Supplement to

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CME Activity

Managing Ocular Pain and Inflammation After Cataract Surgery: Differentiating Among the Nonsteroidal Antiinflammatory Drugs

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CONTENT SOURCE

This continuing medical education (CME) activity captures content from a live symposium held in October of 2016 in Chicago, Illinois.

TARGET AUDIENCE

This certified CME activity is designed for ophthalmologists involved in the comanagement of postoperative cataract patients.

LEARNING OBJECTIVES

Upon completion of this activity, the participant should be able to:

- Describe the pharmacokinetic properties of the bromfenac molecule
- Assess the ability of topical ophthalmic NSAIDs to treat postoperative inflammation and pain in a cataract patient
- Analyze the safety profile of the bromfenac molecule
- Discuss the obstacles patients face in compliance and adherence
- Develop a plan to communicate compliance obstacles with patients

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NSAIDs and Cataract Surgery: Choosing the Right Nonsteroidal Antiinflammatory Drug

By Johnny Gayton, MD

The incidence of cataract surgery has increased, and it is expected to continue to rise.[1] Visual demands are increasing, and because they are, we are going to see more younger people having cataract surgery. The surgery induces the production of prostaglandins and other mediators of inflammation and pain.[2,3] Surgical trauma triggers the release of arachidonic acid from membrane-bound phospholipids, which begins a cascade that generates tissue-specific prostaglandins via activation of cyclooxygenase (COX)-1 and COX-2.[4]

COX-1 and COX-2 are differentially expressed. COX-1 is constitutively expressed, and COX-2 expression is induced by inflammation. Therefore, specifically blocking COX-2 is thought to be the most important mechanism of ophthalmic nonsteroidal antiinflammatory drugs (NSAIDs).[4] Steroids block this inflammatory pathway by inhibiting phospholipase A2 and the subsequent formation of arachidonic acid from the cell membrane. However, steroids have a multitude of effects due to their action on the other pathways downstream of arachidonic acid, leukotrienes/lipoxins, and cytochrome P450. NSAIDs irreversibly block prostaglandin synthesis via inhibition of COX-1 and COX-2 activity.[4,5]

THE EVOLUTION OF FDA-APPROVED OPHTHALMIC NSAIDs

The use of NSAIDs may help clinicians achieve favorable visual outcomes postoperatively. When compared to steroids alone, NSAIDs are associated with more effective control of inflammation, less impact on IOP,[6] and a faster visual recovery.[7] Research has shown that topical ophthalmic nonsteroidals may help prevent the development of postoperative cystoid macular edema.[8] Older versions of the topical formulations were associated with corneal melts, which led to the latest generation of NSAIDs—from ketorolac and diclofenac, to the prodrug nepafenac, and then the halogenated bromfenac.[2]

Unlike nepafenac, bromfenac is an active molecule. Nepafenac is a prodrug that is converted to amfenac.[4] Bromfenac is amfenac with the addition of bromine.[4] Bromine halogenates the molecule, which in turn enhances lipophilicity and tissue penetration, and may enhance the inhibition of COX-2. Bromfenac has more COX-2 inhibitory activity than other NSAIDs and is 10 times more potent than diclofenac and 2.8 times more potent than amfenac in inhibiting COX-1. Bromfenac is 4.1 times more potent than diclofenac and 2.7 times more potent than amfenac in inhibiting COX-2.[9] What this means clinically is that doses can be smaller with the same therapeutic effect.

BROMFENAC PHARMACOKINETICS

A molecule must have a balance of hydrophilicity and hydrophobicity to cross all the layers of the cornea. If a molecule has sufficient lipophilicity to rapidly cross the epithelium, diffusion across the stroma becomes rate limiting. The epithelium is hydrophobic, whereas the stroma is hydrophilic.[10,11] The addition of bromine improves lipophilicity, therefore, increasing the corneal penetration of bromfenac.[10] Amfenac is unable to penetrate the cornea in its active form. Therefore, nepafenac has been designed as a prodrug that can penetrate the cornea, but it must then be converted to amfenac by ocular tissue hydrolases. This primarily occurs in the retina/choroid, followed by the iris/ciliary body. Minimal conversion occurs in corneal tissues,[12] allowing it to penetrate into the aqueous. Interestingly bromfenac is detected in ocular tissues at higher concentrations and for longer than nepafenac. The tissue concentrations of bromfenac are significantly higher in the cornea, the iris-ciliary body, and the aqueous humor. See Figure 1, which illustrates the rapid drop-off of bromfenac as measured at the 12-hour point.[13]

Visual demands are increasing, and because they are, we are going to see more younger people having cataract surgery.

Bromfenac levels in the aqueous humor are relatively long lasting.[9] The combination of amfenac and nepafenac after a period of time is not as great as bromfenac alone. Bromfenac maintains therapeutic levels after cataract surgery for at least 12 hours.[14]

According to a phase 2 pharmacokinetics study on bromfenac,[15]

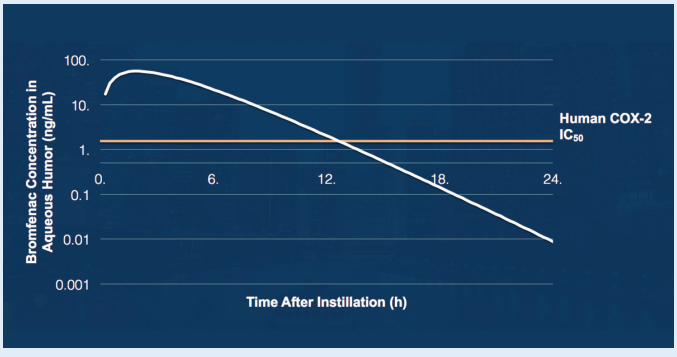

Figure 1. Aqueous humor concentrations of bromfenac may be maintained at therapeutic levels for at least 12 hours.

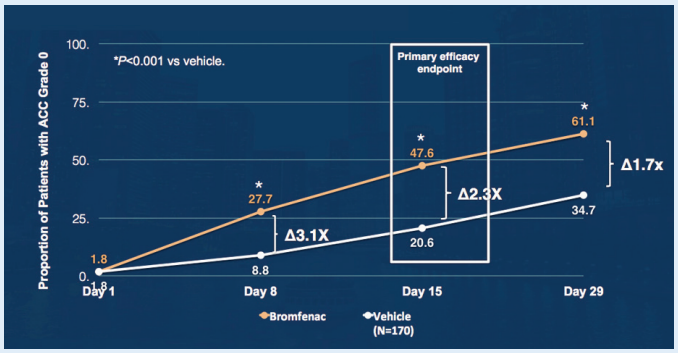

Figure 2. The results show a clear-cut differentiation and separation in the mean ACC grade.

the mean peak aqueous concentrations are much higher in a solution that has a very good vehicle distribution mechanism. These aqueous humor concentrations are better despite concentration differentials. A phase 3 study evaluated the ocular safety, tolerability, and efficacy of topical administration of bromfenac ophthalmic solution 0.075% compared with the vehicle when dosed twice daily beginning 1 day before cataract surgery, the day of surgery, and then continuing for 14 days after surgery.[16] The study consisted of 3 phases: the screening/randomization phase, which was up to 2 weeks before surgery/start of treatment; the dosing phase, which was 16 days of treatment twice daily; and the evaluation phase, which was 14 ±2 days after treatment end. We used a standard randomized 2-to-1 ratio and a 2-week follow-up. The primary endpoint of the phase 3 trial was the proportion of patients with anterior chamber cell (ACC) grade, or inflammation score, of 0 at day 15. The results show a clear-cut differentiation and separation in the mean ACC grade. The endpoints were statistically significant at 8, 15, and 29 days. See Figure 2.

And we see this differentiation, too, with ACC flare. There is a very well-differentiated result in an integrated analysis of patients who had an ophthalmic inflammation score combining both the cell and the flare (Figure 3).

In its current formulation, the bromfenac ophthalmic solution 0.075% prevents pain from developing from day 1. Some patients in the vehicle group will not have significant pain, but some patients do. And this is clearly one of the biggest complaint I get from routine

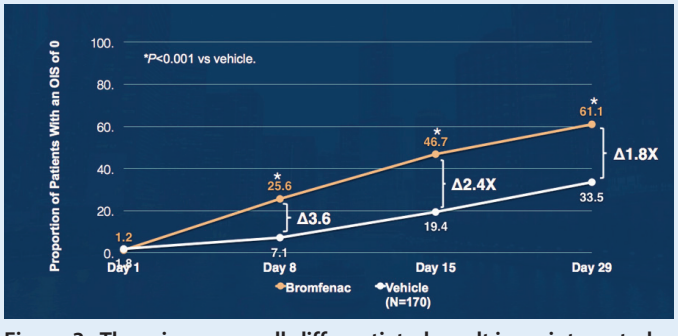

Figure 3. There is a very well-differentiated result in an integrated analysis of patients who had an ophthalmic inflammation score combining both the cell and the flare.

	Bromfenac Ophthalmic Solution 0.075% (N=422) n (%)	Vehicle (N=212) n (%)
TEAEs Leading to Withdrawal	**18 (4.3)**	**22 (10.4)**
Anterior chamber inflammation	4 (0.9)	0
Eye pain	3 (0.7)	5 (2.4)
Iritis	2 (0.5)	5 (2.4)
Cystoid macular edema	1 (0.2)	0
Diplopia	1 (0.2)	0
Eye irritation	1 (0.2)	0
Lens dislocation	1 (0.2)	0
Ocular hyperemia	1 (0.2)	0
Ocular hypertension	1 (0.2)	0
Photophobia	0	4 (1.9)
Eye inflammation	0	3 (1.4)
Anterior chamber cell	0	1 (0.5)
Anterior chamber flare	0	1 (0.5)
Conjunctival hyperemia	0	1 (0.5)
Corneal disorder	0	1 (0.5)
Corneal edema	0	1 (0.5)
Corneal opacity	0	1 (0.5)
Ocular discomfort	0	1 (0.5)
Punctate keratitis	0	1 (0.5)

Figure 4. The safety profile for bromfenac as compared to the vehicle does not show a huge differential in the number of significant adverse events, let alone routine adverse events.

cataract patients. They complain of irritation, pain, and photophobia. Many of these patients are less likely to use rescue therapy.[17] The safety profile for bromfenac as compared to the vehicle does not show a huge differential in the number of significant adverse events, let alone routine adverse events (Figure 4). The vast majority of these issues were very mild to moderate significant events. For me, another highlight was that the results also found no significant corneal issues.

Topical NSAIDs typically have a slight amount of idiosyncratic response on the ocular surface. As Figure 4 illustrates, there were virtually no statistical differences between the two groups. The differences in ocular hypertension showed a statistical deviation, but patients do not have any predisposition to IOP elevations. Serious adverse events were deemed unrelated to the topical NSAID. For a wide variety of treatment-related adverse events, there is clearly no difference between the groups. Additionally, there are fewer complaints of photophobia when NSAIDs are used.

That observation is significant because these patients are leaving the operating room dilated, yet have a faster improvement in their visual acuity than patients who do not receive NSAIDs. Why is this? I think that topical NSAIDs are an essential component to normalizing retinal thickness (I understand that this is an unproven theory).

Bromfenac effectively penetrates ocular tissues. The polycarbophil DuraSite vehicle in which bromfenac 0.075% is encased slowly releases the bromfenac in a uniform fashion over the surface of the eye. This results in a significant reduction in both pain and inflammation, and this may enhance patient satisfaction.

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17. Data on file. Integrated summary of safety. InSite Vision, Inc.

Bromfenac is homogeneously distributed over the tear film into the cul-de-sac and over the entire ocular surface allowing very favorable pharmacokinetics.

Creating the Extended-Release Drug Delivery Vehicle

By John Sheppard, MD, MMSc

Polycarbophil, edetate disodium dehydrate, and sodium chloride have been combined in an extended-release drug delivery vehicle that is ideally suited to the ocular surface. Typically only 1% to 7% of the active pharmaceutical in a topical concoction will reach the aqueous humor.[1,2]

Tear turnover, blinking, nasolacrimal drainage, evaporation, and pure dilutional effects result in the overwhelming majority of any topical drop not reaching the aqueous humor. Pharmaco-physiologic factors mandate that topical ocular drops be around 50 microliters, and the cul-de-sac of the ocular surface only holds 30 microliters.[2] With standard eye drop therapy, peaks and troughs are common, if not obligatory. The predosed trough levels will be below the therapeutic range between drop administrations.

Polycarbophil has pores that sequester drug particles and slowly releases them over an extended period.[3] When bromfenac is used with a polycarbophil, edetate disodium dehydrate, and sodium chloride polymer, these micropores expand when they are exposed to the electrolytes in the aqueous content of the tears, and as they expand, they release the nonsteroidal antiinflammatory drug (NSAID) in a sustained manner. As the pore size increases, there is a continued homogeneous delivery of bromfenac that mitigates these peaks and troughs. The Cmax, the Tmax, and the area under the curve are greatly enhanced by this sustained-release delivery system when given a similar dose of the same medication without the polymer vehicle in a rabbit or an animal model. See Figure.

The polycarbophil, edetate disodium dehydrate, sodium chloride DuraSite vehicle uniformly coats epithelial surfaces and allows a sustained-release delivery of the bromfenac molecule into the eye. Bromfenac is, therefore, homogeneously distributed over the tear film into the cul-de-sac and over the entire ocular surface allowing very favorable pharmacokinetics. In fact, the aqueous humor concentration is nearly 4 times higher, the area under the curve is over 2 times greater, and the Tmax peaks over 4 times longer than the equivalent single dose of just bromfenac.[4]

Polycarbophil, edetate disodium dehydrate, and sodium chloride (as DuraSite) was introduced about 20 years ago. It has been used in other ophthalmic formulations and was initially used as an ocular lubricant. DuraSite was first used with azithromycin and then besifloxacin, and introduced commercially. This experience increased our understanding of the value of a sustained-release delivery antibiotic on the ocular surface. With bromfenac 0.075% in DuraSite, clinicians

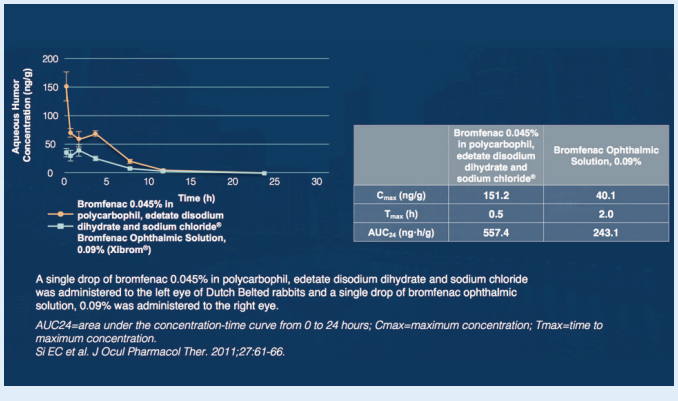

Figure. The Cmax, the Tmax, and the area under the curve are greatly enhanced by this sustained-release delivery system when given a similar dose of the same medication without the polymer vehicle in a rabbit or an animal model.

now have a topical delivery system that is able to bring better control of pain and inflammation in the cataract population.[5]

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NSAIDs and Cataract Surgery: Where Are We Going?

By John Wittpenn, MD

Cataract surgeons use the nonsteroidal antiinflammatory drug (NSAID) class to prevent cystoid macular edema (CME). Fortunately, clinical CME is a relatively rare outcome. However, one of a cataract surgeon's primary concerns should be macular thickening. Cataract surgery results in some degree of macular thickening in a significant number of patients, and the thicker a patient's macula becomes during the postoperative period, the worse the patient's contrast sensitivity becomes.[1]

A 2015 paper by the American Academy of Ophthalmology (AAO) Ophthalmic Technology Assessment Committee Retina/Vitreous Panel reviewed the available evidence on the effectiveness of prophylactic topical NSAIDs in preventing vision loss from CME after cataract surgery.[2] The group opted to review and determine if NSAID use in a postoperative cataract population affected Snellen visual acuity (VA) at 3 months.[2] Of the 12 articles that met inclusion criteria of evaluating CME postoperatively, none of the studies found NSAIDs had a deleterious effect on long-term Snellen VA outcomes, but they did not make any attempt to assess long-term loss of contrast sensitivity. As CME itself may be self-limiting, numerous patients will not need any treatment to resolve the CME, according to the AAO panel.[2]

Anecdotally, however, cataract surgeons report that patients who develop CME may recover to 20/20 or 20/25, but they will complain about the poor quality of vision in that eye and severely decreased contrast sensitivity. But because good Snellen VA is achieved, most studies, regrettably, do not evaluate the ramifications of poor contrast sensitivity of visual function after CME.

CME PREVENTION STUDY

My colleagues and I conducted a CME prevention study that was presented at AAO in 2006.[1] We wanted to determine if the addition of ketorolac 0.4% plus steroid conferred any advantage in preventing macular thickening or CME in patients undergoing routine cataract surgery as compared to steroids alone. There were 14 centers involved, and it was a randomized, investigator-masked, multicenter clinical study.

Our outcome criteria were: Optical coherence tomography (OCT) changes, final VA, contrast sensitivity, and adverse events. It is important to note that final VA was not a primary endpoint, but a secondary one. For this study, it was imperative patients have no additional ocular comorbidities and have a healthy retina. Also, inclusion in the study required uneventful surgery and no excessive inflammation on postoperative day 1. These strict inclusion criteria resulted in a much smaller patient group to evaluate, which accounts for the length of our enrollment period. Ultimately, however, 546 patients met all the inclusion criteria. As determined by a masked evaluator who read all the OCTs, there was a statistically significant difference both in definite and in possible CME. Figure 1 illustrates the difference in outcomes when comparing an NSAID plus steroid to a steroid alone for postoperative CME prophylaxis.

In a healthy eye with uneventful cataract surgery, there is a small risk of developing clinically significant CME—around 2% in our study.[1] Bearing in mind the AAO panel found most cases of CME resolved and Snellen VA returned to normal, each clinician performing cataract surgery must determine if the time and cost of the NSAID weighs favorably against the risk. Figure 2 shows patients who develop CME as determined by OCT have an increased retinal thickening of almost

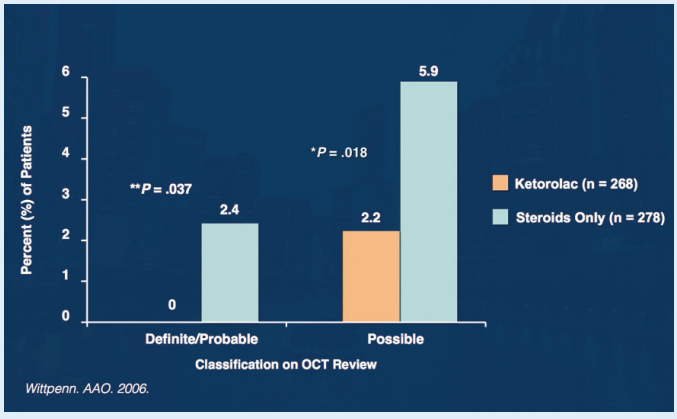

Figure 1. The difference in outcomes when comparing an NSAID plus steroid to a steroid alone for postoperative CME prophylaxis.

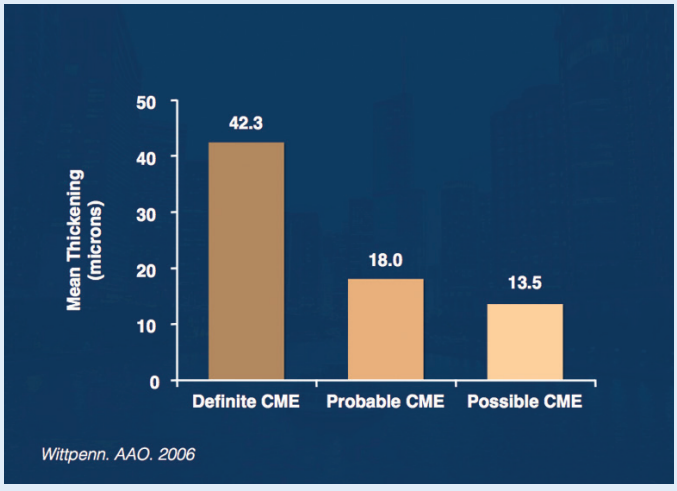

Figure 2. Patients who develop CME as determined by OCT have an increased retinal thickening of almost 20 µm compared to those with probable or possible CME.

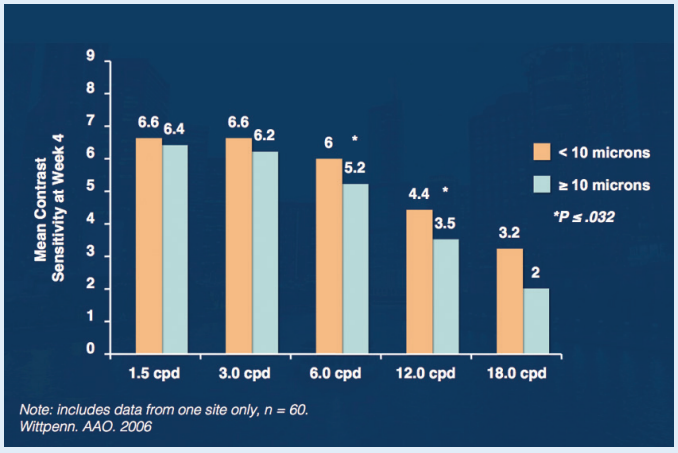

Figure 3. Patients with less than 10 µm of retinal thickening had significantly better contrast sensitivity than patients with greater than or equal to 10 µm of thickening.

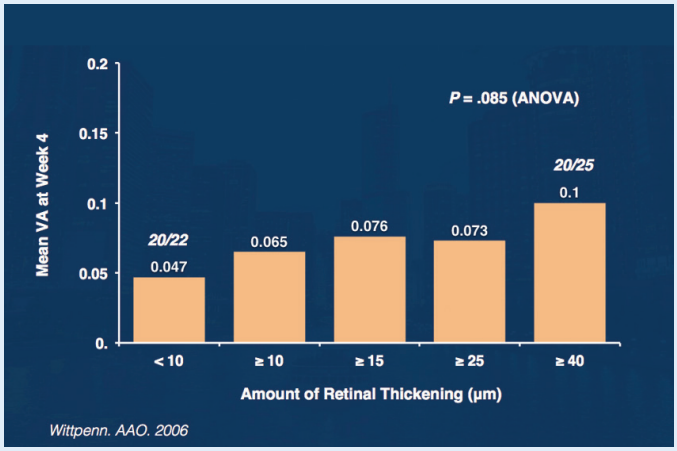

Figure 4. An increase in retinal thickening may also result in lower Snellen VA.

20 µm compared to those with probable or possible CME.

A 2012 meta-analysis of 37 articles published on ketorolac and CME[3] confirmed our 2006 findings. By 2012, ketorolac was the primary NSAID used by ophthalmic surgeons. In our study,[1] the statistical probability of detecting the correct result was 53% when using CME as the clinical endpoint. But, as noted earlier, CME tends to resolve—it is the macular thickening that leaves these patients with poor visual outcomes despite the Snellen acuity. We found patients using ketorolac/steroid were significantly more likely to have less than 10 µm of retinal thickening than patients using steroid alone ($P < .001$). In our study, patients with less than 10 µm of retinal thickening had significantly better contrast sensitivity than patients with greater than or equal to 10 µm of thickening ($P \leq .032$). See Figure 3.

Figure 4 shows the correlation between retinal thickness and VA, confirming a trend indicative that an increase in retinal thickening may also result in lower Snellen VA.

While our findings were not statistically significant, we attributed that to the low number of patients enrolled. To achieve a statistical significance, we likely would have needed closer to 600 patients.

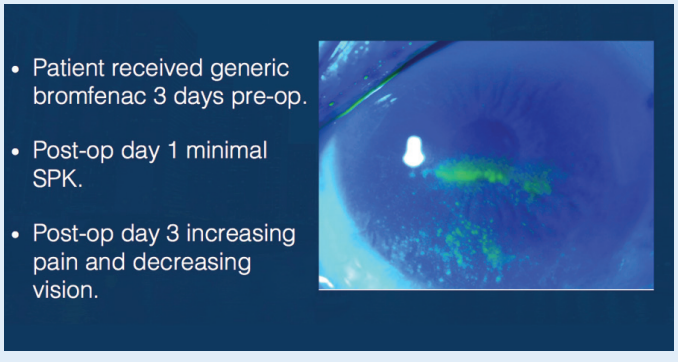

Figure 5. This patient was switched at the pharmacy to a generic version of prednisolone acetate and ketorolac; 2 weeks postoperatively, the patient's vision had declined to 20/150.

Other unpublished studies found similar results. Mathen and Nair[4] evaluated macular thickening after cataract surgery in ketorolac plus steroid versus steroid alone. At week 8, the addition of ketorolac to the steroid reduced postoperative increases in central foveal thickness by almost half. In summary, ketorolac 0.4% used four times a day in conjunction with a steroid reduces the amount of retinal thickening, reduces the incidence of CME, improves contrast sensitivity, and possibly improves VA. At the European Association for Cataract and Refractive Surgery meeting in October 2013, Zaczek et al looked at the nepafenac 0.1% plus 0.1% dexamethasone three times a day versus dexamethasone 0.1% three times a day alone. The group found a statistically significant reduction in macular thickening with the combination of nepafenac and steroid treatment as well.[5]

THE ROLE OF GENERICS

By 2011, generic ketorolac had entered the market, but they were not equal concentrations to the branded versions. As we have heard earlier, without proper formulations, topical drugs have difficulty penetrating the ocular surface. Figure 5 shows a patient who had been switched at the pharmacy to a generic version of prednisolone acetate and ketorolac; 2 weeks postoperatively the patient's vision had declined to 20/150.

Ophthalmic NSAIDs are not interchangeable, and even less so between generic and branded versions.

CONCERNS OVER DOSING

Both nepafenac 0.3% and bromfenac 0.7% have once-a-day indications. There are currently no published studies to indicate that dosing is sufficient to prevent CME. Most of the published studies use three- or four-times daily dosing regimens. Figure 6 illustrates trough effects.[6]

Ketorolac 0.4% dosed four times a day resulted in lower PGE2 levels in the anterior chamber measured at trough (6 hours after dosing) than bromfenac 0.09% dosed twice a day measured at trough (12 hours after dosing).[6] Comparison of ketorolac 0.4% to nepafenac 0.1% three times a day also showed lower trough levels of PGE2 for the patients receiving the ketorolac.[7] Our group evaluated bromfenac 0.09% twice

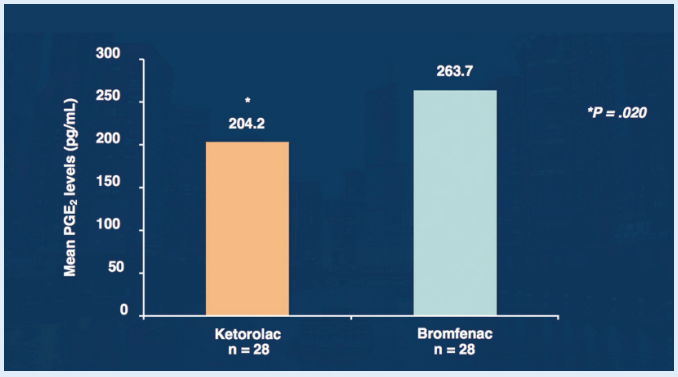

Figure 6. Trough effects of nepafenac 0.3% and bromfenac 0.09%.

Figure 1. A 61-year-old woman with diabetes, high myopia, glare, and cortical cataracts.

daily and found a mean retinal thickening of 7.6 µm as measured on OCT in 50 normal patients undergoing cataract surgery (unpublished data).

For those cataract surgeons, there is a role for NSAIDs. What still remains debatable are the optimal dosing schedules and the differences between branded and generic formulations. Finally, it is critical to differentiate the information we know based upon careful clinical studies versus information we assume to be true based upon our suppositions, especially as it pertains to NSAIDs and cataract surgery.

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Case Studies

By John Sheppard, MD, MMSc

We know there are several risk factors for patients undergoing cataract surgery that puts them at a higher risk for complications. Among those risk factors are diabetes mellitus, floppy iris syndrome, corneal disease, uveitis, and pseudoexfoliation glaucoma. In the diabetic patient, I recommend using nonsteroidal antiinflammatory drugs (NSAIDs) for 5 to 6 weeks postoperatively.

In today's world, NSAID therapy after cataract surgery has become the standard of care. Our patients are changing as well—with the increasing demand for premium cataract surgery, torics, multifocals, and accommodating lenses, patients expect and demand better results.

CASE NO. 1

This case is a 61-year-old woman with diabetes, high myopia, glare, and cortical cataracts (Figure 1). In this case, we need to treat macular edema first, followed by cataract removal. This is a case where a postoperative regimen of NSAIDs is not only warranted, but essential. Because of the patient's ocular comorbidities, we want to use an NSAID that will have the greatest concentration and the highest penetration rate, without risk of elevated IOP.

CASE NO. 2

In the second case, the patient presented with typical quiescent uveitis (Figure 2). Patients with even a remote history of uveitis or trauma are clearly at risk for accelerated postoperative uveitis. Damage has generally occurred to the blood-aqueous barrier that may reactivate even after long dormant periods. Synechiae and anterior capsular pigment are sure signs that trouble awaits. During the surgery itself, it is likely a Malyugin ring or iris retractors will be needed. It is also very likely there will be iris trauma. These are patients who are likely going to need additional postoperative inflammatory control beyond the typical 14 days. I recommend prescribing NSAIDs and steroids for a longer period of time.

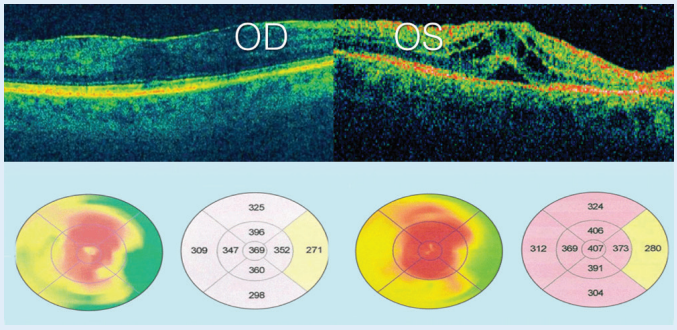


Figure 2. Patient with typical quiescent uveitis.

CASE NO. 3

A 59-year-old executive with significant nuclear sclerotic glare is unable to drive at night. In the absence of significant corneal or macular pathology, exquisite outcomes are expected, particularly in the context of a cash pay procedure. Patients receiving multifocal lenses will demand perfect visual outcomes. If clinicians are not already doing so, I recommend evaluating the macula to ensure it is pristine before recommending a multifocal lens. Furthermore, patients undergoing femtosecond laser cataract surgery want the idea of laser

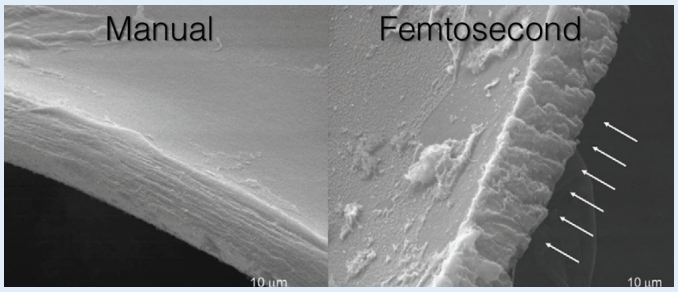
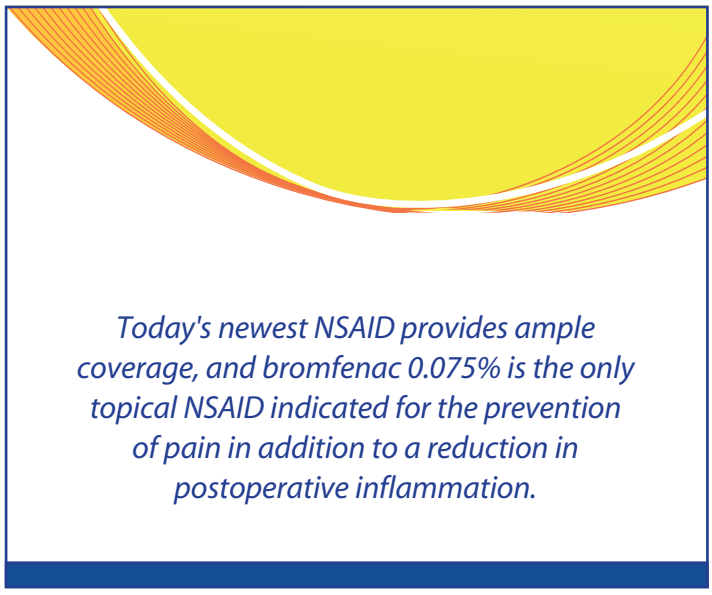


Figure 3. The serrated edge of the femtosecond capsulorhexis compared to a manual continuous curvilinear capsulorhexis incision may be what drives the need for steroids.

surgery. The femtosecond laser will create inflammation during the capsulorhexis; while the corneal wound may have less inflammation. There tends to be more rapid capsular fibrosis in these femtosecond patients that is best controlled with steroids. The serrated edge of the femtosecond capsulorhexis compared to a manual continuous curvilinear capsulorhexis incision may be what drives this need. See Figure 3.

In short, there is a high risk of increased postoperative inflammation in patients with glaucoma,[1] miosis,[2] zonulysis,[3] or a dropped nucleus[4] during the cataract procedure. Postoperatively, patients are at a high risk during the recovery if they have experienced an IOL prolapse, decentration, dislocation, or develop inflammation or glaucoma.[1,5] With the advent of microinvasive glaucoma surgery procedures and devices, I recommend performing concurrent surgery in patients with mild-to-moderate glaucoma.

In my practice, up to 33% of our patients present with Fuchs dystrophy. They need exquisite inflammation control to optimize my ability to reduce injury to the endothelium. Many of these patients are happy at 20/30 without a concomitant corneal transplant. But these patients will require more finesse and are likely to have more surgery and more inflammation—necessitating better postoperative control.



Today's newest NSAID provides ample coverage, and bromfenac 0.075% is the only topical NSAID indicated for the prevention of pain in addition to a reduction in postoperative inflammation.

Today's newest NSAID provides ample coverage, and bromfenac 0.075% is the only topical NSAID indicated for the prevention of pain in addition to a reduction in postoperative inflammation.[6] ■

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MANAGING OCULAR PAIN AND INFLAMMATION AFTER CATARACT SURGERY: DIFFERENTIATING AMONG THE NONSTEROIDAL ANTIINFLAMMATORY DRUGS POST TEST

1 *AMA PRA Category 1 Credit*™ Expires January 2018

1. **Which of the following compounds is a prodrug?**
   a. Nepafenac
   b. Bromfenac
   c. Polycarbophil, edetate disodium dehydrate, sodium chloride
   d. Ketorolac

2. **What are the advantages that bromine confers to bromfenac? Pick all that apply:**
   a. Increases lipophilicity and increases tissue penetration
   b. Decreases lipophilicity
   c. Reduces the inhibition of COX-2
   d. None of the above

3. **What are some of the some of the common complaints that patients have following cataract surgery? Choose all that apply:**
   a. Pain
   b. Irritation
   c. Photophobia
   d. Pruritis

4. **Patients who use bromfenac have less pain and inflammation. What aspect of the product may help facilitate this? Choose two answers:**
   a. Effective tissue penetration
   b. Slow uniform release due to vehicle
   c. Decreased lipophilicity
   d. Increased inhibition of COX-1 versus COX-2

5. **What are the two key issues in patient compliance for patients prescribed bromfenac?**
   a. Dosing frequency and the use of generics
   b. Social and economic factors
   c. The use of generics and adherence
   d. Health care system factors

6. **Which of the following enzymes is induced by inflammation?**
   a. COX-1
   b. COX-2
   c. COX-3
   d. None of the above

7. **What are the key advantages that NSAIDs have over steroids? Pick all that apply:**
   a. Better inflammation control
   b. More impact on IOP
   c. Less impact on IOP
   d. Faster visual recovery

8. **How long can bromfenac maintain therapeutic levels after administration following cataract surgery?**
   a. 10 hours
   b. 5 hours
   c. 2 hours
   d. 12 hours

ACTIVITY EVALUATION

Did the program meet the following educational objectives?	Agree	Neutral	Disagree
Describe the pharmacokinetic properties of the bromfenac molecule	_____	_____	_____
Assess the ability of topical ophthalmic NSAIDs to treat postoperative inflammation and pain in a cataract patient	_____	_____	_____
Analyze the safety profile of the bromfenac molecule	_____	_____	_____
Discuss the obstacles patients face in compliance and adherence	_____	_____	_____
Develop a plan to communicate compliance obstacles with patients	_____	_____	_____

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Name and email: _____

Do you feel the program was educationally sound and commercially balanced? ❒ Yes ❒ No

Comments regarding commercial bias:

_____

_____

Rate your knowledge/skill level prior to participating in this course: **5 = High, 1 = Low** _____

Rate your knowledge/skill level after participating in this course: **5 = High, 1 = Low** _____

Would you recommend this program to a colleague? ❒ Yes ❒ No

Do you feel the information presented will change your patient care? ❒ Yes ❒ No

Please identify how you will improve/change: _____

Change the management and/or treatment of patients. Please specify:

_____

_____

Create/revise protocols, policies, and/or procedures. Please specify:

_____

_____

Please identify the barriers to change.

_____ Cost ___ Lack of consensus or professional guidelines _____ Lack of administrative support _____ Lack of experience

_____ Lack of time to assess/counsel patients _____ Lack of opportunity (patients) _____ Reimbursement/insurance issues

_____ Lack of resources (equipment) _____ Patient compliance issues _____ No barriers _____ Other

Please specify: _____

To help evaluate this CME activity, may we contact you by email in 1 to 2 months to see if you have made this change? If so, please provide your email address below.

_____

_____

Please list any additional topics you would like to have covered in future Evolve Medical Education LLC CME activities or other suggestions or comments.

_____

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