On behalf of Vision Expo, we sincerely thank you for being with us this year.

Vision Expo Has Gone Green!

We have eliminated all paper session evaluation forms. Please be sure to complete your electronic session evaluations online when you login to request your CE Letter for each course you attended! Your feedback is important to us as our Education Planning Committee considers content and speakers for future meetings to provide you with the best education possible.

VISION EXPO

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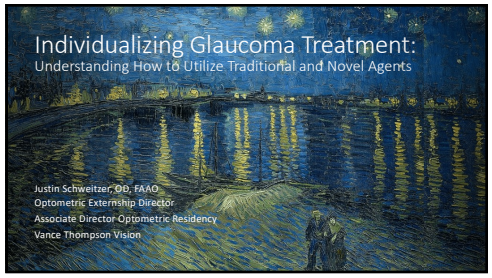
Financial Disclosure – Justin Schweitzer, OD, FAAO

- Aerie – C/L
- Alcon – C/L
- Allergan – C/L
- Bausch + Lomb – C/L
- Ocular Therapeutix - C
- EyePoint – C
- Sight Sciences – C/L
- Dompe – C
- Zeiss – C/L
- Visus - C
- Science Based Health – C
- Kala – C
- RVL - C
- Sun – C/L
- Equinox - I
- Reichert - C
- J&J – C/L
- Glaukos – C/L
- Horizon – C
- Quidel – C
- MediPrint – C
- LKC – C/L
- Avellino – C
- Novartis – C
- Iveric bio – C
- Occuphire - C

2



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65-year-old, Caucasian female referred for a second opinion for possible glaucoma. She states she has never had high eye pressures and doesn't understand how she could have glaucoma.

Ocular History

- **POHX:** Cataract extraction OU 2014, YAG capsulotomy OU 2014
- **FHX:** Mother – glaucoma, age-related macular degeneration
- **Previous Treatment Regimen: None**
- **Current Treatment Regimen: None**
- **IOP max**
  - OD: 17 mm Hg
  - OS: 17 mm Hg

Medical History

- **PMHX:** Hyperlipidemia
- **All Medications:** Fluoxetine
- **Allergies:** Penicillin
- Blood Pressure: 118/75

4

Ocular Exam

- **Uncorrected visual acuity (UCVA): 20/20 OD, 20/20 OS**
- **External exam: Normal appearance, symmetrical**
- **Pupil exam: Equal, round, reactive to light and (-) APD**
- **Slit-lamp exam**
  - **Lens: Well centered posterior chamber intraocular lens, open posterior capsule OU**
- **Goldmann Applanation Tonometry: 16 mm Hg OD, 17 mm Hg OS**
- **Central corneal thickness (CCT): 499 OD, 504 OS**
- **Gonioscopy: Open to CB in all quadrants, no pigment in the TM, and normal iris approach**
- **Corneal Hysteresis: 9.4 mm Hg OD, 9.3 mm Hg OS**

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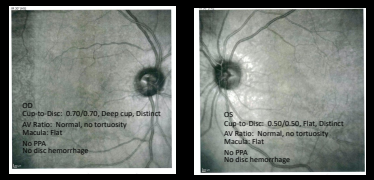

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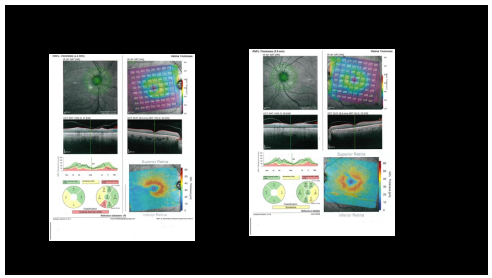

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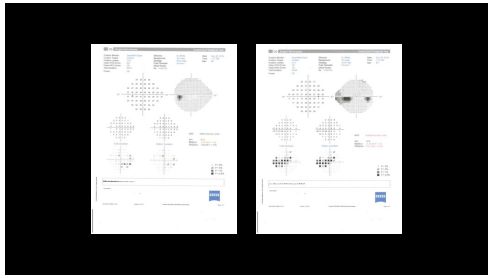


8

Diagnosis

Severe Normal Tension Glaucoma OD
Pre-perimetric Normal Tension Glaucoma OS

Other diagnoses: SPO Cataract Extraction OU, SPO YAG Capsulotomy OU

Initiate treatment with latanoprostene bunod 0.024% qd @ night OU
- Goal IOP reduction of 25%-30% from baseline IOP

9

Initial Follow-up and Plan

Follow-up at 1 month

latanoprostene bunod 0.024% was well tolerated, easy to instill, and patient states compliance with medication.

Follow-up ocular exam: Vision and SLE stable from last examination 1 month ago.

Tonometry:

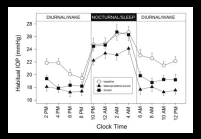
- OD: 12 mmHg
- OS: 12 mmHg

10

What Works When Our Patients Are Most Vulnerable To Glaucoma?

11

Latanoprostene Bunod



25 patients with OHTN or OAG
Randomized crossover study
Timolol 0.5% BID
Latanoprostene bunod q HS

Liu JH, et al. AJO 2016

IOP lowering effect:
Daytime: Yes
Nighttime: Yes

12

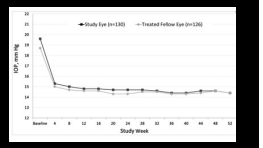
Nitric Oxide

Endogenous in the human body

Causes alterations in the cytoskeletal network

Reduced NO in TM, Schlemm's canal, and ciliary muscle

Nathanson JA et al. Alterations of ocular nitric oxide synthase in human glaucoma. Invest Ophthalmol Vis Sci. 1995

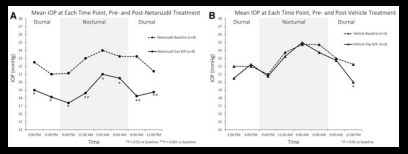


JUPITER Study

latanoprostene bunod 0.024% (Vyzulta)

13

ROCK Inhibitors



12 patients with OHTN or OAG
Randomized, double -masked, vehicle-controlled
2:1 netarsudil vs vehicle

IOP lowering effect:
Daytime: Yes
Nighttime: Yes

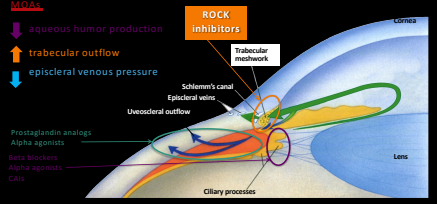
Peace H.J., et al. Ophthalmology and Therapy 2021

14

netarsudil 0.02% (Rhopressa)

MOAs:

- aqueous humor production
- trabecular outflow
- episcleral venous pressure



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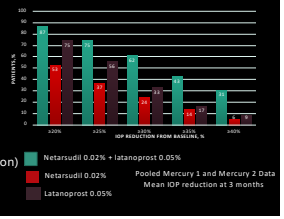
netarsudil 0.02% + latanoprost 0.005% (Rocklatan)

- RHO protein kinase (destabilizes actin in TM)
- Rock inhibitor (lowers EVP)
- Latanoprost (uveoscleral outflow)
- NET Inhibition (decrease aqueous production)



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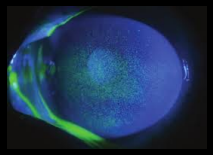
Case

- **71-year-old African-American male**
- **Medical History:** HTN
- **Family History:** HTN, DM
- **BCVA**: 20/20 +1 OU

- **IOP**: 29 mm Hg OD; 26 mm Hg OS
- **C/D**: 0.80/0.80 OD 0.65/0.65 OS
- **Pachymetry**: 510 OD; 514 OS
- **Corneal hysteresis**: 8 OD 8.9 OS
- **Gonioscopy**: Open to CB OU w/ trace pigment in TM
- SLE: See Photos
- **VF's** – See next slide
- **OCT's** – See next slide

17



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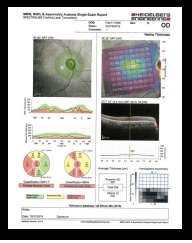
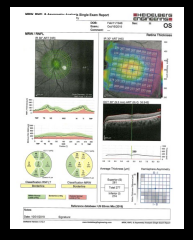
OCT's





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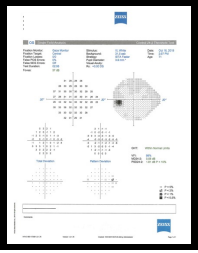
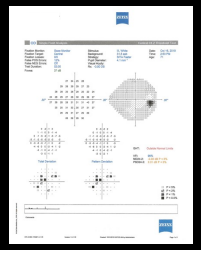
Visual Field's





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Case Considerations

- Need to address the ocular surface
- What therapy do we choose to treat his glaucoma

21

Case Conclusion

- Performed SLT OU
- Added "soft steroid" for 2 weeks qid
- Added immunomodulator bid OU

- IOP 17 OD; 16 OS @ 6 weeks
- Cornea essentially clear
- Placed plugs and continued immunomodulator

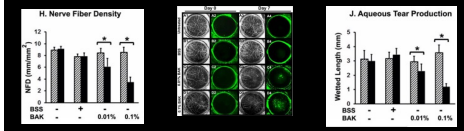
- Monitoring the patient every 4 months initially

- Recent visit – stable VFT, OCT, and IOP (schedule q 6 mos)

22

Neurotoxicity of BAK

- Exposure to BAK (0.01% or 0.1%) QD x 7 days:
  - Decrease NFD (p=0.02 & 0.001)
  - Decrease aqueous production (phenol red)

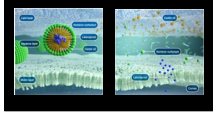


Invest Ophthalmol Vis Sci. 2012 Apr; 53(4): 1792–1802.

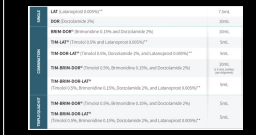
23

BAK-Free Latanoprost

- Following instillation, micelles mix with the tear film
- As the micelles migrate toward the ocular surface, they break apart, releasing latanoprost



Preservative-Free



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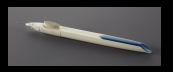
Bimatoprost SR (Allergan)

(10-microgram bimatoprost sustained-release implant)

- Biodegradable bimatoprost sustained-release implant
- FDA-approved and indicated to reduce IOP in patients with open angle glaucoma or OHT
- Single intracameral administration
- Phase I/II/III Studies



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24 Month Phase I/II Clinical Trial

75 subjects

- bimatoprost pellet (6, 10, 15, or 20 micrograms)
- topical bimatoprost 0.03%

Craven ER, Walters T, Christie WC, Day DG, et al. 24-Month Phase I/II Clinical Trial of Bimatoprost Sustained-Release Implant (Bimatoprost SR) in Glaucoma Patients. Drugs. 2020 Feb;80(2): 167-179.

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24 Month Phase I/II Clinical Trial

bimatoprost pellet
(6, 10, 15, or 20 micrograms)

24 months – IOP reduction
7.5, 7.3, 7.3, 8.9 mm Hg

topical bimatoprost 0.03%

24 months – IOP reduction
of 8.2 mm Hg

No Rescue or Retreatment
68% - 6 mos.
40% - 12 mos.
28% - 24 mos.

Craven ER, Walters T, Christie WC, Day DG, et al. 24-Month Phase I/II Clinical Trial of Bimatoprost Sustained-Release Implant (Bimatoprost SR) in Glaucoma Patients. Drugs. 2020 Feb;80(2): 167-179.

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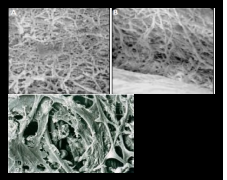
Selective Laser Trabeculoplasty

Selectively targets and laser burns pigmented TM cells



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Lancet. 2019 Apr 13;393(10180):1505-1516. doi: 10.1016/S0140-6736(18)32213-X. Epub 2019 Mar 8.

Selective laser trabeculoplasty versus eye drops for first-line treatment of ocular hypertension and glaucoma (LiGHT): a multicentre randomised controlled trial.

Gazzard G[1], Konstantakopoulou E[2], Garway-Heath D[2], Garg A[2], Vickerstaff V[3], Hunter R[4], Ambler G[5], Bunce C[6], Wormald R[7], Nathwani N[8], Barton K[2], Rubin G[9], Buszewicz M[8]; LiGHT Trial Study Group.

Primary Outcome - Quality of Life at 3 years
Secondary Outome – Cost, cost-effectiveness, clinical effectiveness, and safety

Conclusions:
- No significant difference in QOL
- 97% probability of SLT as 1st treatment being more cost-effective
- SLT at target IOP 93% of visits vs 91.3% at target for meds
- 78.2% of SLT Drop Free @ 3 Years

30

CASE History of Present Illness: Ocular

84-year-old, Caucasian female

Ocular History

Diagnosed with POAG – 2012-2014

OD – latanoprostene bunod 0.024% qd

OS – history of tube shunt, no current medications

Cataract extraction: 2009 OU

Family History: POAG - Father

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History of Present Illness: Medical

Medical History

Systemic Medications: Amitriptyline HCL, Alprazolam 0.25 mg, Carbamazepine 200 mg

Allergies: Codeine, Ultram

Social History: Unremarkable

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Ocular Exam:

VAcc: OD – 20/20 OS – 20/40

Tmax IOP: OD – 24 mmHg OS – 28 mm Hg

SLEX: Tube shunt OS, otherwise unremarkable

ONH: OD – 0.80/0.80 OS – 0.95/0.95

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Ocular Exam:

Pachymetry: 510 OU
Gonioscopy: Open to CB

IOP on Exam(s):
OD – 19 mm HG
OS – 11 mm HG

IOP History:
OD – consistently 10-12 mm HG (on medication)
OS – consistently – 10-11 mm HG (tube shunt)

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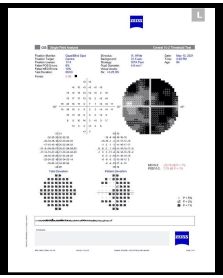
Testing:

Stable for years with tube shunt controlling IOP



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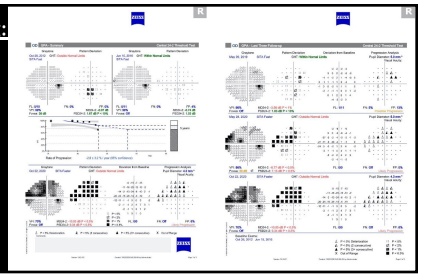
Testing:



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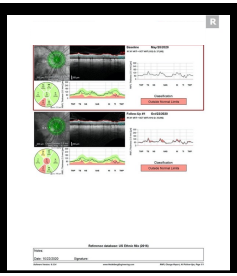
Testing:



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Minimally or Micro Invasive Glaucoma Surgery (MIGS)

Procedures that have an ab-interno approach, are minimally traumatic, with at least modest efficacy, extremely high safety and rapid recovery .

Saheb H, Ahmed, IIK. Micro-invasive glaucoma surgery: current perspectives and future directions. Curr Opin Ophthalmol. 2012;23(2): 96-104.

39

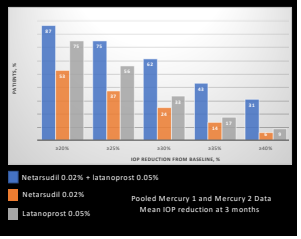
SLT as a second line option

- Drop expectations:
  - 1st drop – 25-35% IOP reduction
  - 2nd drop – 2-4 mmHg (10-20%)
  - 3rd drop – 0-2 mmHg
- SLT – exact same expectations
- Exact same treatment protocols/pre op/post op
- Pair best with aqueous suppressants?

40

netarsudil 0.02% + latanoprost 0.005% (Rocklatan)

- RHO protein kinase (destabilizes actin in TM)
- Rock inhibitor (lowers EVP)
- Latanoprost (uveoscleral outflow)
- Net Inhibition



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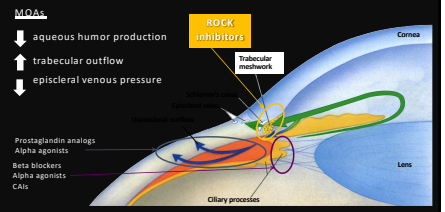
netarsudil 0.02% (Rhopressa)

MOAs

- aqueous humor production
- trabecular outflow
- episcleral venous pressure



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Single Agent Adjunctive Agents

Beta Blockers

Timoptic (timolol 0.25, 0.5%; Merck)

Timolol Alternative Formulations

- Timolol-XE-timolol maleate 0.25%,0.5% in Gel-rite
- Timoptic in Ocudose 0.25%, 0.5%
- Istalol – Qd dosing
- Betoptic-S

Alpha-adrenergic Agonists

(brimonidine 0.2%, 0.15%, 0.1%)

Carbonic Anhydrase Inhibitors

Trusopt (dorzolamide HCL solution 2%)

Azopt (brinzolamide 1% suspension)

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Combination Therapy

CoSopt Ophthalmic Suspension

- Timolol 0.5%
- Dorzolamide 0.2%

Combigan Ophthalmic Solution

- Brimonidine 0.2%
- Timolol 0.5%

Simbrinza

- Brinzolamide 1%
- Brimonidine 0.2%

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Thank You!

justin.Schweitzer@vancethompsonvision.com

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