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Cataract & Refractive Surgery Today

ADVANCES IN PATIENT CARE FOLLOWING CATARACT SURGERY

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Advances in Patient Care Following Cataract Surgery

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CONTENT SOURCE

This continuing medical education (CME) activity captures content from a live symposium.

ACTIVITY DESCRIPTION

Despite the routine use of antibiotics, corticosteroids, and NSAID agents in postoperative ophthalmic care, there are no controlled investigations to establish the optimal regimens for topical agents after cataract surgery. The supplement summarizes a live panel discussion on patient compliance with topical medications and how novel, intraoperative approaches to postoperative pain and inflammation help quell these issues.

TARGET AUDIENCE

This certified CME activity is designed for cataract and refractive surgeons.

LEARNING OBJECTIVES

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

- **Explain** the issues related to patient compliance with postoperative topical medications
- **Evaluate** the benefits of delivery of anti-inflammatory medications during cataract surgery
- **Summarize** the drug delivery properties of sustained-release medications
- **Interpret** the latest federal government regulations on reimbursement and how they will affect practices that treat Medicare-eligible patients

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1. **Please rate your confidence in your ability to evaluate the benefits of delivery of anti-inflammatory medications during cataract surgery (based on a scale of 1 to 5, with 1 being not at all confident and 5 being extremely confident).**
   A. 1
   B. 2
   C. 3
   D. 4
   E. 5

2. **A 78-year-old man following cataract extraction with insertion of intraocular lens in the right eye 8 days ago presents for 1 week follow-up. He states his vision is good, but his right eye is uncomfortable. Vision is 20/25+, intraocular pressure is 18 mm Hg. His ocular surface demonstrates 2+ punctate keratopathy, but the cornea is without edema. The anterior chamber examination reveals trace cell and flare. Dilated fundus exam is unremarkable. What is likely contributing to this patient's discomfort?**
   A. Anterior segment inflammation
   B. Ocular surface irritation
   C. Dryness
   D. All of the above

3. **Up to what percentage of patients exhibit improper drop administration?**
   A. 70%
   B. 84 %
   C. 93%
   D. 98%

4. **Methods of sustained-release drug delivery of steroid postcataract surgery include:**
   A. Intracameral, subconjunctival, and slow-release suspension
   B. Intracanalicular, subconjunctival, and slow-release suspension
   C. Intracanalicular, intracameral, and subconjunctival
   D. Intracanalicular, intracameral, and slow-release suspension

5. **Pass-through status based on CMS guidelines may last for how long?**
   A. 5 years
   B. 3 years
   C. 1 year
   D. 6 months

Advances in Patient Care Following Cataract Surgery

Cataract surgery is one of the safest, most effective, and commonly performed surgeries in the United States with 99% of patients having excellent results with no adverse events.[1] Postoperative topical drops to prevent inflammation, lower the risk of infection, and manage postoperative pain are key to good outcomes. However, these complex dosing regimens are challenging for patients to remember, understand, and execute; more than 90% of cataract patients fail to administer eye drops correctly.[2] The more complex the regimen, the less likely patients will successfully adhere to therapy.[3] Clearly, more needs to be done to reduce the postoperative drop burden on patients while maintaining excellent outcomes. Sustained-release ophthalmic drug delivery systems that slow-release steroid products over time have been approved by the FDA.

This supplement summarizes a panel discussion that brought together thought leaders in cataract surgery to discuss how these products may alleviate issues with patient compliance, the drug-delivery properties of the currently available sustained-release medications, and how to interpret federal regulations on reimbursement.

— Cynthia Matossian, MD, Program Chair

THE BURDEN OF EYE DROPS

Cynthia Matossian, MD: Although there is no set standard of care for a drop regimen after cataract surgery, most patients are prescribed a triple therapy consisting of an antibiotic drop to lower the risk of infection, a cycloplegic drop for pain management, and steroids to manage inflammation.[4] Do your patients feel drops are easy to use or are they a hindrance in their daily activities?

John Hovanesian, MD: At Harvard Eye Associates, we are big on surveying patients. We have a system that asks every patient about their surgical experience afterward. About 10% of patients not prompted for a specific answer tell us that eye drops are one of the big downsides of cataract surgery. Challenges include the frequent dosing, side effects like stinging, having to carry their drops wherever they go, and having to remember to administer them 4 times a day in many cases.

Dr. Matossian: My patients say the same thing. Although modern surgical techniques have lowered the rate of inflammation and its subsequent complications,[5] clearly, ocular inflammation exists after cataract surgery.[4,6] The surgical incision, removal of a cloudy lens, and implant insertion create an inflammatory cascade, and patients typically don't often report their discomfort. Instead, surveys on postoperative pain have revealed very interesting information. As ophthalmologists, we don't typically prescribe postoperative pain control medications. Dr. Hovanesian, do you?

Dr. Hovanesian: No, we don't typically need to prescribe them, but a few patients take acetaminophen or ibuprofen.

Dr. Matossian: Exactly, but these patients clearly are experiencing postoperative pain and discomfort.[7,8] Thirty-four percent of patients report eye pain following the first 24 hours of cataract surgery, and 10% report discomfort for as long as 6 weeks after cataract surgery.[7] Although we may feel that cataract surgery is routine and without complications, one-third of patients are reporting eye pain during the initial postoperative period, which may delay recovery and affect patient satisfaction.[9] The definition of discomfort is a feeling of foreign body sensation, dryness, and irritation on the ocular surface. Some of these symptoms may be from the topical medications.

Postoperative drops create a challenge for our patients because it's typically a triple cocktail.[4] Each one is used at a different frequency, and patients need to wait at least 10 minutes between

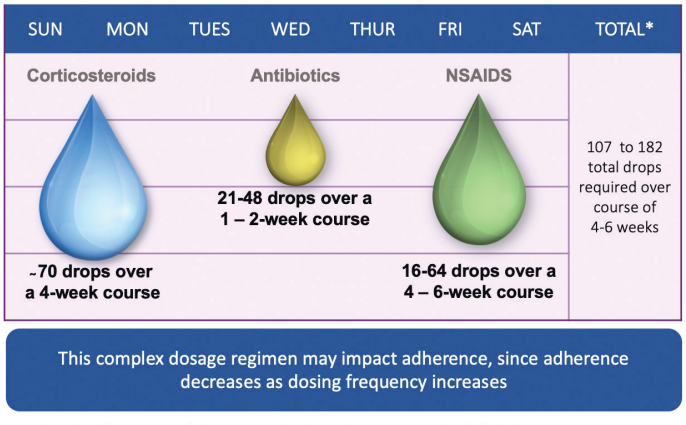


Figure 1. Example postoperative drop regimen for cataract patients.[4]

drops. If they are undergoing cataract surgery on the second eye within a 1- or 2-week period after the first eye, they now have two different sets of drop instructions to follow. On average, this represents about 150 to 200 drops per eye (Figure 1). It becomes inordinately overwhelming for patients and their caregivers. These complex regimens cause confusion, and many patients have difficulty following the instructions.[10,11] Studies have confirmed that the prescribed number of doses a day is inversely rated to complance.[12] Some of my patients tell me the surgery was a breeze, it's the drops that's the problem.

Dr. Hovanesian: Patients cancel vacations. They stay home for a month after surgery because they are afraid of getting their drop regimen wrong.

Dr. Matossian: Exactly. Some of my patients bring in Excel spreadsheets that their son or daughter has created for them, or they have ways of hash marking when they've used their drops.

Cathleen McCabe, MD: I've seen that with the first eye, but when you add the second eye with overlapping regimens, it becomes exponentially more complicated.

Dr. Matossian: I agree. Steroids in the triple cocktail represent the biggest challenge because it's the only one of the 3 that we taper over 4 weeks.[13] Obviously, if a patient has diabetic macular edema or history of macular edema from a central retinal vein occlusion, they're going to stay on steroids and nonsteroidal anti-inflammatory drugs (NSAIDs) for longer. Most patients have difficulty with eye drop self-administration because they've never used drops before unless they have chronic allergies or glaucoma. One study found that about 93% of patients have an improper drop administration technique postoperatively, including missing the eye completely (31.5%), using the incorrect number of drops (64%), contaminating the bottle tip (57.4%), or failing to have proper hygiene before using their drops (77.8%; Figure 2).[2] What are some of the challenges that have been documented about patients and their eye drops?

Dr. McCabe: Drops are not easy to use. They're not easy to remember, and it's difficult to get the drop into the eye itself. You blink, your lash hits the tip of the bottle; there's so many things that happen, even when you're not elderly and you don't have a shake or arthritis.

Dr. Matossian: There are all kinds of challenges.[14] About half of patients finish the administration of eye drops on the first attempt. Some people completely miss their eye. The drop ends up on their eyelid, forehead, or cheek. Some people have difficulty squeezing a bottle because they've had a stroke or tremors from Parkinson's disease.[15] Cataract patients are older and many have cognitive issues. They may forget to put the drop in or forget they already used their drops that day and instill another drop.[10] Now

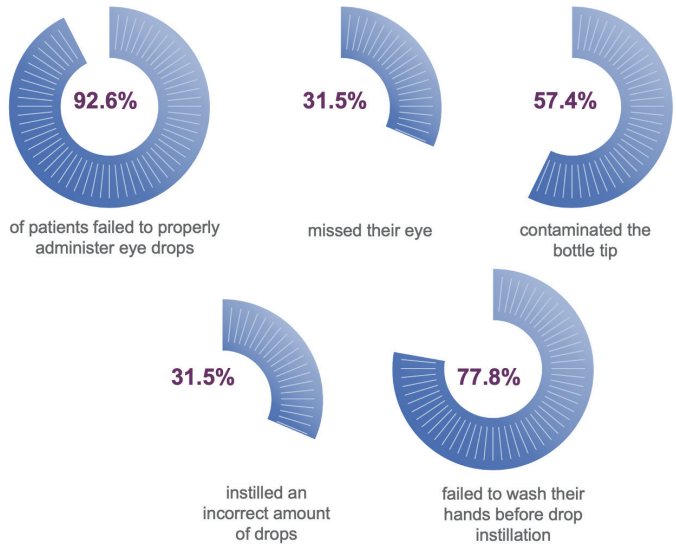


Figure 2. Self-administration issues identified among cataract patients.[2]

they're overdosing instead of underdosing. Complex regimens are associated with poor compliance. Once- and twice-daily regimens are associated with significantly better compliance (73 and 70%, respectively) than three- and four-times daily regimens (52 and 42%, respectively).[16] The burden of drops is real, not just for the patient, but their caregivers as well. It's not as easy as we cataract surgeons believe it is.

SUSTAINED-RELEASE OPTIONS FOR POSTOPERATIVE PAIN AND INFLAMMATION

Dr. Matossian: We are working on reducing the burden of drops after cataract surgery. Fortunately, we have FDA–approved, safe, sustained-release options to manage postoperative pain and inflammation after cataract surgery. The dexamethasone intracanalicular 0.4 mg (Dextenza, Ocular Therapeutix) insert treats postsurgical ocular inflammation and pain for up to 30 days.[17] The dexamethasone intraocular suspension 9% (Dexycu, EyePoint Pharmaceuticals) is for the treatment of postoperative inflammation and is administered into the posterior chamber inferiorly behind the iris at the end of ocular surgery.[18] The loteprednol etabonate ophthalmic suspension 1% (Inveltys, Kala Pharmaceuticals) is also for postoperative pain and inflammation. Patients administer 1 or 2 drops twice daily from postoperative day 1 continuing through the first 2 weeks.[19] These options delivery steroid very close to the target tissue, so it doesn't have to travel far to do its job. They are reimbursed through various insurance channels, and they are kind to the ocular surface.

Dr. Hovanesian: Patients constantly have ocular surface issues with drops. It's one of the biggest barriers to success. We know from the Prospective Health Assessment of Cataract Patients' Ocular Surface (PHACO) study that ocular surface disease is extremely common in the cataract population.[20] In

that observational study of 136 patients, more than 60% had a tear breakup time of ≤ 5 seconds, almost 80% of eyes had positive corneal staining, and 50% of the eyes had positive central corneal staining. The cataract surgery itself and the postoperative topical drops, especially if they contain preservatives, further exasperate the issue.[21,22] Thirty days after surgery, the toxicity of the topical medications builds, causing ocular surface disease and worsening their vision. Many patients come in 3 weeks after surgery saying they aren't seeing well, and they don't understand what happened.

Dr. McCabe: Yes, exactly. They think something happened with the surgery. Their perception is it didn't heal properly or we didn't put in the right lens. It's difficult for patients to really understand that it's the ocular surface that's affecting their vision.

Dr. Matossian: Some of my patients ask me to make sure their lens hasn't shifted or ask if I put the right lens in. They don't have the knowledge to connect the dots that everything went well with surgery, it's the ocular surface that's the issue. Dr. Hovanesian, please tell us a little more about these sustained-release options.

DEXAMETHASONE INTRAOCULAR SUSPENSION 9%

Dr. Hovanesian: If sustained-release drug solutions had been the standard of care before eye drops came along, nobody would use eye drops. It's important for clinicians to understand how the sustained-release medications work and what they can do for your patients. The first product we'll talk about is dexamethasone intraocular suspension 9% that goes intracamerally. This is the only intraocular steroid injection that is FDA approved for cataract surgery. It's a bioabsorbable drug-delivery product that goes inside the eye. Figure 3 shows a where it appears in the anterior chamber. It's not intentionally placed there, but sometimes it ends up there. Patients do well without any sustained trouble, although they can get a little corneal edema at the site of the droplet. Therapeutic levels are maintained for up to 21 days with a single administration.[23,24]

Placing the dexamethasone intraocular suspension 9% in the eye is fairly simple. It's administered as single dose 5 µL bolus behind iris at time of surgery. It's most commonly placed either in the ciliary sulcus or in the capsular bag peripherally. When it's placed, it will generally remain there. The product slowly releases dexamethasone over 30 days. It's a high dose in the beginning and then tapers relatively rapidly. The pearl shrinks away and eventually disappears.[18]

The phase 3 trial included 394 patients randomly assigned to either dexamethasone suspension or placebo.[23] Dexamethasone suspension was placed in the anterior chamber after cataract surgery at concentrations of 342 and 517 µg. The primary outcome was anterior chamber cell (ACC) clearing at postoperative day 8. Patients were followed for 90 days after surgery. Dexamethasone suspension significantly improved the rate of ACC clearing at day 8 compared with placebo (25.0% placebo group and 63.1 and 66.0% of eyes in the 342- and 517-µg treatment groups, respectively [$P < .001$]). Adverse events among the 3 groups were similar, and no serious ocular adverse events were reported up to postoperative day 90.

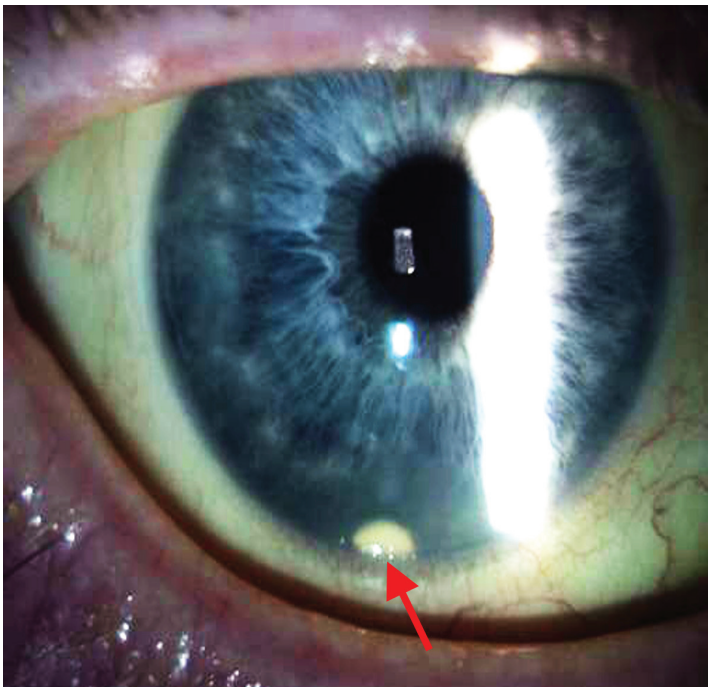
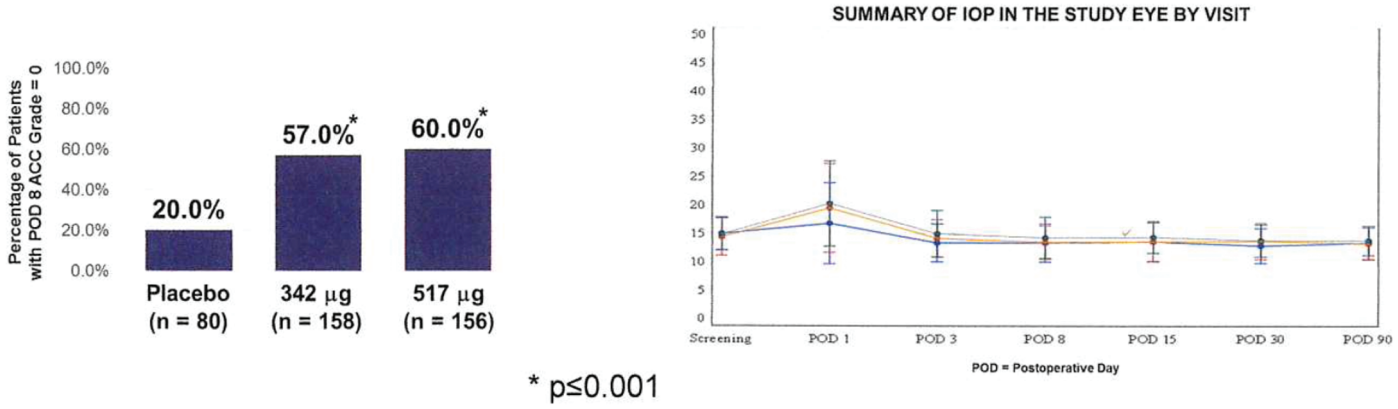


Figure 3. Dexamethasone intraocular suspension 9% implanted in the anterior chamber.

Figure 4 shows a summary of the clinical results, including intraocular pressure (IOP) in the study eye by visit. You can see that the IOP is about the same. It's well documented that steroids can cause spikes in IOP,[25-27] but we haven't seen that happen with these sustained-release products. Why are sustained-release devices different?

Dr. McCabe: When you have a medication that's targeting and directly adjacent to the tissue, you don't need to have as high a concentration. We also have confidence that it's there, that the highest concentration is being used early in the postoperative period, and that it will predictably continually titrate itself as it slowly disappears. We're not so worried about the patient using it wrong, that they're getting too much in, or that they didn't shake the bottle. I've been very pleased with these different methods and the fact that it is predictable; you don't see pressure spikes.

Dr. Matossian: Not shaking the bottle is a good point. Many patients are not shaking the suspension properly and end up with just the vehicle and no medication activity. Toward the end of their regimen, let's say 4 weeks later when the incision has healed, they're suddenly getting a big dose of steroids. In theory, that could be the reason some patients develop that "steroid response." We published a study looking at postoperative



Abbreviations: POD, postoperative day; ACC, anterior chamber cell; IOP, intraocular pressure.

Figure 4. Dexamethasone intraocular suspension 9% clinical results.[23]

IOP spikes after treatment with dexamethasone intraocular suspension 9% versus placebo or topical prednisolone acetate 1%.[28] The suspension was associated with a slightly higher mean IOP at the first postoperative visit versus prednisolone ($P < .05$); however, mean IOP was not statistically different between the 2 groups by postoperative day 8 ($P = .5006$) or thereafter. There were no real spikes; it was consistent with the topical drop profile.

Dr. Hovanesian: Even if the drop bottle is shaken, there's a concentration of drug at the bottom of the bottle. In my experience, the potency of the last drops is 4 times higher than the potency of steroid in the first drops out of the bottle. When you think back to residency, we were taught that pressure spikes with steroids happen 2 weeks after you initiate the drug. Is it really because of timing or is it because the potency of these drugs is going up when we want them to go down? Sustained-release products give us the ability to predictably taper these agents over time.

Dr. Matossian: Patients also find the suspension more convenient than eye drops. A study I coauthored comparing dexamethasone suspension to prednisolone acetate 1% found 68.7% of dexamethasone suspension patients strongly agreed that not using eye drops was very convenient. In the prednisolone group, 39.2% strongly stated they would have preferred dropless therapy.[24]

DEXAMETHASONE INTRACANALICULAR 0.4 MG INSERT

Dr. Hovanesian: Let's talk about dexamethasone intracanalicular 0.4 mg insert, a resorbable insert that delivers dexamethasone for up to 30 days (Figure 5A).[17] It contains no antimicrobial preservatives and is conjugated with fluorescein for visualization. It's placed in the punctum, so the first thing that comes to mind when I think about this is its similarity to a punctal plug. Knowing that many of our patients have dry eye, how can this preservative-free implant that's acting like a punctal plug while releasing drug help our patients?

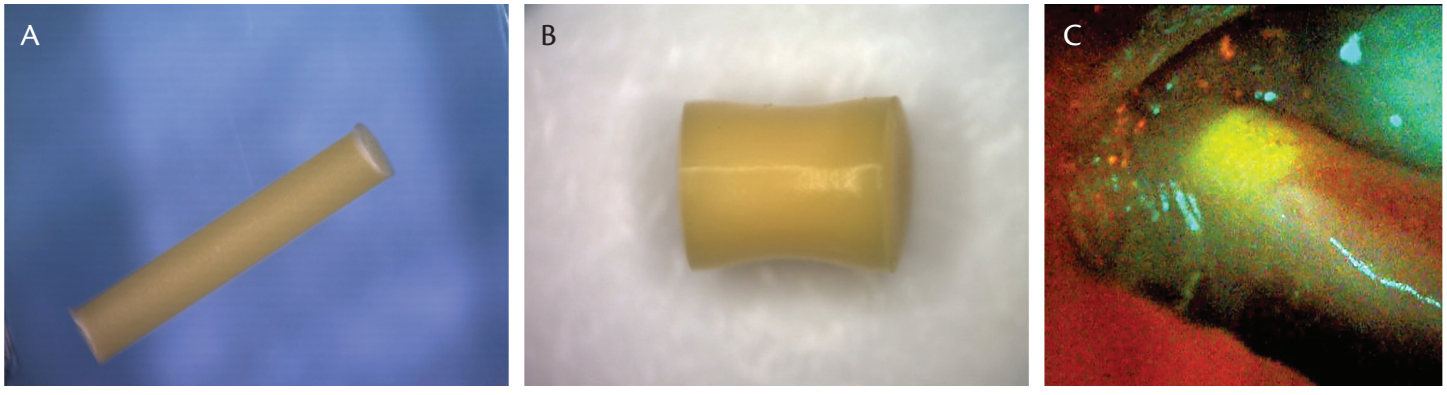


Figure 5. Dexamethasone intracanalicular 0.4 mg insert.

Dr. Matossian: It's actually a 2-in-1 benefit because you're getting the occlusion of the punctum to help the ocular surface while this insert is delivering the steroid to fight inflammation and address postoperative discomfort and pain.

Dr. McCabe: Our premium cataract patients have some degree of dry eye that's increased in the postoperative period, because we have cut through some of the corneal nerves. I tell the patients that they'll be a little bit drier, but this mitigates some of that by allowing their natural tear film and the tears that I'm prescribing for them to sit on the eye a little bit longer.

Dr. Hovanesian: The insert looks a lot like a punctal plug, although it is a bit different. It is about 3 mm long and about 0.5 mm in width when it goes in. It's stiff so it can go directly into the punctum. Once it's hydrated, there's a little more padding to it, which allows it to stay comfortably in the punctum (Figure 5B). The retention rate is close to 99%, and you can actually tell it's there. Sometimes you can see it right through the punctum, but if you can't, how do you visualize it?

Dr. Matossian: You can put the patient at the slit lamp because this intracanalicular insert has a small amount of fluorescein impregnated into its matrix. Using the cobalt blue light at the slit lamp, you can actually see it glow (Figure 5C).

Dr. Hovanesian: It helps even further if you put a yellow filter in front of the viewing part of the slit lamp, so that it really brings out the yellow. It's easiest to do this before the patient has received any fluorescein for a pressure check because fluorescein will flood the eye with more yellow color.

The insert is resorbable. There's no need to remove it; it typically resorbs some point after 30 days, and it delivers a 0.4-mg dose in a tapering fashion for this time. It is not an antibiotic. This is not a replacement for your typical antibiotic prophylaxis after surgery because it gives this tapered dose. We're giving no preservatives, no drops, and we're increasing the tear film in these patients. The PHACO study taught us that 75% of cataract patients have some level of dry eye, but most are unaware because they are asymptomatic.[20] This insert lets us treat the ocular surface disease.

Dr. McCabe: I have plenty of patients who are sensitive to preservatives and benzalkonium chloride is of particular concern.[22] Some patients want every part of their postoperative regimen to be preservative-free, and I don't know of another way of delivering postoperative steroids that's preservative-free for those patients.

Dr. Hovanesian: Yes, that is a great point. The phase 3 studies of the dexamethasone 0.4 mg were double-masked with parallel arms.[29,30] We recruited, 2:1, patients for either the 0.4-mg insert or sham insert. A total of 926 patients were enrolled across more than 50 sites in the United States. The studies looked at safety, efficacy, and tolerability because that's critically important if we're going to have a new product in cataract surgery. The primary outcome measures were absence of pain by day 8 and ACC clearing by day 14.

Figure 6 illustrates these endpoints. A statistically significant difference was noted for both the absence of pain and ACC clearing, save for the ACC endpoint in study 2 (39.4% dexamethasone 0.4 mg vs 31.3% placebo).[29,30] In this study, the placebo group did unusually well with inflammation. Although

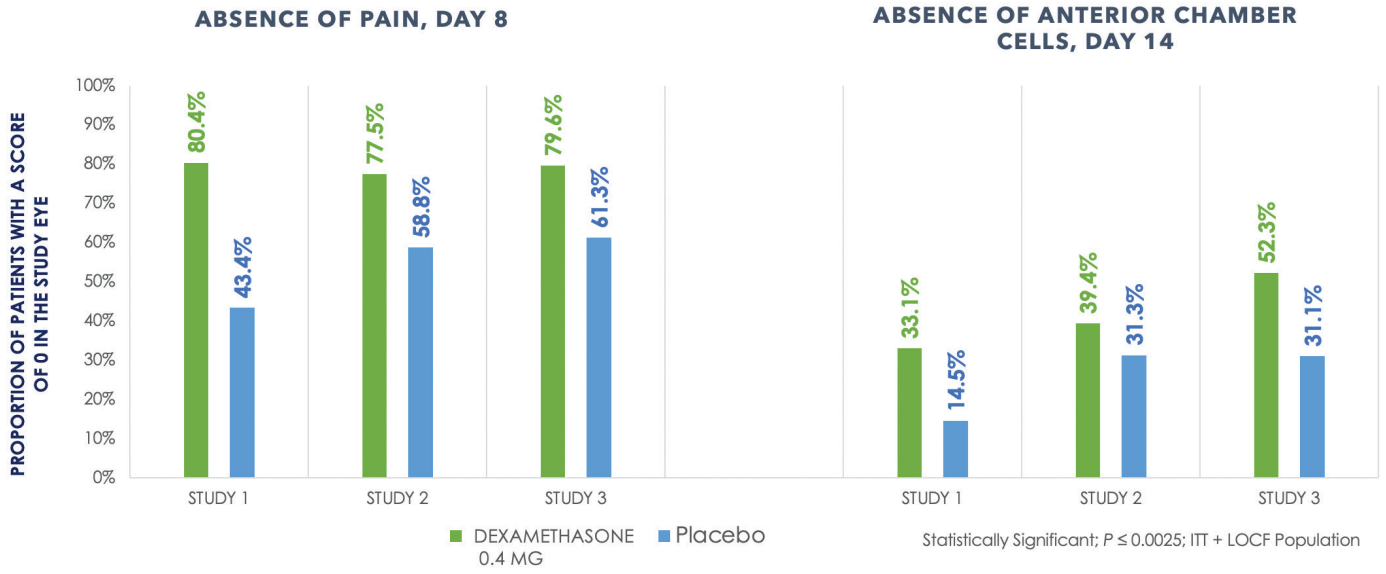


Figure 6. Dexamethasone intracanalicular 0.4 mg insert phase 3 primary efficacy endpoints.[29,30]

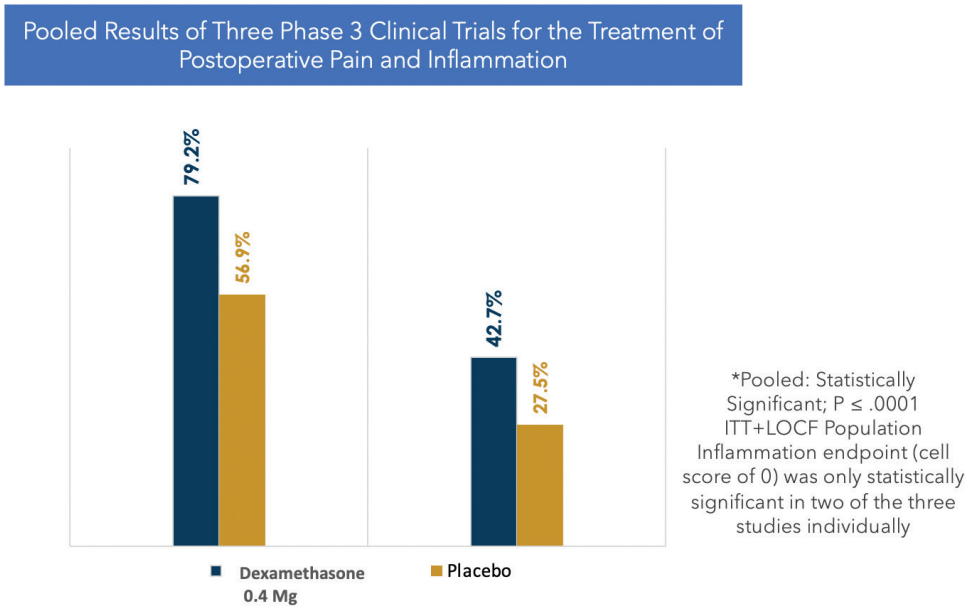


Figure 7. Dexamethasone intracanalicular 0.4 mg insert phase 3 safety and efficacy.[31]

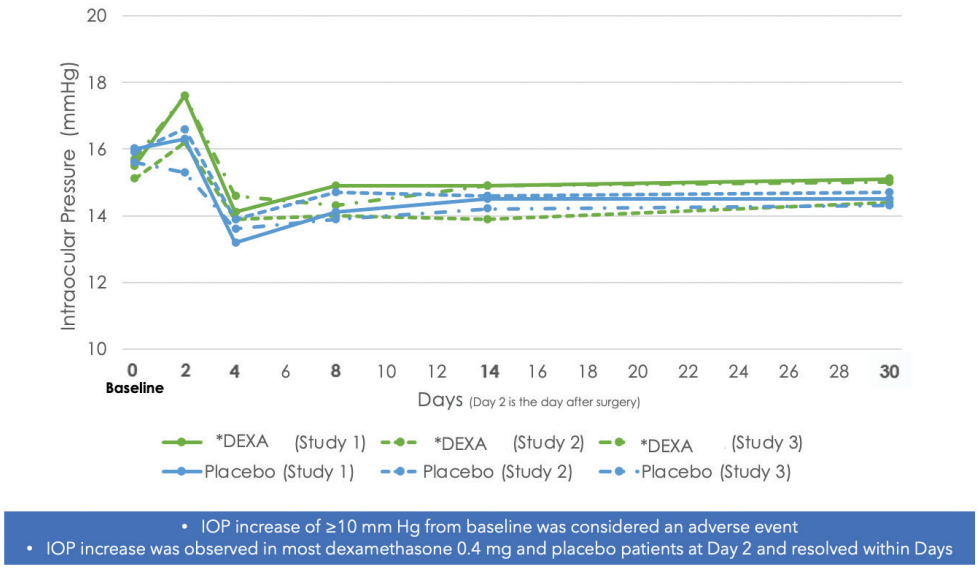


Figure 8. Dexamethasone intracanalicular 0.4 mg insert mean intraocular pressure.[32]

the treatment group also did very well, there wasn't a statistically significant difference. Do you have any lack of confidence in this type of medication to clear ACC?

Dr. McCabe: No, I've seen patients do really well on dexamethasone 0.4 mg.

Dr. Matossian: I like that it puts compliance back in the hand of the surgeon, instead of delegating it to a patient who may be confused or have other challenges. We are doing the surgery, so why not also take control of the postoperative steroid regimen?

Dr. McCabe: There is a phenomenon with our topical drop patients where patients come in for their second eye evaluation and ask if they can stop their drops. They feel good, and they decide it's too much of a hassle. If we're in control of the treatment, we don't have to worry about adherence.

Dr. Hovanesian: That's a great point. Eric Donnenfeld, MD, and I did a study looking at the patient experience that will soon be published in peer-reviewed literature. In one arm of the study, patients received the dexamethasone 0.4 mg insert along with phenylephrine and ketorolac injection during surgery. They also received intracameral moxifloxacin. There was no postoperative NSAID, everything was delivered without drops. The other group received the traditional triple cocktail of topical antibiotic, NSAID, and topical steroid. The patient preference was clear. Any parameter you looked at—pain, toxicity to the cornea, redness of the eye, and patient preference—was dramatically in favor of the dropless regimen.

When you look at the pooled results of the phase 3 clinical trials for the dexamethasone 0.4 mg insert, the insert comfortably outperforms placebo for both pain and inflammation (Figure 7).[31] Regarding IOP, we know that steroid-induced pressure spikes can happen at any time. Figure 8 shows an early timepoint where pressure is high in some patients.[17,32] Any speculation on why that could be?

Dr. Matossian: It's probably reflective of the eye having gone through surgery. The eye has been traumatized. It's not uncommon for IOP to be a little high on postoperative day 1. Thereafter, as you can see, there is no statistically significant difference between dexamethasone 0.4 mg and topical medications.

Dr. Hovanesian: Viscoelastic is one of the chief offenders giving the effect of high pressure postoperative day 1. The use of rescue medications was higher in the placebo group than the treatment group (11.7 vs 24.0%, respectively).[29-31] Remember, all patients received an insert; we didn't know who had what. In my own experience treating hundreds of patients with dexamethasone 0.4 mg, now that I know patients have it, the rate of rescue is much lower in the real-world setting.

Dr. McCabe: Sometimes, I have a patient who has a history of persistent anterior uveitis or other underlying issues. In those situations, I sometimes combine different forms of steroid because I want more than I would typically have in a postoperative period. There's no reason you can't do that if it's right for the patient.

Dr. Matossian: I've done that exact thing in patients who had really dense nuclear cataract. My phacoemulsification time was prolonged, and I had to stretch the pupil through pupil dilating devices. Sometimes those patients need a little extra steroid. You can certainly place the dexamethasone 0.4 mg and then put them on a topical steroid for a week if necessary.

Dr. Hovanesian: We touched on this a little bit, but a qualitive survey assessed the overall experience of 25 patients. All patients who completed the survey found the dexamethasone 0.4 mg comfortable, 88% would request the insert if undergoing cataract surgery again, 92% felt it was very clearly working, and then 96% rated their experience as positive and convenient.[33] Patients were very happy.

PEARLS FOR ADMINISTERING DEXAMETHASONE INTRAOCULAR SUSPENSION 9%

Dr. Matossian: Dr. McCabe, please walk us through the physician experience of using these sustained-release products.

Dr. McCabe: The dexamethasone intraocular suspension 9% comes in a suspension as prepared by your staff. You want to put the medication in the eye at the end of your case, after you've removed the viscoelastic and the lens is where you need it to be. If I'm going to use an intracameral antibiotic, I've already put that in, and the eye has been pressurized with balanced salt solution. The case is essentially complete, except I'm going to add the very last thing, which will be that spherule.

I hydrate the incisions so the wound doesn't leak; wound leak will draw the dexamethasone suspension out of the eye. Regarding placement, the goal is to get the dexamethasone suspension behind the iris. The original technique involved putting the cannula behind the iris and instilling the spherule in the sulcus. However, we modified that technique because we found that it could move into the anterior chamber and in front of the iris. Although this is common and not a problem, patients may become concerned if they can see it. To prevent this, we modified the technique to include putting the dexamethasone suspension into the capsule, which has been a big benefit. Capsule placement allows it to stay distal to the optic within the capsular bag. It can still perform its function, but there's no risk of it creeping around and ending up somewhere else.

Importantly, you want to express some suspension from the cannula before inserting the cannula into the eye so that no bubbles are present. With this technique, I have no reservations concerning combining the dexamethasone suspension with a premium lens.

Dr. Hovanesian: One important thing is to sweep the cannula parallel to the limbus as you inject. I think of it like toothpaste as it comes out, and it's much thinner than that. It's a liquid, but you want to lay it into that capsular bag peripherally or lay it into the ciliary sulcus peripherally as you're moving. Sweeping allows it to dislodge from the tip of the cannula. That sweeping technique helps a great deal.

Dr. McCabe: That's a great point. Another thing you can do is make sure you've wiped off the cannula. If there's a little bit of it sticking to the outside of the cannula, it wants to stick to itself.

Dr. Matossian: I initially tried putting the spherule through the main incision. However, I've had much more luck stromal hydrating my main incision and putting it in through the side port after pressurizing the globe. Wiping the tip is key. I also use the sweep technique. It breaks that ionic tension between the spherule and the tip of the cannula.

Dr. McCabe: That is an excellent point. You want as little egress of balanced salt solution from the anterior chamber as possible as you're doing this and maintaining that homeostasis within the eye. It's hard to do that through the main incision. I also don't go through the main incision; I usually go through a superior paracentesis, which is either already there if it's a right eye for me as a right-handed surgeon, or I'll just create one if it's a left eye.

INSERTION TECHNIQUES FOR DEXAMETHASONE INTRACANALICULAR 0.4 MG INSERT

Dr. Matossian: I'd like to move on to insertion techniques for the dexamethasone intracanalicular 0.4 mg insert into the punctum at the conclusion of cataract surgery. I go in with a punctal dilator, making sure that the dilator goes in not just vertically but horizontally as well. I rotate it as I'm dilating the punctum. I dry the area because I don't want the intracanalicular insert to become round. I then place the intracanalicular insert into the punctum and push it all the way through until no tip is exposed.

Dr. McCabe: My technique for the intracanalicular insert has evolved overtime. I used to spend a lot of time drying the area. I think it's really about pulling the lid laterally and getting that canaliculus to straighten. The insert is 3 mm long, and the vertical

portion of the canal is usually 2 mm; you can't go straight down. You're going to hit a block there, but if you straighten it out, everything lines up.

Dr. McCabe: I just make sure that it's dilated to enough of a length that I know I'm going to get it in there, and it goes right in. There's no chance for it to hydrate. It's pretty atraumatic for the patient with them only feeling a little pressure. Sometimes, their lid's a little bit slippery, so getting a good grip at the right angle is a critical step. You can dilate just about any punctum. If the tip of the dilator will go in, you're golden.

Dr. Hovanesian: I have a couple of tips to add. First, I leave the lid speculum in when I do this because it provides a little bit of lateral tension on the lid. I've done it with and without, but I think with is a little bit easier. Second, dilation does not need to be extreme. Some surgeons will dip the dilator into viscoelastic. As you slide in the intracanalicular insert, that will lubricate the canal so that it will be easier. It's also important not to overly fill the canaliculus with OVD because it can actually make it too slippery for the insert to remain in place.

UNDERSTANDING REIMBURSEMENT FOR MEDICARE-ELIGIBLE PATIENTS

Dr. McCabe: What about a reimbursement? At this point, both the dexamethasone intraocular suspension 9% and the dexamethasone intracanalicular 0.4 mg insert have pass-through status and J codes, J1095 and J1096, respectively. Both were set to expire and have been extended through the end of 2022.

Then there's phenylephrine and ketorolac. It has gone through its pass-through status through an extension, and now is unbundled from the global fee so that it can be paid for separately, allowing us to offer it to our patients. We're really hopeful that we're going to see the same scenario with these other medications that are so helpful in the postoperative period.

Dr. Hovanesian: Usage helps drive reimbursement. The more surgeons who use these products, the more evidence to Centers for Medicare & Medicaid Services that they have value in cataract surgery. I encourage my colleagues to learn how to use these products. You will be doing yourselves, your patients, and our profession a favor by increasing the availability of more advanced technology.

Dr. McCabe: I'd like to thank the faculty for an excellent discussion on advances in postoperative care. To summarize, 93% of patients struggle with administering eye drops.[2] Improper eye drop administration, not adherence, affects outcomes and how your patient feels about their results. Sustained-release options such as the insert and the suspension can safely reduce pain and inflammation without the need for drops, and they can be billed for and reimbursed through J codes as pass-through products. Please don't hesitate to use them. ■

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ADVANCES IN PATIENT CARE FOLLOWING CATARACT SURGERY

Release Date: November 2021
Expiration Date: December 2022

INSTRUCTIONS FOR CREDIT

To receive credit, you must complete the attached Pretest/Posttest/Activity Evaluation/Satisfaction Measures Form and mail or fax to Evolve Medical Education LLC, 353 West Lancaster Avenue, Second Floor, Wayne, PA 19087; Fax: (215) 933-3950. To answer these questions online and receive real-time results, please go to http://evolvemeded.com/course/2147-supp. If you experience problems with the online test, email us at info@evolvemeded.com. *NOTE: Certificates are issued electronically.*

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DEMOGRAPHIC INFORMATION

Profession
___ MD/DO
___ OD
___ NP
___ Nurse/APN
___ PA
___ Other

Years in Practice
___ >20
___ 11-20
___ 6-10
___ 1-5
___ <1

Patients Seen Per Week (with the disease targeted in this activity)
___ 0
___ 1-15
___ 16-30
___ 31-50
___ >50

Region
___ Northeast
___ Northwest
___ Midwest
___ Southeast
___ Southwest

LEARNING OBJECTIVES

Did the program meet the following educational objectives?	**Agree**	**Neutral**	**Disagree**
Explain the issues related to patient compliance with postoperative topical medications	_____	_____	_____
Evaluate the benefits of delivery of anti-inflammatory medications during cataract surgery	_____	_____	_____
Summarize the drug delivery properties of sustained-release medications	_____	_____	_____
Interpret the latest federal government regulations on reimbursement and how they will affect practices that treat Medicare-eligible patients	_____	_____	_____

PLEASE COMPLETE AT THE CONCLUSION OF THE PROGRAM.

1. Based on this activity, please rate your confidence in your ability to evaluate the benefits of delivery of anti-inflammatory medications during cataract surgery (based on a scale of 1 to 5, with 1 being not at all confident and 5 being extremely confident).

A. 1
B. 2
C. 3
D. 4
E. 5

2. A 78-year-old man following cataract extraction with insertion of intraocular lens in the right eye 8 days ago presents for 1 week follow-up. He states his vision is good, but his right eye is uncomfortable. Vision is 20/25+, intraocular pressure is 18 mm Hg. His ocular surface demonstrates 2+ punctate keratopathy, but the cornea is without edema. The anterior chamber examination reveals trace cell and flare. Dilated fundus exam is unremarkable. What is likely contributing to this patient's discomfort?

A. Anterior segment inflammation
B. Ocular surface irritation
C. Dryness
D. All of the above

3. Up to what percentage of patients exhibit improper drop administration?

A. 70%
B. 84 %
C. 93%
D. 98%

4. Methods of sustained-release drug delivery of steroid postcataract surgery include:

A. Intracameral, subconjunctival, and slow-release suspension
B. Intracanalicular, subconjunctival, and slow-release suspension
C. Intracanalicular, intracameral, and subconjunctival
D. Intracanalicular, intracameral, and slow-release suspension

5. Pass-through status based on CMS guidelines may last for how long?

A. 5 years
B. 3 years
C. 1 year
D. 6 months

ACTIVITY EVALUATION/SATISFACTION MEASURES

Your responses to the questions below will help us evaluate this activity. They will provide us with evidence that improvements were made in patient care as a result of this activity.

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 _____

This activity improved my competence in managing patients with this disease/condition/symptom _____ Yes _____ No

Probability of changing practice behavior based on this activity: _____ Yes _____ No _____No change needed

If you plan to change your practice behavior, what type of changes do you plan to implement? *(check all that apply)*

_____ Change in pharmaceutical therapy
_____ Change in diagnostic testing
_____ Change in current practice for referral
_____ My practice has been reinforced
_____ Change in nonpharmaceutical therapy
_____ Choice of treatment/management approach
_____ Change in differential diagnosis
_____ I do not plan to implement any new changes in practice

Please identify any barriers to change *(check all that apply)*:

_____ 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: _____
_____

The design of the program was effective for the content conveyed. ___ Yes ___ No

The content supported the identified learning objectives. ___ Yes ___ No

The content was free of commercial bias. ___ Yes ___ No

The content was relative to your practice. ___ Yes ___ No

The faculty was effective. ___ Yes ___ No

You were satisfied overall with the activity. ___ Yes ___ No

Would you recommend this program to your colleagues? ___ Yes ___ No

Please check the Core Competencies (as defined by the Accreditation Council for Graduate Medical Education) that were enhanced through your participation in this activity:

_____ Patient Care
_____ Practice-Based Learning and Improvement
_____ Professionalism
_____ Medical Knowledge
_____ Interpersonal and Communication Skills
_____ System-Based Practice

Additional comments:

_____

_____ I certify that I have participated in this entire activity.

This information will help evaluate this activity; may we contact you by email in 3 months to ask if you have made changes to your practice based on this activity? If so, please provide your email address below.

_____

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