Pharmacology in Glaucoma

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Financial Disclosure

- I have received speaking or consulting fees from:
  - Alcon Laboratories
  - Allergan
  - Carl Zeiss Meditec
Outline

• For each drug category:
  – Mechanism of Action
  – Expected Response
  – Side Effects
  – Contraindications
  – When to Use/When to Reconsider
  – Available Products
  – Misc.
Prostaglandin Analogs (PGs)

- **Mechanism of action:** increase uveoscleral outflow
- **Effect:** excellent (25-35% reduction)
- **Dosing:** once daily (doesn’t matter am/pm)
- **Side effects:**
  - Minimal systemic
  - Ocular:
    - Hyperemia
    - Hypertrichiasis
    - Hyperpigmentation – iris and periorbital skin
    - Prostaglandin-induced orbitopathy
Deepening of the Upper Eyelid Sulcus Caused by 5 Types of Prostaglandin Analogs

Kenji Inoue, MD, PhD,* Minako Shiokawa, MD, PhD,* Masato Wakakura, MD, PhD,*
and Goji Tomita, MD, PhD†

* Glaucoma • Volume 00, Number 00, ■ ■ 2012
Incidence of Prostaglandin-Induced Orbitopathy

**FIGURE 2.** Objective evaluation of the deepening of the upper eyelid sulcus. The frequency of deepening in eyes in the bimatoprost group was significantly higher than that in the latanoprost, the tafluprost, and the unoprostone groups (**P < 0.0001**).

**FIGURE 3.** Subjective evaluation of the deepening of the upper eyelid sulcus. The eyes in the travoprost and the bimatoprost groups exhibited significantly more frequent deepening than those in the latanoprost, the tafluprost, and the unoprostone groups (**P < 0.001**).
Glaucoma - Prostaglandins

• When to Use
  – POAG
  – Pigmentary glaucoma
  – Pseudoexfoliation glaucoma
  – Normal tension glaucoma
  – Ocular Hypertension
Glaucoma - Prostaglandins

• When to reconsider:
  – Acute rise in IOP
    • Acute angle closure
    • Posner-Schlossman syndrome
  – Pt with history of CME or risk of CME
  – Unilateral therapy
  – Pregnancy
  – Uveitic glaucoma (????)
  – Neovascular glaucoma (?)
UVEITIS
Flare-up rates with bimatoprost therapy in uveitic glaucoma.

Fortuna E, Cervantes-Castañeda RA, Bhat P, Doctor P, Foster CS.
Massachusetts Eye Research and Surgery Institute, Cambridge, Massachusetts 02142, USA.

Erratum in:


Abstract

PURPOSE: To evaluate the rate of flares in patients with uveitic glaucoma treated with topical bimatoprost and to assess its effect on intraocular pressure (IOP) in this subset of patients.

DESIGN: Retrospective case series.

METHODS: All patients seen at one subspecialty uveitis practice with history of uveitic glaucoma treated with topical bimatoprost were identified and the data collected, which included onset, type, duration of uveitis, onset of secondary glaucoma, and previous therapies for glaucoma. The time of onset of bimatoprost therapy, the IOP, and flare-up rate before and after initiation of treatment with bimatoprost were recorded at one week and one, three, and six months of follow-up.

RESULTS: Of the 42 patients (59 eyes) identified, 12 patients had used other topical lipid agents, which were replaced by bimatoprost. Twenty-three patients had not used any lipid agents and bimatoprost was added to their existing antiglaucoma regimen. Seven patients were newly diagnosed with uveitic glaucoma and were commenced with topical bimatoprost. The rate of uveitis flares while on other antiglaucoma therapy was 52 per 100 person-years follow-up, while on bimatoprost therapy it was 32.4 per 100 person-years follow-up (P = .206). The mean IOP prior to bimatoprost therapy was 27 +/- 13.2 mm Hg and after initiation of topical bimatoprost was 15 +/- 5.5 mm Hg at the end of six months (P = .0008).

CONCLUSION: These data suggest that bimatoprost is an effective IOP-lowering agent in patients with uveitic glaucoma in whom the uveitis is controlled on immunomodulatory therapy, and it does not increase the rate of flares of uveitis in these patients.

PMID: 19027422 [PubMed - indexed for MEDLINE]
Use of ocular hypotensive prostaglandin analogues in patients with uveitis: does their use increase anterior uveitis and cystoid macular oedema?

Department of Clinical Ophthalmology, Institute of Ophthalmology, Moorfields Eye Hospital, City Road, London, UK.

Abstract

AIM: A retrospective comparative case series was studied to determine whether the use of prostaglandin (PG) analogues to treat raised intraocular pressure (IOP) in patients with uveitis resulted in an increase in the frequency of anterior uveitis or cystoid macular oedema (CMO).

METHODS: 163 eyes of 84 consecutive patients with uveitis and raised IOP treated with a PG analogue at two tertiary referral uveitis clinics were identified over a 3-month period. Control eyes were selected as those uveitic eyes of the same patients, which were treated with topical IOP-lowering agent(s) other than a PG analogue. Pretreatment IOP was compared with the mean IOP during PG analogue treatment. The frequency of anterior uveitis and CMO during PG analogue treatment was compared with the frequency of these complications in the control eyes during non-PG IOP-lowering treatment.

RESULTS: Significant IOP reductions were observed during PG analogue treatment. There was no significant difference in the frequency of anterior uveitis in those eyes treated with PG analogues and those treated with non-PG agents (p = 0.87, Fisher exact test). None of the 69 uveitic eyes without a previous history of CMO developed this complication. There was no increase in the frequency of visually significant CMO during PG treatment compared with that during non-PG treatment (p = 0.19, Fisher exact test).

CONCLUSION: This study demonstrates that PG analogues are potent topical medications for lowering raised IOP in patients with uveitis and are not associated with increased risk of CMO or anterior uveitis.

PMID: 18460537 [PubMed - indexed for MEDLINE]
Efficacy and safety of latanoprost in eyes with uveitic glaucoma.


Markomichelakis NN, Kostakou A, Halkiadakis I, Chalkidou S, Papakonstantinou D, Georgopoulos G.

Author information

Abstract

BACKGROUND: To compare the efficacy and safety of latanoprost against a fixed combination of dorzolamide and timolol in eyes with elevated intraocular pressure (IOP) or glaucoma and anterior or intermediate uveitis.

METHODS: Fifty-eight patients with anterior or intermediate uveitis and elevated IOP or glaucoma presented or followed up in the Ocular Inflammation and Immunology Service of General Hospital of Athens were randomly assigned to receive treatment either with latanoprost (30) or with dorzolamide/timolol (28). The main outcome measures were inflammatory relapses and IOP response to treatment.

RESULTS: Ten patients (34%) in the latanoprost group and sixteen patients (57%) in the dorzolamide/timolol group experienced relapses of anterior uveitis (p = 0.93). There was no statistical difference between the two groups in respect of inflammatory relapses (p = 0.21). Twenty-one patients were followed up before starting latanoprost. The number of recurrences of anterior uveitis per patient per year before treatment with latanoprost was 0.82 +/- 1.2. The rate of relapses per patient per year after starting latanoprost was 0.39 +/- 0.7 for these patients (p = 0.038). After 1 year of treatment, intraocular pressure was dropped from 27.8 +/- 8.4 mmHg to 18.6 +/- 5.3 mmHg (p < 0.001) in the latanoprost group and from 28.2 +/- 8.1 mmHg to 22.6 +/- 10.1 mmHg (p < 0.001) in the dorzolamide/timolol group. Four patients during treatment with latanoprost and five patients during treatment with dorzolamide/timolol developed macular edema.

CONCLUSION: Latanoprost is safe and equally effective to a fixed combination of dorzolamide and timolol in the treatment of uveitic glaucoma.

PMID: 19184081 [PubMed - indexed for MEDLINE]
The use of prostaglandin analogs in uveitic patients remains controversial. A causal relationship has yet to be established between prostaglandins and the reactivation of anterior uveitis, the development of cystoid macular edema, or the reactivation of HSK.

Due to the efficacy of prostaglandins in lowering IOP in patients with uveitis and the small likelihood of developing these rare complications, prostaglandin analogs should remain in the treatment algorithm of uveitic glaucoma patients.
Prostaglandin-induced cystoid macular edema following routine cataract extraction.

Agange N, Mosead S.
Department of Ophthalmology, University of California, Irvine, CA 92697, USA.

Abstract
To our knowledge, we are reporting the first case of a 59-year-old man who developed recurrent CME with three separate trials of three different prostaglandin class drugs following uncomplicated phacoemulsification with intraocular lens implantation. Despite multiple reports of individual prostaglandin (PG) analogues being suggested as the cause of CME, there are no recommendations regarding withholding these medications in the perioperative period. Our patient first developed CME OD 4-months post uncomplicated cataract extraction. XALATAN (Latanoprost) had been restarted after surgery and discontinued at onset of CME. While off XALATAN (Latanoprost), the patient's CME resolved, but his IOP rose. The patient was started on LUMIGAN (Bimatoprost) to control the IOP, but within weeks his CME recurred. The patient's CME was again treated and his IOP remained acceptable, but then progressively increased. TRAVATAN (Travoprost) was attempted, but he presented with a third round of CME. Definitive conclusions about causal relationships cannot be made without well-designed, prospective clinical trials addressing this issue.


+ LinkOut - more resources
Impact of ocular hypotensive lipids on clinically significant diabetic macular edema.

Kresge Eye Institute, Department of Ophthalmology, Wayne State University School of Medicine, Detroit, Michigan, USA.

Abstract
PURPOSE: To study the impact of ocular hypotensive lipids (OHL) on the incidence, progression, and response to treatment of clinically significant diabetic macular edema (CSDME).

METHODS: A total of 379 patients (232 female, 147 male) with a history of diabetes mellitus (DM) and primary open-angle glaucoma (POAG) were identified and included in the study. Patients were stratified into groups based on CSDME development and OHL exposure. Main outcome measures included time to development of CSDME, total duration of OHL exposure, and duration of DM and POAG.

RESULTS: Seven patients (1.8%) developed CSDME after OHL exposure (group 1A), 15 (4.0%) developed CSDME prior to OHL exposure (group 1B), and 197 (52.0%) were treated with OHL but never developed CSDME (group 2). Of patients not exposed to OHL, 22 (5.8%) developed CSDME (group 3) and 138 (36.4%) did not (group 4). Mean duration of DM was longer (p<0.0001) in patients who developed CSDME (20.2 years) compared to patients who did not (12.4 years). There was no difference (p=0.67) in the amount of OHL exposure between patients who developed CSDME (4.1 years) and patients who did not (4.6 years). Once developed, there was no difference in the interval until CSDME resolution between OHL treated (17.8 mo) and untreated (12.7 mo) patients (p=0.36).

CONCLUSIONS: The CSDME development correlated most strongly with the duration of diabetes, irrespective of OHL use. Ocular hypotensive lipids treatment of POAG seems not to affect the incidence, progression, or response to treatment of CSDME in diabetes.
Glaucoma - Prostaglandins

• **Drugs:**
  - latanoprost (Xalatan® and *generic*)
  - travoprost (Travatan-Z ® and *generic*)
  - bimatoprost (Lumigan ® 0.01%)
  - tafluprost (Zioptan ®)

• **How do they compare?**
  - Efficacy
  - Side effects
  - Cost
It’s Back…
Rescula®

- Unoprostone isopropyl 0.15% (BAK)
  - Sucampo Pharmaceuticals

- **Prostone**: believed to activate cellular ion channels that promote fluid secretion & enhance cell protection

- Developed from prostaglandin metabolite
  - Considered a docosanoid with properties that are “principally different” than a prostaglandin
Rescula®

- 2000: FDA approved Rescula as 2nd line glaucoma medication
  - Mid 2000’s – disappeared from market
- December 2012: FDA approved a supplemental application
  - No longer considered a PG analog
  - Called a docosanoid in the prostone family
  - No effect on PG receptors in human TM
  - Potent BK channel activator
  - Increases aqueous outflow through TM
• BID dosing
• Average IOP reduction (from baseline of 24) = 3-4mmHg
• Pts already on timolol
  – Addition of brimonidine 0.2% vs unoprostone 0.15% provided similar efficacy and safety
• Monotherapy brimonidine 0.2% vs unoprostone 0.15%:
  – Brimonidine gave better peak reduction but did not work over a 12 hour period
Rescula®

• Side effects:
  – Decreased hyperemia compared to PGs
  – 1% risk of iris color change (permanent)
  – Low risk of eyelid pigmentation changes
  – Low risk of upper eyelid sulcus deepening

• When it might be used:
  – PG intolerant (hyperemia)
  – brimonidine, CAI, BB contraindications (?)
  – ??? Additive to PG
Glaucoma – beta-adrenergic antagonists (beta blockers)

- **Mechanism of action:** decrease aqueous production
- **Efficacy:** very good (25-30% reduction)
- **Dosing:** once vs twice daily
- **Side effects:**
  - Minimal ocular side effects
  - **Systemic:**
    - Bradycardia
    - Bronchial constriction
  - **CHECK EXISTING MEDS, VITALS**
- **Short term escape & long term drift**
Glaucoma – beta blockers

• When to use:
  – First line therapy for patients with contraindications to prostaglandins
  – Need rapid lowering of IOP
  – Cost (generic is cheap)
  – Added drug for prostaglandin users
    • Different mechanism of action

• When to reconsider:
  – Symptomatic bradycardia
  – CHF patient
  – Patient on oral bb (+/-)
Glaucoma – beta blockers

- Available drugs:
  - timolol maleate (Timoptic®, Timoptic-XE ®, generics, Istalol ®)
  - timolol hemihydrate (Betimol ®)
  - levobunolol (Betagan ®)
  - metipranolol (Optipranolol ®)
  - carteolol (Ocupress ®)
  - betaxolol (Betoptic-S ®)
Glaucoma – alpha-adrenergic agonist

- **Mechanism of action:**
  - Decrease in aqueous production
  - Increase in uveoscleral outflow

- **Efficacy:** good (20-25% reduction)

- **Dosing:** tid vs bid

- **Side effects:**
  - **Systemic:**
    - Somnolence
    - Dry mouth
  - **Ocular:**
    - allergy
Glaucoma - brimonidine

- **Allergy:**
  - Original brimonidine ® 0.2% **generic**
    - 30%+ allergy rate
  - Alphagan-P 0.15% (only available in **“generic”** with Polyquad ® preservative)
    - 20% allergy rate
  - Alphagan-P ® 0.1% (Purite ® preservative)
    - 10-15% allergy rate
  - Combigan ® (0.2%, with 0.5% timolol, BAK)
    - 5% allergy rate (?)
  - Simbrinza® (0.2% with 2% dorzolamide, BAK) -- ??? Allergy rate
Glaucoma - brimonidine

• When to use
  – Excellent additivty with prostaglandin
  – Good additivty with beta-blocker
  – Rapid IOP lowering (esp in combo)
  – Preservative toxicity/allergy
  – Category B pregnancy (D/C in breastfeeding)

• When to reconsider
  – Monotherapy (dosing)
  – Hx of allergy (any form of brimonididine)
  – CHILDREN (contraindication)
Apraclonidine (Iopidine)

- Alpha-agonist (less alpha-2 selective than brimonidine)
- Excellent and rapid decrease in IOP
- Not effective long term (tachyphylaxis)
- Used pre- and post-laser to decrease risk of IOP spike
Glaucoma – carbonic anhydrase inhibitors

- **Mechanism of action:** decreased aqueous production
- **Efficacy:** excellent (oral – 40-50%+); good (topical – 15-20%)
- **Dosing:** bid – tid (topical)
- **Side effects:**
  - **Topical:**
    - Bitter taste
    - Stinging
    - Hyperemia
    - Corneal endothelium
Glaucoma - CAIs

• **When to consider topicals:**
  - Good addition to prostaglandin
  - Brimonidine allergy

• **When to avoid:**
  - Fuchs corneal endothelial dystrophy
  - Pregnancy
  - Sulfa allergy (???)

• **Available:**
  - Dorzolamide (Trusopt® and *generic*)
  - Brinzolamide (Azopt®)
  - dorzolamide/timolol (Cosopt® and *generic*)
  - dorzolamide/brinzolamide (Simbrinza®)
**Glaucoma - acetazolamide**

- Typically used in emergency/acute situations rather than long term due to systemic side effects:
  - Paresthesia
  - Kidney stones
  - Metabolic acidosis
  - Blood dyscrasia

- Typical use:
  - Post-surgical IOP elevation – 500mg (two 250mg tabs)
  - Acute angle closure (NON-PUPILLARY BLOCK ONLY – DO NOT USE IN TOPAMAX ANGLE CLOSURE!!!!!!)
  - Extremely elevated IOP

- Dosing for chronic use:
  - 250 mg tablets qid
  - 500 mg time-released capsules (Sequels ®) bid
Glaucoma - pilocarpine

• **Mechanism of action:**
  - In open angle: increase trabecular outflow
  - In angle closure: mechanism to relieve pupillary block by decreasing iris-lens contact

• **Efficacy:** good (25%)

• **Dosing:** qid

• **Side effects:**
  - Accommodative spasm
  - Browache
  - Bronchial constriction

• **Use:** acute angle closure (low concentration)
Fixed Combination Medications

- dorzolamide/timolol (Cosopt® and generic; Cosopt PF®)
  - Bid dosing
- brimonidine/timolol (Combigan®)
  - 5% allergy rate
  - Bid dosing
- brinzolamide/brimondine (Simbrinza®)
  - First non-beta blocker fixed combination
  - BAK-preserved
  - TID dosing
Simbrinza®

- brinzolamide 1%, brimonidine 0.2% suspension (BAK)
- FDA approved for glaucoma
- Contraindications:
  - Known sensitivity to one of the components
  - Neonates and children under 2 years old
- Warnings/cautions:
  - Sulfa allergy
  - Low corneal endothelial cell count
  - Children 2-7 years old
Pivotal Clinical Trials - Simbrinza®

FIG. 1. Percent reduction in mean intraocular pressure (IOP) from the baseline visit to the 3-month visit across treatment groups and time points.
Generic Options

• latanoprost –or- travoprost
• timolol maleate
• brimonidine 0.15% -or- 0.2%
• dorzolamide
• (dorzolamide/timolol)

Generic MMT:
• Latanoprost or travoprost
• Brimonidine 0.15% or 0.2%
• Dorzolamide/timolol combo
Ophthalmic Formulations
Equivalence and Patient Care

In the next several years, most glaucoma medicines will be available as generic formulations. Learn how this development will affect patient care.

This continuing medical education activity is jointly sponsored by the Dalenay Foundation and Advanced Ocular Care.
To gain FDA approval, a generic drug must:
- Contain the same *active* ingredient
- Be identical in strength, dose form, and route of administration
- Be bioequivalent (80-120% of branded product)
  - Not the same thing as therapeutic effect
- Have the same indications for use
- Meet the same batch requirements for identity, strength, purity, and quality
- Have a similar shelf life
• We don’t know about:
  – Loss of control with long term use
  – Tolerability
  – Efficacy
• Multiple companies can make a generic; differences may not be apparent on bottle
• Cannot know for sure which company the pharmacy will have
• Patient’s confidence in generics varies
• Somewhat difficult to understand efficacy due to slow nature of disease
How Do We Deal with Generics in Glaucoma?

• Research cost savings for patients
  – www.fingertipformulary.com
  – www.goodrx.com

• Early glaucoma
  – Monitor more closely with generics, more frequent visits

• Mod/severe glaucoma
  – If loss of control for even a short time is undesirable, continue to write “dispense as written”
Welcome back, Dr. Danica Marrelli
My Profile | My Drug List | My Health Plan | Sign out

Fingertip Formulary® iPhone App
Now Available!

Free access to the industry's leading, real-time formulary information from your iPhone, iTouch, or iPad with the touch of a button!

Add Fingertip Formulary to your:

- [ ] iPhone
- [ ] Blackberry
- [ ] Palm & PocketPC

Select Drug

Select Letter

Find drugs alphabetically.
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BAK-free Options

- Timoptic PF®
- Travatan-Z ® (BRAND ONLY) - or - Zioptan ®
- brimonidine 0.15% - or - Alphagan-P ® 0.1%
- Cosopt PF®

BAK-free MMT:
- Travatan Z (Brand) or Zioptan
- Brimonidine 0.15% or 0.2%
- Cosopt PF
Preservative-free Options

- Timoptic PF ®
- Zioptan ®
- Cosopt PF ®

- Preservative-free MMT
  - Cosopt PF
  - Zioptan
Therapeutic Questions

1. Is patient using drug?
2. Is patient tolerating drug?
3. Is there a therapeutic effect?
4. Am I reaching target IOP?
TYPICAL DRUG STEPPING

• Start with PGA
  – If good therapeutic effect but NOT reaching target, add timolol, brimonidine, or topical CAI
    • If good therapeutic effect with 2nd drug but still NOT reaching target, switch 2nd drug to combo
  – If PGA not having a good therapeutic effect
    • Consider non-adherence; re-try for another month
    • Consider switch to branded if using generic
    • Consider switching class (BB)
      – Can easily switch BB to combo if need additional therapy
  – If multiple meds don’t work - COMPLIANCE
Another thought…

• Start with PGA
  – If therapeutic effect and CLOSE TO target but not quite there…
    • Discontinue PGA and try BB
    • Switch BB to combo – this would avoid 2\textsuperscript{nd} bottle
Initiate PGA

- **THERAPEUTIC EFFECT**
  - Reaching target IOP
  - Reaching target IOP

- **NOT REACHING TARGET**
  - ADD TIMOLOL –or– CAI –or– BRIMONIDINE
  - SWITCH TO DIFFERENT SECOND LINE

- **NO THERAPEUTIC EFFECT**
  - SWITC TO COMBO
  - NON-COMPLIANCE
Initiate PGA

NO THERAPEUTIC EFFECT

NO THERAPEUTIC EFFECT

MORE TIME – OR
SWITCH IN CLASS
(NON-GENERIC)

THERAPEUTIC EFFECT

SWITCH TO COMBO

NOT REACHING TARGET

SWITCH CLASS (i.e.
BETA BLOCKER)

THERAPEUTIC EFFECT

NON-COMPLIANCE

FOLLOW PREVIOUS FLOW CHART

Non-compliance

Reaching target IOP

NOT REACHING TARGET
Medical Management of Acute Angle Closure

• FIRST – assess type of angle closure
  – Pupillary block?
  – Non-pupillary block?
    • Bilateral: Think medication-induced. VERY DIFFERENT MANAGEMENT than primary angle closure with pupillary block
Medical Management of Acute Angle Closure – Pupillary Block

- Aqueous suppressants:
  - Timolol
  - Brimonidine or apraclonidine
  - Carbonic anhydrase inhibitors
    - Typically oral acetazolamide 500mg (not sequels)

- Pilocarpine (low dose)

- Oral hyperosmotic agents

- Compression gonioscopy
Medical Management of Acute Angle Closure (Pupillary Block)

• Once attack is broken:
  – Pilocarpine 1% qid OU
  – Topical steroid
  – Quiet eye before iridotomy OU
Medical Management – AAC medication-induced

- Mechanism of action is NOT pupillary block
- Miotic therapy will worsen the shallowing of the angle
- Carbonic anhydrase inhibitors will worsen the condition
- Utilize aqueous suppressants (other than CAI), steroid, and CYCLOPLEGIC agents
- D/C offending medication
EXAMPLE 1

• 55yo healthy AAM with moderate/severe POAG
  – Highest IOP 28mmHg
  – Target 40% reduction (<17mmhg)
  – Excellent insurance coverage, not concerned about cost
  – First choice?
EXAMPLE 1

• First choice branded PGA
  – Returns 1 month
    • Using medication consistently
    • C/O moderate redness, tolerable
    • IOP 14mmHg

  – What now?
EXAMPLE 1

• First choice branded PGA
  – Returns 1 month
    • Using medication consistently
    • C/O moderate redness, tolerable
    • IOP 22mmHg

– What now?
EXAMPLE 1

• First choice branded PGA
  – Returns 1 month
    • Using medication consistently
    • C/O moderate redness, tolerable
    • IOP 22mmHg

– What now?
  • Therapeutic Effect? YES
  • Meeting target? NO
EXAMPLE 1

• First choice branded PGA
  – Returns 1 month
    • Using medication consistently
    • C/O moderate redness, tolerable
    • IOP 22mmHg

– What now?
  • Add BB, brimonididine, or topical CAI
EXAMPLE 1

• NOW on branded PGA, topical CAI
  – Returns 1 month
    • Using both medication consistently
    • No complaints
    • IOP 18mmHg

– What now?
EXAMPLE 1

• **NOW on branded PGA, topical CAI**
  – Returns 1 month
    • Using both medication consistently
    • No complaints
    • IOP 18mmHg

  – What now?
    • Therapeutic Effect? YES
    • Meeting Target? NO
EXAMPLE 1

• NOW on branded PGA, topical CAI
  – Returns 1 month
    • Using both medication consistently
    • No complaints
    • IOP 18mmHg
  
  – What now?
    • Switch topical CAI to either Cosopt (branded, generic or PF) – OR - Simbrinza
EXAMPLE 2

• 55yo healthy AAM with mild POAG
  – Highest IOP 28mmHg
  – Target 30% reduction (<20mmHg)
  – Excellent insurance coverage, not concerned about cost
  – First choice? SAME: Branded PGA
EXAMPLE 2

• Returns for 1 month progress
  – Using medication consistently
  – C/O red eyes, tolerable
  – IOP: 21mmHg

  – What now?
EXAMPLE 2

• Returns for 1 month progress
  – Using medication consistently
  – C/O red eyes, tolerable
  – IOP: 21mmHg

  – What now?
    • THERAPEUTIC EFFECT? YES
    • REACHING TARGET IOP? NO (CLOSE)
EXAMPLE 2

• Returns for 1 month progress
  – Using medication consistently
  – C/O red eyes, tolerable
  – IOP: 21mmHg

– What now? TWO CHOICES:
  • ADD BB, brimonidine, or topical CAI  ---OR---
  • SWITCH to BB
    – May hit target with BB alone; if not, can easily switch to combo with one bottle meds
EXAMPLE 3

• 55yo hypertensive AAM with moderate/severe POAG
  – Uses atenolol for HTN
  – Highest IOP 28mmHg
  – Target 40% reduction (<17mmHg)
  – Excellent insurance coverage, not concerned about cost
  – First choice?
EXAMPLE 3

• 55yo hypertensive AAM with moderate/severe POAG
  – Uses atenolol for HTN
  – Highest IOP 28mmHg
  – Target 40% reduction (<17mmHg)
  – Excellent insurance coverage, not concerned about cost
  – First choice?

  – SAME AS CASE 1 except no topical BB
Thank you for your attention!

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