


Effects of Glaucoma Treatment on the Ocular Surface

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1

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- Investigator: Lexitas, Claris Bio, Trinity Life Sciences, Famy Life Sciences
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2



Poor tolerability
↓
Poor adherence
↓
Poor outcomes

3

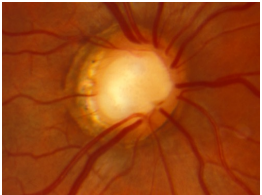
Glaucoma Background

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4

What is glaucoma?

- Progressive optic neuropathies characterized by RGC loss and IOP sensitivity
- Damage occurs in the RGC axons at the level of the optic nerve head
 - mechanical insults
 - vascular insults
- Leading cause of irreversible blindness worldwide




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Prevalence of glaucoma is increasing!

- Glaucoma impacts
 - 4% of individuals between the ages of 40-80
 - 10% of the population 80 years and older
- Global prevalence expected to increase to 112 million by 2040
- Vastly underdiagnosed with 50-90% of cases going unrecognized

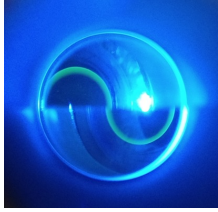


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Glaucoma is an incurable condition

- Goal is to reduce rate of progression
- IOP is not the cause of the glaucoma
- IOP remains a proven metric
 - decreasing progression rate
 - extending retinal ganglion cell viability
 - preserving vision



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IOP-lowering Drops

- Most common treatment for glaucoma
- Multiple IOP-lowering drops are often needed to control progression
- ~50% of ocular hypertensives require multiple drops within 5 years of initial diagnosis
- IOP drops are quite effective



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The problem is...

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Adherence is an issue...



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Adherence is an issue...

- Non-adherence rates to topical treatment ranges from 23-59%
- 50% discontinue hypotensive therapy within 6 months
- Only 37% of patients on hypotensive therapy had refilled their medication at 3 years



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11



Poor adherence
↓
Uncontrolled glaucoma
↓
Permanent vision loss

12



Why is adherence with IOP-lowering drops a problem?



13

Symptoms

- Prevalence of dry eye in POAG (OSDI)
 - 21.3% have mild symptoms
 - 13.3% moderate symptoms
 - 13.8% severe symptoms
- 60% of patients using IOP-lowering drops report ocular irritation






Fichtner et al. Prevalence of ocular surface complaints in patients with glaucoma using topical intracocular pressure-lowering medications. Cornea. 2010;29(6):618-621.

14

Symptoms

- Prevalence of dry eye in POAG (OSDI)
 - 21.3% have mild symptoms
 - 13.3% moderate symptoms
 - 13.8% severe symptoms
- 60% of patients using IOP-lowering drops report ocular irritation
- You are taking an asymptomatic patient and making them symptomatic**

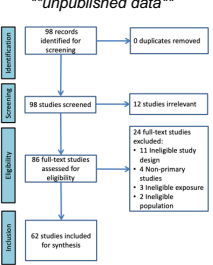



Fichtner et al. Prevalence of ocular surface complaints in patients with glaucoma using topical intracocular pressure-lowering medications. Cornea. 2010;29(6):618-621.


15

DE prevalence in glaucoma

- Systematic review (2021-present)
- In patients treated with IOP lowering drops:
 - Pooled prevalence of dry eye symptoms = 10-95%
 - Pooled prevalence of MGD = 38-90%
 - Medication groups at higher OSDI scores in 67% of studies



****unpublished data****





Fichtner et al. Prevalence of ocular surface complaints in patients with glaucoma using topical intracocular pressure-lowering medications. Cornea. 2010;29(6):618-621.

16

Risk factors of OSD in glaucoma management?

- Age
- Female sex
- Number of glaucoma drops
- Drops containing BAK
- Frequency of drop administration
- Use of preservatives
- Duration of disease

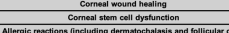



Fichtner et al. Prevalence of ocular surface complaints in patients with glaucoma using topical intracocular pressure-lowering medications. Cornea. 2010;29(6):618-621.

17

How do IOP-lowering drops influence OSD?

| | Prostaglandins | Beta-blockers | Alpha-agonists | CAIs | Pilocarpine | Netarsudil |
|--|----------------|---------------|----------------|------|-------------|------------|
| Cytotoxic to corneal epithelial cells | X | X | X | X | X | X |
| Worsening dry eye symptoms | X | X | X | X | X | X |
| Worsened tear film stability | X | X | X | X | X | X |
| Lowering TBUT | X | X | X | X | X | X |
| Reducing lacrimal gland secretions | X | X | X | X | X | X |
| Poorer meibum expressibility | X | X | X | X | X | X |
| Diminished meibum quality | X | X | X | X | X | X |
| Increased MG dropout | X | X | X | X | X | X |
| Altered proliferation, morphology, and survival of MG epithelial cells | X | X | X | X | X | X |
| Worsened conjunctival hyperemia | X | X | X | X | X | X |
| Increased conjunctival capillary non-perfusion | X | X | X | X | X | X |
| Altered neuropeptide expression | X | X | X | X | X | X |
| Eyelid infiltration of macrophages | X | X | X | X | X | X |
| Goblet cell damage | X | X | X | X | X | X |
| Increased corneal and conjunctival staining | X | X | X | X | X | X |
| Decreased conjunctival cells | X | X | X | X | X | X |
| Decreased membrane integrity of conjunctival cells | X | X | X | X | X | X |
| Increased cytokines in Tenon's capsule fibroblasts | X | X | X | X | X | X |
| Upregulated MMP expression of ocular surface / sclera | X | X | X | X | X | X |
| Allergic contact dermatitis | X | X | X | X | X | X |
| Corneal wound healing | X | X | X | X | X | X |
| Corneal stem cell dysfunction | X | X | X | X | X | X |
| Allergic reactions (including dermatitis and follicular conj) | X | X | X | X | X | X |




Fichtner et al. Prevalence of ocular surface complaints in patients with glaucoma using topical intracocular pressure-lowering medications. Cornea. 2010;29(6):618-621.

18

What about allergies?

- Up to 25.7% of patients exhibit an allergy to brimonidine
 - Months or years later
- Timolol is recognized for causing allergic contact dermatitis
- Netarsudil has been linked to mild pruritus



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Fichtner et al. Prevalence of ocular surface complaints in patients with glaucoma using topical intraocular pressure-lowering medications. *Cornea*. 2010;29(6):618-624.

19

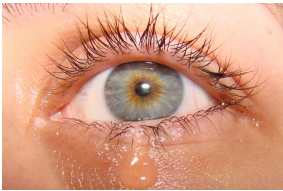
Periorbital Effects of IOP-lowering Drops

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Not just the ocular surface!

- Where do drops go?
 - Average drop size = 50uL
 - Fornix capacity = 30uL
 - 50mL – 30mL = 20uL extra
 - drains through puncta or spills over the eyelid
- This allows drops to exert effects on lacrimal drainage system, the eyelids, and periorbital tissue



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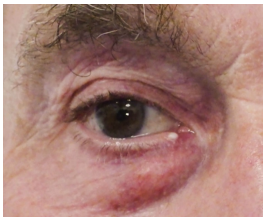
Prostaglandin-associated periorbitopathy

- Prostaglandin analogs are associated with:
 - ptosis
 - eyelid retraction
 - trichiasis
 - entropion
 - ectropion
 - deepening of the eyelid sulcus
 - enophthalmos
 - loss of orbital fat pads
 - eyelid hyperemia, eyelid pigmentation, and hypertrichosis

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Prostaglandin-associated periorbitopathy




Orbital fat prolapse

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Prostaglandin-associated periorbitopathy presenting as unilateral orbital fat prolapse. 12 OCTOBER 2021 HENRY ET AL. Ocular Adverse Events with Prostaglandin Analogs. *PLASTIC SURGERY*

23

Prostaglandin-associated periorbitopathy




Deepened sulcus, ptosis, enophthalmos, hyperemia

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American Academy of Ophthalmology, Eye Wiki, Oculoplastics, Prostaglandin-Associated Periorbitopathy

24

Prostaglandin-associated periorbitopathy

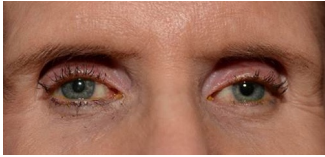


Hypertrichosis OS

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Prostaglandin-Associated Periorbitopathy. Lui Tabbara, MD, Jeffrey D. Weiler, MD, Wallace L. M. Awwad, MD, October 14, 2013

25

Prostaglandin-associated periorbitopathy




Orbital fat atrophy, deep sulcus, "sunken eye" appearance

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Prostaglandin-Associated Periorbitopathy. Lui Tabbara, MD, Jeffrey D. Weiler, MD, Wallace L. M. Awwad, MD, October 14, 2013

26

Prostaglandin-associated periorbitopathy

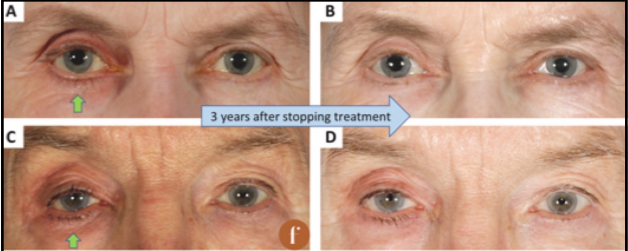


Orbital fat atrophy OS, prominent superior sulcus, increased palpebral fissure height

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Prostaglandin-Associated Periorbitopathy. Lui Tabbara, MD, Jeffrey D. Weiler, MD, Wallace L. M. Awwad, MD, October 14, 2013

27

Periorbital and eyelid erythema during and after use of prostaglandin analogs



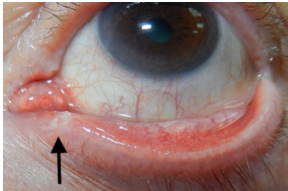
3 years after stopping treatment

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Kokko M, Gazzard G, Baurkain C, et al. Impact of glaucoma medications on the ocular surface and how ocular surface disease can influence glaucoma treatment. *The Ocular Surface*. 2003;1(1/1): 45-48.

28

Punctal stenosis and canalicular narrowing


- IOP-lowering drops in general, but beta-blockers and netarsudil specifically
- Upper canaliculus > lower
- Possibly due to
 - chronic low-grade inflammation
 - autonomic nervous systemic pathway



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Punctal stenosis and canalicular narrowing



Bilateral punctal stenosis with netarsudil *reversible

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Punctal Stenosis Associated with Topical Netarsudil Use. *ANJJournal.com*. March, February 28, 2022

30

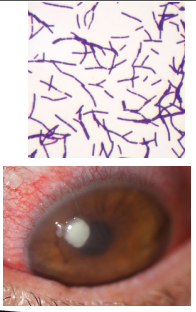

A Deep Dive into Benzalkonium Chloride



31

Why preserve eyedrops?

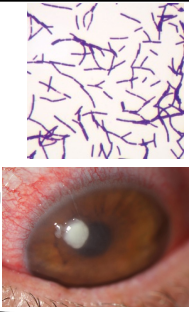

- Microbial infection
 - Preservatives like BAK are effective against Gram +, Gram -, and fungi
- Maintaining sterility
- Decreasing costs for patients by extending shelf-life
- *Corneal penetration enhancers* to “better” facilitate passage through the cornea

32

Benzalkonium Chloride

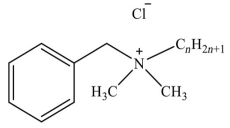
- Detergent
 - Non-selectively destroys cell membranes
- 0.01% concentration = cellular apoptosis
- 0.05% concentration = cell necrosis
- Disrupts cell-to-cell junctions to facilitate drug penetration through the cornea
- Allows for lower drug concentrations


33

Toxic to microbes...and the ocular surface...

- BAK effects
 - Promotion of cytokine release
 - Toxicity to corneal epithelial cells
 - Loss of goblet cells
 - Damage to meibomian gland epithelial cells
 - Increased tear osmolarity
 - Destabilization of the tear film
 - Corneal epithelial apoptosis
 - Impaired wound healing
 - Lymphocyte infiltration of the conjunctiva
 - Heightened mitochondrial oxidative stress



Benzalkonium chloride




34

How does BAK exposure manifest clinically?

- Range of dry eye symptoms
 - Pain
 - Discomfort
 - Burning
 - Itching
 - Foreign body sensation
 - Irritation

- Dry eye signs
 - Lower TBUT
 - Reduced aqueous production
 - Corneal staining
 - Conjunctival staining
 - Corneal nerve toxicity

Even been associated with worse Quality of Life scores



35

How does BAK exposure manifest clinically?

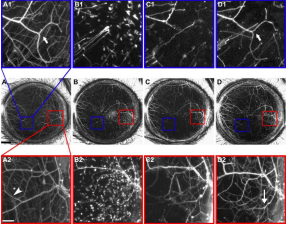
- Patients w/o pre-existing OSD may experience goblet cell loss and worsened ocular symptoms
 - within just one week of BAK exposure
- Each additional BAK-preserved drop doubles the risk of conjunctival staining
- The impact of topical BAK eyedrops even extends to the nasal mucosa!




36

Toxicity to trigeminal nerve endings

- Changes to the sub-basal nerve plexus
 - BAK-induced neurotoxicity
 - axonopathy and recovery
 - degeneration and regeneration
- Decreased corneal sensation

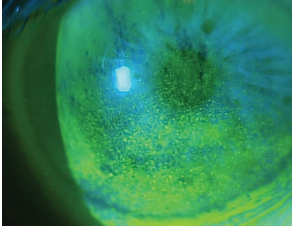


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Toxicity to trigeminal nerve endings

- Changes to the sub-basal nerve plexus
 - BAK-induced neurotoxicity
 - axonopathy and recovery
 - degeneration and regeneration
- Decreased corneal sensation
- BAK-induced neurotrophic keratitis**

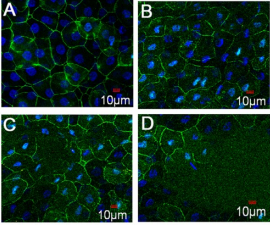


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38

Toxicity to trigeminal nerve endings

- Changes to the sub-basal nerve plexus
 - BAK-induced neurotoxicity
 - axonopathy and recovery
 - degeneration and regeneration
- Decreased corneal sensation
- BAK-induced neurotrophic keratitis
- Increased endothelial permeability




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We use too high of concentrations...

- BAK-induced damage occurs at concentrations as low as 0.005%
- Despite this some glaucoma drops having BAK concentrations as high as 0.02%
- Ocular surface toxicity and symptoms intensify with increasing BAK concentration

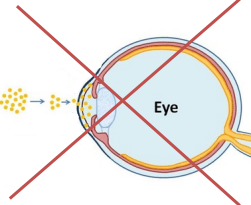


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40

But BAK is a corneal penetration enhancer!

- While it was previously believed that BAK was crucial for effective corneal penetration and drop effectiveness
- We have been aware for over a decade that the induced corneal desiccation is unnecessary for optimal medication penetration and efficacy



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41

Are BAK-free drops effective?

- BAK-free drops demonstrate similar IOP reduction to their BAK-preservative counterparts

| Week | Dexamethasone/latanoprost formulation | N | IOP | | | | % mean change |
|-----------------|---------------------------------------|-----|------|-----|------|-----|---------------|
| | | | Mean | SD | Mean | SD | |
| Trough (hour 0) | PP | 130 | 21.3 | 2.9 | -2.6 | 2.6 | -10.2 |
| | PC | 130 | 21.1 | 2.8 | -2.4 | 2.7 | -10.9 |
| 6 | PP | 130 | 21.8 | 2.7 | -2.7 | 2.4 | -11.4 |
| | PC | 130 | 21.2 | 2.8 | -2.4 | 2.7 | -10.2 |
| 12* | PP | 130 | 20.8 | 2.6 | -2.9 | 2.3 | -12.3 |
| | PC | 130 | 21.1 | 2.5 | -2.8 | 2.2 | -11.9 |
| Peak (hour 2) | PP | 130 | 18.4 | 2.5 | -2.3 | 2.3 | -11.7 |
| | PC | 130 | 18.6 | 2.4 | -2.9 | 2.1 | -12.1 |
| 6 | PP | 130 | 18.4 | 2.5 | -2.8 | 2.4 | -12.3 |
| | PC | 130 | 18.4 | 2.4 | -3.0 | 2.6 | -13.5 |
| 12 | PP | 130 | 18.1 | 2.3 | -3.1 | 2.9 | -14.9 |
| | PC | 130 | 18.2 | 2.2 | -3.2 | 2.3 | -14.3 |

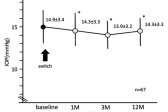


FIGURE 4. IOP measurements. IOP is presented as the mean \pm SD. Means indicate significant change of IOP compared with baseline by paired t test ($P < 0.05$). IOP indicates intraocular pressure.

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1. Shekdan et al. *Graefes Arch Clin Exp Ophthalmol* 2010;248:11757-11764
2. Aihara et al. *J Glaucoma* 2012;21:60-64

42

Yet BAK is still widely utilized...

- Present in
 - ~70% of ophthalmic solutions
 - Most glaucoma drops
- Alternative preservatives cause less surface irritation
 - Potassium sorbate
 - Polyquad
 - SofZia
 - Purite

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Alternative preservatives are better!

- Less toxicity due to:
 - Larger molecules which aren't internalized by epithelial cells
 - Break down upon contact with the air
 - Selectively target microbes
 - Become inactive when upon contact with K⁺ or Na⁺ ions

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44

Less signs and symptoms with PF drops

- Corneal staining
 - 25.6% of patients using preserved
 - 8.9% of patients using PF

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45

Non-preserved or BAK-free options

| | Medication | Preservative |
|-------------------|----------------------------------|-------------------|
| Preservative Free | Zioptan (tafluprost) | None |
| | Cosopt PF (dorzolamide, timolol) | None |
| | Timoptic (timolol) | None |
| | Iyuzeh (latanoprost) | None |
| Non-BAK Preserved | Travatan Z (travoprost) | SofZia |
| | Alphagan P (brimonidine) | Purite |
| | Xelpros (latanoprost) | Potassium sorbate |

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46

ORIGINAL ARTICLE

Ocular Surface Evaluation after Switch from Latanoprost 0.005% to Latanoprostene Bunod 0.024%

Virginia Zanutigh¹, Leila Galetto², Florencia Valvecchia³, Celina Loggoco⁴

Received on: 18 August 2023; Accepted on: 15 September 2023; Published on: 17 January 2024

ABSTRACT
Aim and background: To evaluate the ocular surface of patients treated with latanoprost (LT) 0.005% who switched to latanoprostene bunod (LBN) 0.024%.
Materials and methods: A prospective and nonrandomized clinical study of a case series was performed, including patients with chronic open-angle glaucoma who were on previous LT-only treatment and, after a washout period, switched to LBN with a 3-month follow-up. The main parameter to be evaluated was the ocular surface disease index (OSDI) test. In addition, best corrected visual acuity (BCVA), intraocular pressure (IOP), biomicroscopic aspect of the ocular surface, measuring tear breakup time, fluorescein staining (grading performed on Oxford scale) and Schirmer I test were evaluated.
Results: A total of 36 patients (72 eyes) were included, 21 women (58.3%) and 15 men (41.7%), with a mean age of 65.6 ± 10.9 years (17-86). The initial OSDI score was 17.8 ± 1.21 and improved to 11.1 ± 10.3 (p < 0.01). From the data evaluated at biomicroscopy, an improvement was observed in the Oxford scale from 0.6 ± 0.7 to 0.2 ± 0.8 (p < 0.01), but no statistically significant changes were observed in the break-up time (BUT) and Schirmer I test. IOP remained stable, as did IOP, which was initially 13.4 ± 2.1 mm Hg and, after performing the LBN treatment change, went to 13.1 ± 1.7 mm Hg.
Conclusion: After the change of treatment from LT 0.005% to LBN 0.024%, the patients had an improvement in the ocular surface, maintaining control of their IOP. The need to investigate possible beneficial mechanisms on the ocular surface in glaucoma patients treated with LBN, potentially related to nitric oxide, is raised.
Clinical significance: Patients treated with LT 0.005% who switched to LBN 0.024% had an improvement in ocular surface symptoms and signs, especially OSDI under control.
Latanoprostene bunod (LBN) 0.024% may have beneficial effects on the ocular surface, which should be further studied.
Keywords: Glaucoma; Latanoprost; Latanoprostene bunod; Ocular surface; Ocular surface disease index score.
Journal of Current Glaucoma Practice (2023); 16:5005/(p-journals-10078-1422)

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47

Transitioning Drops

- It can take 8-12 weeks for the effects of BAK to resolve.
- Many providers just transition from BAK-containing to preservative-free (PF) drops.
- You can also consider a washout period prior of 1-2 weeks to allow the ocular surface to heal.
 - Several studies have demonstrated the safety of washout periods.^{1,2}

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1. Sherman et al. *Acta Ophthalmol Scand* 1997
2. Lim et al. *Can J Ophthalmol* 2020

48

Glaucoma Lasers

- SLT
 - LIGHT trial showed that 74.2% of patients treated with SLT first had drop free pressure control at 3 year
 - Less eye irritation!

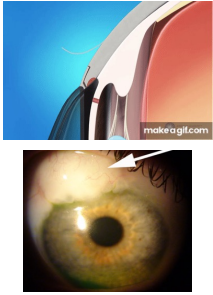
| | Medicine 1st | | Laser 1st | | Total | |
|--|--------------|-------------------|-------------|-------------------|-------------|-------------------|
| | n of events | n (%) of patients | n of events | n (%) of patients | n of events | n (%) of patients |
| Other epithelium-related AEs | 144 | 118 (82.0) | 459 | 117 (25.9) | 1041 | 235 (22.6) |
| Conjunctival injection | 109 | 81 (74.3) | 33 | 25 (7.6) | 142 | 86 (60.6) |
| Ocular irritation, discomfort or dry eye | 239 | 125 (54.5) | 147 | 97 (27.3) | 386 | 222 (57.6) |
| Itching | 103 | 51 (114.1) | 73 | 44 (12.4) | 176 | 95 (53.9) |
| Stinging on instillation | 89 | 59 (66.3) | 18 | 11 (3.1) | 107 | 64 (59.8) |
| Optic disc haemorrhage | 4 | 4 (11.1) | 8 | 7 (2.0) | 12 | 11 (9.2) |
| Macular haemorrhage | 0 | 0 (0.0) | 0 | 0 (0.0) | 0 | 0 (0.0) |
| Subconjunctival haemorrhage | 9 | 8 (2.2) | 2 | 2 (0.6) | 11 | 10 (9.1) |
| Cataract | 14 | 13 (3.0) | 19 | 17 (4.8) | 33 | 30 (26.2) |
| Blurred vision | 19 | 18 (5.0) | 12 | 12 (3.4) | 31 | 30 (26.2) |
| Change in vision | 16 | 14 (3.9) | 9 | 9 (2.5) | 25 | 23 (20.2) |
| Painful | 5 | 5 (1.4) | 11 | 8 (2.3) | 16 | 13 (11.6) |
| Flashes | 4 | 4 (1.1) | 8 | 7 (2.0) | 12 | 11 (9.5) |
| Conjunctivitis | 8 | 8 (2.2) | 6 | 5 (1.4) | 14 | 13 (11.6) |
| Watery eye | 8 | 7 (1.9) | 13 | 11 (3.1) | 21 | 18 (16.2) |
| Grae | 4 | 4 (1.1) | 6 | 5 (1.4) | 10 | 9 (7.9) |

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55

Trabeculectomies and OSD?

- In 1999, CIGTS found no difference in dry eye symptoms between trabeculectomy vs using glaucoma drops
- Recent studies show that ocular surface staining correlates with bleb height
- Trabeculectomy with a low bleb height likely induces less dryness compared to the use of IOP-lowering drops

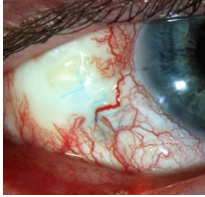


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56

What about anti-metabolites?

- 5FU and Mitomycin C (MMC) carry risk of:
 - toxicity to corneal epithelium
 - toxicity to conjunctival epithelium
 - reduced wound healing
 - limbal stem cell damage
 - meibomian gland damage
 - scleral necrosis
- Despite these concerns, the evidence suggests that the lowering of IOP through surgeries/procedures poses less risk of OSD than IOP-lowering drops



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57

MIGS and Dry Eye Disease

- After MIGS, self-reported dry eye symptoms, visual acuity, and TBUT demonstrate improvements at 4 months

| | Baseline (N = 97) | 4-month follow-up (N = 97) | p-value |
|---------------------|----------------------|----------------------------|---------|
| Tear lab osmolarity | 298 (276–324) mOsm/L | 292.5 (274–310.5) mOsm/L | 0.38 |
| TBUT | 4 (3.75–5.5) s | 5 (3.75–7) s | <0.001* |
| Ocular Stain | 1 (1–2) | 1 (1–1) | <0.001* |
| logMAR VA | 0.2 (0.1–0.3) | 0.1 (0.0–0.1) | <0.001* |
| IOP | 18.0 (16.25 monthly) | 14.0 (14.0 monthly) | <0.001* |

| | Baseline (N = 97) | 4-month follow-up (N = 97) | p-value |
|-------------------|--------------------|----------------------------|---------|
| OSDI total score | 34.6 (27.98–41.22) | 23.7 (16.87–30.53) | 0.01* |
| OSDI-15 | 19 (15–23) | 15 (10–18) | <0.001* |
| OSDI | 15 (10–19) | 8 (3–12) | <0.001* |
| Function subscale | 18.4 (13.9–22.9) | 10 (5.5–14.5) | <0.001* |
| OSDI | 14.2 (11.3–17.1) | 8 (5.5–10.5) | 0.001* |

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58

What about other glaucoma surgeries?

- Goniotomy
- Tube shunts
- Cyclophotocoagulation

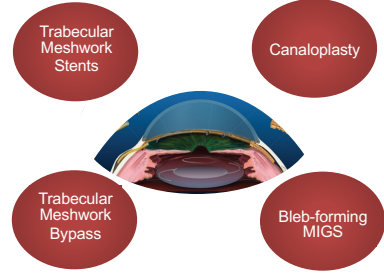
Likely all better for OSD than IOP-lowering drops...

The data says we need more data.



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59



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60

Trabecular Meshwork Stent

- Options
 - Silent (Glaukos)
 - Hydrus (Alcon)
- Efficacy

| Device | IOP Reduction |
|--------|---------------|
| Silent | -7.2 mmHg |
| Hydrus | -7.8 mmHg |
- Indications
 - Most POAG patients
 - Great in patients on blood thinners

Canaloplasty

- Options
 - ABIC (Elex)
 - OMNI (Sight Sciences)
 - Streamline (New World Medical)
- Efficacy

| Device | IOP Reduction |
|------------|---------------|
| ABIC | -10.4 mmHg |
| OMNI | -7.1 mmHg |
| Streamline | -8.8 mmHg |
- Indications
 - Great as a stand-alone procedure
 - Good IOP reduction
 - Nothing left behind
 - Leaves the option to perform another MIGS

Trabecular Meshwork Bypass

- Options
 - KDS GLIDE (New World Medical)
 - Trabectome (MicroSurgical Technology)
 - GATT
 - OMNI (Sight Sciences)
- Efficacy

| Device | IOP Reduction |
|------------|---------------|
| KDS GLIDE | -6.6 mmHg |
| Trabectome | -4.5 mmHg |
| GATT | -11.1 mmHg |
| OMNI | -7.3 mmHg |
- Indications
 - Great as a stand-alone procedure
 - Good IOP reduction
 - Nothing left behind

Bleb-forming MIGS

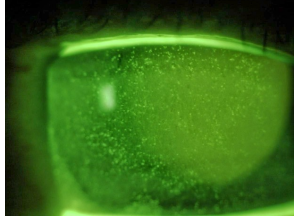
- Options
 - Xen Gel Stent (Allergan)
- Efficacy

| Device | IOP Reduction |
|---------------|---------------|
| Xen Gel Stent | -8.8 mmHg |
- Indications
 - Great for patient who have failed angle-based MIGS
 - Excellent IOP lowering with good safety
 - Great for patients who want quick recovery

61

Don't forget about corneal related vision loss!

- Not all glaucoma related vision loss is optic nerve related...
- If the cornea develops OSD or NK...this impacts vision too...



62



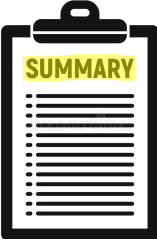
63



64

Drops

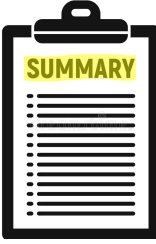
- **ALL** glaucoma drops irritate the ocular surface
- The mechanisms involved are extensive!
- Ocular surface disease worsens with
 - Duration of treatment
 - Number of drops used
 - Frequency of drop instillation
 - Preservatives (especially BAK)
- Non-BAK-preserved drops are effective and can be used in place of traditional glaucoma drops




65

Drop alternatives

- Sustained-release intracameral implants are an option for patients with OSD or drop intolerance
- SLT results in fewer dry eye symptoms compared to topical drops
- Patients report symptomatic improvement in ocular surface irritation after minimally invasive glaucoma surgery



66



HELPFUL TIPS

1. Ask about dry eye!
 - a. Does this affect their adherence?
2. Reduce instillation frequency
 - a. Consider combination drops
3. Avoid preservatives if possible (especially BAK)
4. Have a low threshold to perform or refer for procedures/surgeries
 1. SLT
 2. Intracameral implants
 3. MIGS
5. Don't just focus on their glaucoma, treat their dry eye as well!

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67

References

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68

Thank you!

Any questions?



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69