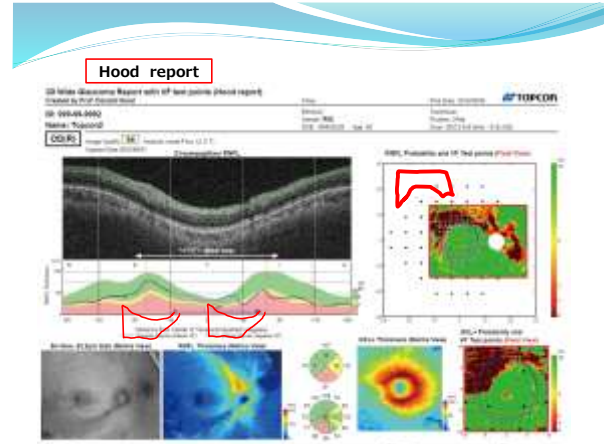
- Oral Carbonic anhydrase inhibitor
- Two tablets of 250 mg acetazolamide (Caution sulpha allergies contraindication)
- Works good when patient can retain medication - Vomiting common with angle closure glaucoma

- Check intraocular pressure after 1 hour if lower than 40
- If angle closure Add Pilocarpine every 15 minutes for 45 minutes and repeat procedure ABC procedure
- If not no pilo. Just repeat ABC
- Seek ophthalmologist opinion-refer patient

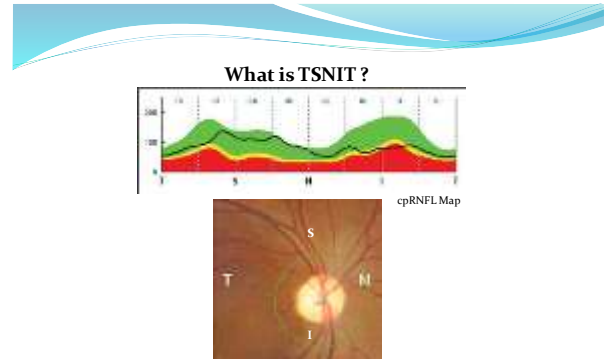
Take home medication

- Prednisolone acetate 1% q1-6 hours (approx every 3 hours)
- Acetazolamide 500 mg sequel BID
- Alpha agonist or beta blocker BID
- Pilocarpine 2% QID

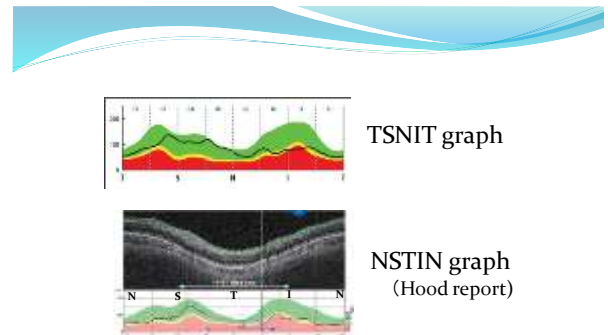
NEW OCT REPORTS

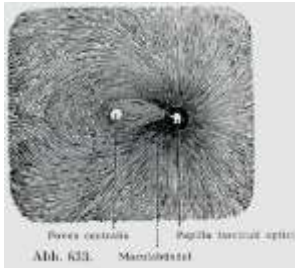


TSNIT and NSTIN



Why change from TSNIT to NSTIN ?

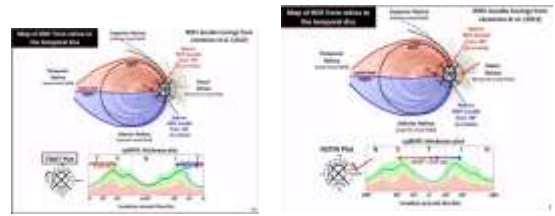




Ruber Kupch Bandi, Abh-633



TSNIT Versus NSTIN



Slide from Dr. Hood AAO 2016 booth seminar



OPEN ACCESS

Articles | November 2016

A Single Wide-Field OCT Protocol Can Provide Compelling Information for the Diagnosis of Early Glaucoma

Jonas C. Hood, Nicole De L'Amour, Dana M. Kurland, Jeffrey M. Liebman, Andrew J. Ambrosini, Robert W. Carlier, G. De Marco

6,190

views

13

citations

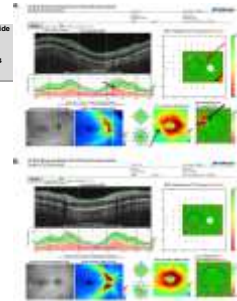


ARVO JOURNALS

From: A Single Wide-Field OCT Protocol Can Provide Compelling Information for the Diagnosis of Early Glaucoma
Trans. Vis. Sci. Tech. 2016;5(8):4. doi:10.1167/tvst.5.8.4

Figure Legend:

(A) Report for a glaucomatous eye correctly classified by the report specialist. (B) Report for a healthy eye correctly classified by the report specialist.



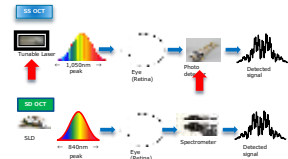
What is Swept Source OCT ?

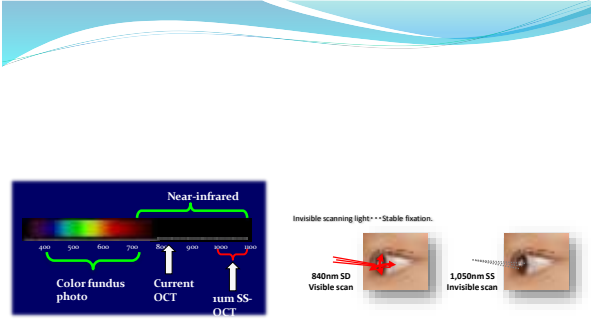


What is Swept Source OCT ?

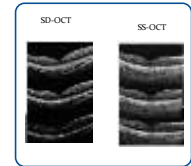
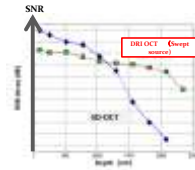


100,000 A-Scans /second

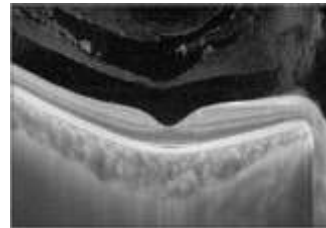
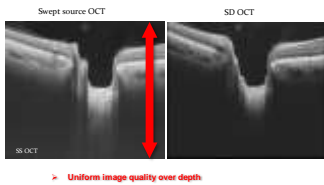




Signal to noise roll-off characteristics in tissue

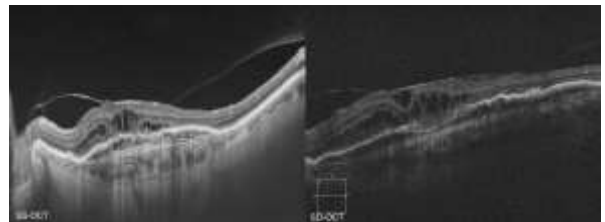
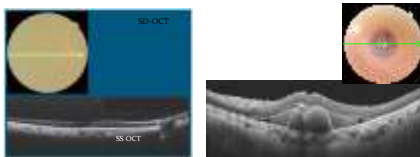


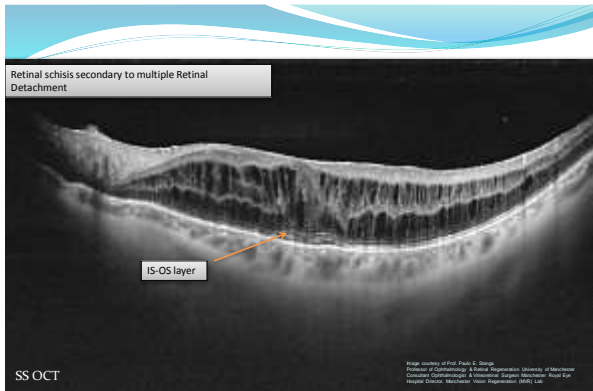
Superior visualization of retina and choroid



Swept-Source OCT

1050nm light source penetrates cataract and blood in the eye.





Summary

- OCT is a must in clinics that would like to manage any chronic diseases
- Particularly when monitoring change overtime
- Good quality data is a must in getting the best clinical outcome

Summary

- We are living in exciting times
- OCT is aiding in overall basic understanding of disease
- New drugs with new MOA
- Combination drugs that lower IOP 8-9 mmHg
- Sustained release, Lasers and Stents make IOP dynamics more stable with less fluctuations

Summary

- Early detection is getting within reach.
- Functional measures and structural measures are improving rapidly.
- Next step....reverse glaucomatous damage