Intracanalicular Dexamethasone Insert or Topical Prednisolone Following iStent and Hydrus Surgery for Glaucoma

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Précis: Using an intracanalicular dexamethasone insert or topical prednisolone following iStent and Hydrus surgery provided similar short-term control of postoperative inflammation.

Purpose: The purpose of this study was to compare postoperative inflammation in patients who received an intracanalicular dexamethasone insert or topical prednisolone after iStent or Hydrus insertion during cataract surgery.

Patients and Methods: Patients receiving a dexamethasone insert after iStent or Hydrus insertion were included and compared with age-matched controls who received topical prednisolone. Preoperative data were recorded. Postoperative inflammatory cell and the proportion of patients with zero anterior chamber cells was recorded at postoperative month 1. Postoperative intraocular pressure (IOP) and rate of cystoid macular edema were recorded at months 1 and 3.

Results: Forty eyes receiving topical prednisolone were compared with 35 eyes receiving a dexamethasone insert after iStent or Hydrus insertion. The mean postoperative inflammatory cell for the topical group at month 1 was 0.2 ± 0.3, and the dexamethasone group, 0.3 ± 0.5 (P = 0.816). Overall, 70% of patients in the topical group had zero anterior chamber cell at postoperative month 1 compared with 75.8% in the dexamethasone group (P = 0.583). The mean preoperative IOP for the topical group was 18.8 ± 5.5 and the dexamethasone group was 17.1 ± 4.1 (P = 0.064). Mean postoperative IOP for the topical group at months 1 and 3 was 17.6 ± 6.4 and 15.1 ± 3.1, respectively and the dexamethasone group, 17.5 ± 4.8 and 15.0 ± 3.4, respectively (P = 0.772 and 0.884). One patient developed cystoid macular edema in each group.

Conclusion: There was no statistically significant difference in the proportion of patients who had zero anterior chamber cell at postoperative month 1 between groups receiving intracanalicular dexamethasone insert or topical prednisolone.

Key Words: minimally invasive glaucoma surgery, Dextenza, dropless surgery

C Glaucoma is the second leading cause of blindness in the world and is typically managed first with intraocular pressure (IOP)-lowering eye drops or selective laser trabeculoplasty, but recent advances in minimally invasive glaucoma surgery (MIGS) have provided an additional option for treatment. MIGS procedures are typically characterized by an ab interno approach, minimal tissue trauma, minimal conjunctival manipulation, a good safety profile, and rapid recovery. There are several different MIGS procedures which have become Food and Drug Administration (FDA) approved and have shown the ability to decrease IOP as well as decrease the number of IOP-lowering drops. Often, MIGS procedures are completed in combination with cataract surgery. The exact indications for cataract surgery with MIGS have been highly variable in the literature but often include patients who have a visually significant cataract, have mild to moderate glaucoma, and are on at least 1 IOP-lowering drop. While MIGS has created a safer and less traumatic means of lowering IOP, patients having either procedure can still have resultant inflammation and discomfort that must be treated in the postoperative period.

Corticosteroids have routinely been prescribed as topical eye drops to treat postoperative inflammation and pain related to cataract surgery with or without MIGS. Untreated pain can affect overall patient satisfaction. Persistent ocular inflammation can increase the risk for ocular complications such as increased IOP, cystoid macular edema (CME), posterior synechiae formation, secondary glaucoma, and reduced visual outcomes. Recently, Dextenza, a sustained-release intracanalicular dexamethasone insert (Ocular Therapeutix, Bedford, MA), was approved by the FDA to treat ocular pain and to control inflammation after ocular surgery with the goal of removing the need for postoperative topical anti-inflammatory drops. The insert contains 0.4 mg of active dexamethasone suspended in a dried polyethylene glycol hydrogel device that is placed within either the superior or inferior canaliculus to provide a sustained and tapered delivery of medication to the ocular surface over 30 days. When inserted, the device swells and conforms to the shape of the canaliculus. Over the subsequent 30-day time period, while eluting medication, the device softens, liquefies and is eventually cleared through the nasolacrimal system. Initial studies assessed IOP at 6 postoperative visits with the last visit being 45 days after surgery and did not find any treatment-related IOP increase of > 10 mm Hg after use of the device.

The addition of postoperative eye drops for patients with glaucoma has the potential to complicate a patient’s drop regimen and interfere with patient compliance. Failure to comply with drop regimens is often due to a combination of factors: drop phobia, poor dexterity, poor administration techniques, cost, or dosing complexity. Using MIGS with a dexamethasone insert can reduce both the number of postoperative drops as well as the number of
IOP-lowering drops. In addition, combining the dexamethasone insert with an intracameral antibiotic after cataract surgery has allowed patients to receive surgery without needing any postoperative eye drops. Dropless cataract surgery removes the complexity and uncertainty around the patient’s use of postoperative drops, decreases a patient’s drop burden, and ultimately allows physicians to have a greater degree of confidence with regards to the treatment course of patients after surgery.11

Due to the minimal tissue manipulation involved in MIGS, postoperative inflammation has been successfully treated with the same topical eye drop regimen used after routine cataract surgery.12 Due to the success seen with dropless cataract surgery and the benefit of decrease topical eye drops for patients with glaucoma,7–9,11 we wanted to evaluate the efficacy of the dexamethasone insert in controlling postoperative inflammation in patients who received iStent or Hydrus insertion during cataract surgery when compared with topical prednisolone.

PATIENTS AND METHODS

This retrospective study was performed at the Duke Eye Center and received approval from the Duke University Institutional Review Board (IRB) and was conducted in accordance with the Declaration of Helsinki and the Health Insurance Portability and Accountability Act. Ophthalmic data was assessed using a retrospective chart review. Because of the retrospective, nonrandomized nature of the study, written informed consent was not required. All study-related procedures were performed in accordance with good clinical practice (International Conference on Harmonization of Technical Requirements of Pharmaceuticals for Human Use) and applicable FDA regulations.

Patients were recruited from a pool of patients seen at the Duke Eye Center between October 2019 and July 2021 by a single fellowship-trained glaucoma surgeon (L.W.H.) and underwent a routine eye examination for the management of their ophthalmic disease. Patients were seen postoperatively by the same provider who graded anterior chamber cell. Patients receiving the dexamethasone insert after cataract surgery with MIGS were identified and compared with age-matched controls who received topical prednisolone after cataract surgery with MIGS. After reviewing the number of patients identified, the MIGS procedures included in this study were trabecular microbypass stenting (iStent; Glaukos Corporation, San Clemente, CA) and canalicular scaffolding (Hydrus; Invantis Inc., Irvine, CA). Each patient in the topical prednisolone group received either an iStent or Hydrus implant, while in the dexamethasone insert group, all but 5 patients received either an iStent or Hydrus implant. The 5 patients who received MIGS other than the iStent or Hydrus implant were excluded from this study. No other patients were excluded. Patients were selected for the dexamethasone implant if the implant was covered by their insurance. The pharmacy cost of the dexamethasone implant is more than generic topical prednisolone eye drops (~$500 vs. ~$40 from GoodRx). However, for this study, patients were selected for the dexamethasone implant if the implant was already preapproved for reimbursement by the patient’s insurance. Most commonly, we have found this to be patients who have Medicare as reimbursement occurs via the Transitional Pass-Through Status under the Hospital Outpatient Prospective Payment System (OPPS).13 As a result, there was not a significant difference in cost due to receiving the dexamethasone insert. If the patient’s insurance did not cover the dexamethasone insert, they received topical prednisolone drops which were covered by their insurance. All patients received an intracameral antibiotic for postoperative infection control. Patients in the topical prednisolone group received a taper of topical corticosteroid (prednisolone acetate 1%) starting at 4 times a day and decreasing by 1 drop per day weekly until finishing the taper after week 4. We chose to use topical prednisolone as the comparator in our study because it is the standard topical corticosteroid used after cataract surgery at our institution.

In each case, cataract surgery and intraocular lens implantation was completed before the insertion of the iStent or Hydrus. The initial steps for the insertion of either device were similar. The patient’s head was rotated 30 degrees away from the surgeon. Viscoelastic was placed into the nasal iridocorneal angle and used as a coupling agent for a gonio lens. The iridocorneal angle was then viewed with the gonio lens to ensure there was an adequate view for device implantation. For the iStent, the injector was advanced under direct gonioscopy through the existing corneal incision to the nasal trabecular meshwork (TM), where the first stent was implanted into the Schlemm canal. Without withdrawing from the eye, the injector tip then was repositioned laterally to implant the second stent ~2–3 clock hours away from the first stent. Proper stent placement and seating were confirmed after implantation. At the completion of the procedure, viscoelastic was removed and replaced with balanced salt solution. For the Hydrus stent, a sideport incision was created around 7 o’clock for the right eye and 2 o’clock for the left eye and was angled towards the nasal iridocorneal angle. The Hydrus device was directed through this sideport incision and using the device injector, the TM was incised with the tip of the delivery cannula, and the microstent was threaded into the Schlemm canal over a span of ~90 degrees. Upon visual confirmation of proper device positioning in the canal, the delivery system was withdrawn, and the viscoelastic was removed and replaced with a balanced salt solution. A 0.3 mL of moxifloxacin was instilled into the anterior chamber through the paracentesis incision for all eyes, then the corneal wounds were sealed with balanced salt solution hydration. The eyelid speculum was then removed, and for eyes that received a Dextenza implant, the lower or upper lid was gently pulled temporally to align the vertical and horizontal canalici while dilating the punctum with an ophthalmic dilator angled in toward the nose. The punctal opening was dried with a cotton-tipped applicator then blunt forceps were used to grasp the insert and place it into the lacrimal canalculus angling the insert nasally. Viscoelastic was used to facilitate the smooth passage of the insert into the canalculus. Topical hypotensive medications were reintroduced at the discretion of the surgeon.

Baseline patient demographics and preoperative data were collected. The primary endpoints were the proportion of patients with an absence of inflammatory cell in the anterior chamber at postoperative month 1. Secondary endpoints were the presence of CME identified on optical coherence tomography (OCT) imaging, use of additional topical steroids during the postoperative period, postoperative inflammatory cell at month 1, postoperative IOP at months 1 and 3, postoperative number of IOP-lowering medications at month 3, and number of patients who had a postoperative IOP spike, defined as a postoperative month 1 IOP 10 mm Hg or higher than preoperative IOP. The
anterior chamber cell was measured using the Standardization of Uveitis Nomenclature (SUN) grading criteria (Table 1). Two patients in the dexamethasone insert group tested positive for coronavirus disease 2019 just before their 1-month visit and were rescheduled for their postoperative month 3 visit; as a result, these patients did not have postoperative 1-month data. The presence of CME and need for additional steroids was evaluated at postoperative month 3. Four patients in the dexamethasone insert group were lost to follow up and did not have postoperative month 3 data; however, those patients also did not have OCT documented CME or a need for additional topical steroids at their previous postoperative visits.

For statistical analysis, Mann-Whitney U testing was used to compare means between continuous variables and $\chi^2$ testing was used to compare means between categorical variables. A P-value < 0.05 was determined to be statistically significant. The sample size for this study was calculated from previous literature evaluating the proportion of patients who had zero anterior chamber cell 3–4 weeks after routine cataract surgery; Malík et al. found that 100% of patients with topical prednisolone and Tyson et al. found that 81% of patients with the dexamethasone implanthad zero anterior chamber cell at postoperative month 1. We assumed a noninferiority margin of 10% between the 2 percentages with an $\alpha$ of 0.025 and power of 80%. The required sample size for this evaluation was 22 patients in each group.

**RESULTS**

Thirty-five patients received an intracanalicular dexamethasone insert, and 40 patients received topical prednisolone after cataract surgery with iStent or Hydrus insertion. Most patients were diagnosed with primary open-angle glaucoma. 77.5% (31/40 patients) in the topical prednisolone group and 62.9% (22/35 patients) in the dexamethasone insert group. The most common stages of glaucoma treated were mild and moderate, 70% (28/40 patients) in the topical prednisolone group and 82.9% (29/35 patients) in the dexamethasone insert group. The majority of patients in each group were either of African American or Caucasian ethnicity: 55% and 40% for the topical prednisolone group and 31.4% and 68.6% for the dexamethasone insert group, respectively. Full patient demographics and baseline disease characteristics are detailed in Table 2.

The proportion of patients with zero anterior chamber cells at postoperative month 1 was 70.0% (28/40 patients) in the topical prednisolone group and 75.8% (25/33 patients) in the dexamethasone insert group ($P = 0.583$). Additional topical steroids were used in 12.5% (5/40 patients) of cases in the topical prednisolone group and 9.7% (3/31 patients) of the cases in the dexamethasone insert group ($P = 0.709$). In all, 18.2% (4/22) of the African American patients in the topical prednisolone group and 27.3% (3/11) in the dexamethasone group developed the need for additional topical steroids. Mean postoperative day 1 anterior chamber cell was 1.6 ± 1.0 in the topical prednisolone group and 0.9 ± 0.9

### Table 1. Grading of Anterior Chamber Cells (SUN Workshop)$^{13}$

| Grade of Anterior Chamber Cells | Cells in Field (Size 1 mm by 1 mm Slit Beam) |
|-------------------------------|---------------------------------------------|
| 0                             | <1                                          |
| 0.5                           | 1–5                                         |
| 1                             | 6–15                                        |
| 2                             | 16–25                                       |
| 3                             | 26–50                                       |
| 4                             | > 50                                        |

SUN indicates Standardization of Uveitis Nomenclature.

### Table 2. Patient Demographics and Baseline Disease Characteristics

| Topical Prednisolone | Dexamethasone Insert | $P$   |
|----------------------|----------------------|-------|
| Age (mean ± SD)      | 73 ± 7               | 74 ± 6 | 0.678 |
| Female               | 26 (65.0)            | 24 (68.6)| 0.743 |
| Left eye             | 23 (57.5)            | 20 (57.1)| 0.975 |
| Ethnicity            |                      |       |       |
| African American     | 22 (55.0)            | 11 (31.4)|       |
| Caucasian            | 16 (40.0)            | 25 (68.6)|       |
| Hispanic             | 1 (2.5)              | 1 (2.9)   |       |
| Not specified        | 1 (2.5)              |         |       |
| Glaucoma type        |                      |       |       |
| POAG                 | 31 (77.5)            | 22 (62.9)|       |
| PCAG                 | 1 (2.5)              | 4 (12.9)  |       |
| OAG suspect          | 7 (17.5)             | 2 (6.5)   |       |
| Low-tension          | 1 (2.5)              | 3 (9.7)   |       |
| glaucoma             |                      |       |       |
| CAG suspect          | 3 (7.1)              |         |       |
| Pigmentary           | 1 (2.5)              |         |       |
| glaucoma             |                      |       |       |
| Glaucoma severity    |                      |       |       |
| Suspect              | 7 (17.5)             | 4 (11.4)  |       |
| Mild                 | 13 (32.5)            | 13 (37.1)|       |
| Moderate             | 15 (37.5)            | 16 (45.7)|       |
| Severe               | 4 (10.0)             | 1 (2.9)   |       |
| Indeterminate        | 1 (2.5)              | 1 (2.9)   |       |
| MIGS type            |                      |       |       |
| iStent               | 16 (40.0)            | 16 (45.7)| 0.618 |
| Hydrus               | 24 (60.0)            | 19 (54.3)|       |

CAG indicates closed-angle glaucoma; MIGS, minimally invasive glaucoma surgery; OAG, open angle glaucoma; PCAG, primary closed-angle glaucoma; POAG, primary open angle glaucoma.

### Table 3. Postoperative Inflammation Measured by Standardization of Uveitis Nomenclature (SUN) Grading Criteria

| Topical Prednisolone | Dexamethasone Insert | $P$   |
|----------------------|----------------------|-------|
| POD1 inflammation (n = 40) | (n = 35)           | 0.002† |
| (mean ± SD)          | 1.6 ± 1.0            | 0.9 ± 0.9 |       |
| POM1 inflammation (n = 40) | (n = 33)           | 0.816† |
| (mean ± SD)          | 0.2 ± 0.3            | 0.3 ± 0.5 |       |
| Zero cell at POM1 (n = 28) | (n = 75.8)         | 0.583† |
| [%]                  | 28 (70.0)            | 25 (75.8)|       |
| Additional topical steroid [%] | 7 (17.5)          | 3 (9.7)   | 0.347‡ |
| Number with CME [%]  | 1 (2.5)              | 1 (3.2)   | 0.855‡ |

*Statistically significant.
†$P$-value calculated using Mann-Whitney $U$ testing.
‡$P$-value calculated using $\chi^2$ testing.

CME indicates cystoid macular edema; POD, postoperative day; POM, postoperative month.
in the dexamethasone group ($P=0.002$). A single patient developed CME during the postoperative period in both the topical prednisolone and the dexamethasone insert group (Table 3).

There was no statistically significant difference between postoperative IOP or the number of IOP-lowering drops between patients who received iStent or Hydrus during cataract surgery with topical prednisolone or the dexamethasone insert (Table 4). The percentage of patients who had an IOP spike of 10 mm Hg or more was 5.0% (2/40 patients) in the topical prednisolone group and 6.1% (2/33 patients) in the dexamethasone insert group ($P=0.843$). There was a statistically significant decrease in IOP and the number of IOP-lowering drops after MIGS procedures in each group (Table 5).

### DISCUSSION

To our knowledge, this is the first study to describe dropless cataract surgery with iStent or Hydrus insertion using intracameral antibiotics and an intracanalicular dexamethasone insert for infection and inflammation control postoperatively. We found that there was no statistically significant difference between mean postoperative IOP and IOP-lowering Drops Before and After iStent or Hydrus Insertion

### TABLE 5. Comparing IOP and IOP-lowering Drops Before and After iStent or Hydrus Insertion

|                      | Mean ± SD       | $P$   |
|----------------------|-----------------|-------|
|                      | Preoperative    | POM3  |
| Topical prednisolone | 18.8 ± 5.5      | 15.1 ± 3.1 | < 0.001* |
| IOP (mm Hg)          |                 |       |
| IOP-lowering drops    | 1.8 ± 1.2       | 0.8 ± 1.1 | < 0.001* |
| Dexamethasone insert  | 17.1 ± 4.1      | 15.0 ± 3.4 | 0.022* |
| IOP (mm Hg)          |                 |       |
| IOP-lowering medica-  | 1.6 ± 1.1       | 0.5 ± 0.8 | < 0.001* |
| tions                |                 |       |

*Statistically significant. $P$-value calculated using Mann-Whitney $U$ testing.

IOP indicates intraocular pressure; MIGS, minimally invasive glaucoma surgery; POD, postoperative day; POM, postoperative month.

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IOP indicates intraocular pressure; MIGS, minimally invasive glaucoma surgery; POD, postoperative day; POM, postoperative month.
In the topical prednisolone group, 4 of the 5 patients who developed anterior chamber inflammation had the Hydrus device implanted. In the dexamethasone group, 1 patient had an iStent, and the other had the Hydrus. Yook et al\textsuperscript{17} reported in a review of MIGS procedures that both the iStent and Hydrus can have transient hyphema, stent malposition and stent obstruction after implantation. This study did not discuss the rate of postoperative inflammation or need for additional topical steroids based on the device implanted. Possibly, due to the Hydrus’ larger profile in the anterior chamber, any device malposition has a greater chance of iris contact and resultant inflammation. Future studies are needed to better evaluate if there is a significant difference in postoperative inflammation and need for additional topical steroids based on the type of MIGS procedure.

Our study did not include MIGS which promote increased aqueous outflow through the excision of tissue-like gonioscopy assisted transluminal trabeculotomy, OMNI surgical system (Sight Sciences Inc., Menlo Park, CA) or Kahook Dual Blade goniotomy (New World Medical, Rancho Cucamonga, CA), which can be associated with hyphema and increased postoperative inflammation.\textsuperscript{1,16,18} Further investigation is needed to determine the utility of the dexamethasone insert in comparison with topical prednisolone for postoperative inflammation control in these patients.

There was a statistically significant difference in postoperative inflammation on postoperative day 1 with the dexamethasone insert group having less inflammation (Table 3). We believe these findings are a result of the immediate and constant delivery of corticosteroids to the ocular surface with the dexamethasone insert in contrast to topical prednisolone where only 1–2 drops may be instilled before the postoperative visit on day 1. Compared with topical corticosteroid use, the sustained-release intracanalicular dexamethasone insert has a number of key similarities and differences. Most obviously, corticosteroids delivered to the ocular surface, whether topically or via insert form, work to rapidly control inflammation and ocular pain. In the event of an adverse reaction, both treatment modalities are reversible; topical drop administration might be stopped while the insert can be removed from the canaliculus. However, key differences in the dexamethasone insert include the self-tapering nature of the insert, the constant low-dose drug load on the ocular surface, the absence of preservatives, improved bioavailability, and most importantly, the elimination of the risk for poor patient compliance.\textsuperscript{6} With a self-tapered sustained drug release, the treatment burden of a complex postoperative regimen of topical eye drops on cataract surgery with MIGS patients is alleviated, and the potential risk for ocular rebound inflammation with improper (ie, too rapid) corticosteroid tapering is mitigated. In addition, the insert provides a fraction of the total dose of corticosteroid given via a typical monthly taper of corticosteroids, but there is still sufficient therapy to control inflammation due to the proximity of the insert to the ocular surface.\textsuperscript{6} This allows the insert to control postoperative inflammation while also decreasing the risk of unintended side-effects like increased IOP. The intracanalicular insert is formulated preservative-free, eliminating the risk for preservative-induced toxicity and ocular surface damage.\textsuperscript{19}

The primary goal of MIGS procedures is to provide a reduction in intraocular pressure and, if possible, decrease the patient’s drop burden.\textsuperscript{20} We found that there was a statistically significant decrease in IOP and number of IOP-lowering drops in the topical prednisolone group and dexamethasone groups after iStent or Hydrus insertion during cataract surgery at postoperative month 3. Our study is limited by sample size and a short follow up time relative to prior literature.\textsuperscript{20,21} We did not find a statistically significant difference in the rate of IOP spike between the 2 groups. Two patients had an IOP spike in the topical prednisolone group; 1 was Caucasian, and 1 was African American. The former patient’s IOP increased by 27 mm Hg, and the latter patient’s IOP increased by 11 mm Hg. Two patients had an IOP spike in the dexamethasone insert group; both were Caucasian. Patient 1’s IOP increased by 13 mm Hg and patient 2’s by 18 mm Hg. All patients were restarted on 2 additional IOP-lowering medications, and IOP was improved at their next visit which was 2–4 weeks later. The rate of IOP spikes was small at ∼5% in comparison to ∼20% which has been previously reported in the literature.\textsuperscript{11}

Due to the small sample size and lack of randomization, there was heterogeneity between groups in terms of ethnicity. While previous studies have shown there can be racial differences in the response to traditional glaucoma surgical procedures,\textsuperscript{22,23} there has been limited data with regards to the success of MIGS procedures in different populations. Bargoud et al\textsuperscript{24} did show that cataract surgery with trabecular microbypass stenting was safe and effective in African American patients with open angle glaucoma. The topical prednisolone group had a higher percentage of African American patients, while the dexamethasone group had a higher percentage of Caucasian patients. Oyewole et al\textsuperscript{25} evaluated rates of postoperative CME after cataract surgery in an ethnically diverse population and did not find a statistically significant difference. LaMattina and Kimura\textsuperscript{26} did report a high risk of rebound iritis in African American patients compared with Caucasian patients after uncomplicated cataract surgery, but there was no statistically significant difference in the amount of anterior chamber cell. Of the 5 patients in the topical prednisolone group who required additional topical steroids, 4 identified as African American, and all the patients in the dexamethasone group who required additional topical steroids identified as African American. While these results do seem to support increased rates of additional topical steroid use in African American patients, our sample size is too small to make this conclusion. Further investigation is needed to determine if there is a significant difference in postoperative inflammation and the need for additional topical steroids based on ethnicity after uncomplicated cataract surgery with MIGS procedures.

**CONCLUSIONS**

We found that the dexamethasone insert provided comparable postoperative inflammation control to topical prednisolone when used in patients who received iStent or Hydrus insertion with cataract surgery. There was no statistically significant difference in the proportion of patients who achieved zero anterior chamber cell at postoperative month 1 between groups. There was no statistically significant difference in a mean inflammatory cell at postoperative month 1 and no statistically significant difference in rates of additional topical steroids at postoperative month 3 in patients who received either the dexamethasone insert or topical prednisolone after iStent or Hydrus surgery with cataract surgery. The dexamethasone insert appears to be a safe and effective alternative to topical anti-inflammatory therapy after iStent or Hydrus insertion with cataract surgery, and its use with intracameral moxifloxacin allows for dropless MIGS to be performed.
REFERENCES

1. Quigley HA, Broman AT. The number of people with glaucoma worldwide in 2010 and 2020. Br J Ophthalmol. 2006;90:262–267.
2. Francis BA, Singh K, Lin SC, et al. Novel glaucoma procedures: a report by the American Academy of Ophthalmology. Ophthalmology. 2011;118:1466–1480.
3. Lavia C, Dallorto L, Maule M, et al. Minimally-invasive glaucoma surgeries (MIGS) for open angle glaucoma: a systematic review and meta-analysis. PLoS One. 2017;12:e0183142.
4. Liu X, Lewis R. State of MIGS in 2020. Ophthalmic Prof. 2021;10:14–15.
5. Walters T, Endl M, Elmer TR, et al. Sustained-release dexamethasone for the treatment of ocular inflammation and pain after cataract surgery. J Cataract Refract Surg. 2015;41:2049–2059.
6. Tyson SL, Bafna S, Gira JP, et al. Multicenter randomized phase 3 study of a sustained-release intracanalicular dexamethasone insert for treatment of ocular inflammation and pain after cataract surgery. J Cataract Refract Surg. 2019;45:204–212.
7. Schwartz GF, Quigley HA. Adherence and persistence with glaucoma therapy. Surv Ophthalmol. 2008;53(suppl):S57–S68.
8. Lindstrom RL, Stewart Galloway M, Grzybowski A, et al. Dropless cataract surgery: an overview. Curr Pharm Des. 2017;23:558–564.
9. Kass MA, Meltzer DW, Gordon M, et al. Compliance with topical pilocarpine treatment. Am J Ophthalmol. 1986;101:515–523.
10. An JA, Kasner O, Samek DA, et al. Evaluation of eyedrop administration by inexperienced patients after cataract surgery. J Cataract Refract Surg. 2014;40:1857–1861.
11. Assil KK, Greenwood MD, Gibson A, et al. Dropless cataract surgery: modernizing perioperative medical therapy to improve outcomes and patient satisfaction. Curr Opin Ophthalmol. 2021;32:51.
12. Samuels L. Topics in ocular antiinflammatories: postsurgical inflammation in MIGS. Candeo Clin Commun. 2018;21:1–4.
13. Centers for Medicare & Medicaid Services (CMS). Process and information required to determine eligibility of drugs, biologicals, and radiopharmaceuticals for transitional pass-through status under the hospital Outpatient Prospective Payment System (OPPS). 3. 2015.
14. Trusko B, Thorne J, Jabs D, et al. The Standardization of Uveitis Nomenclature (SUN) Project. Development of a clinical evidence base utilizing informatics tools and techniques. Methods Inf Med. 2013;52:259–265.
15. Malik A, Sadafale A, Gupta YK, et al. A comparative study of various topical nonsteroidal anti-inflammatory drugs to steroid drops for control of post cataract surgery inflammation. Oman J Ophthalmol. 2016;9:150–156.
16. Walters T, Bafna S. Efficacy and safety of sustained release dexamethasone for the treatment of ocular pain and inflammation after cataract surgery: results from two phase 3 studies. J Clin Exp Ophthalmol. 2016;7:4.
17. Yook E, Vinod K, Panarelli JF. Complications of micro-invasive glaucoma surgery. Curr Opin Ophthalmol. 2018;29:147–154.
18. Tanito M, Manabe K, Mochiji M, et al. Comparison of anterior chamber flare among different glaucoma surgeries. Clin Ophthalmol Aust NZ. 2019;13:1609–1612.
19. Aguayo Bonniard A, Yeung JY, Chan CC, et al. Ocular surface toxicity from glaucoma topical medications and associated preservatives such as benzalkonium chloride (BAK). Expert Opin Drug Metab Toxicol. 2016;12:1279–1289.
20. Pillunat LE, Erb C, Jüinemann AG, et al. Micro-invasive glaucoma surgery (MIGS): a review of surgical procedures using stents. Clin Ophthalmol Aust NZ. 2017;11:1583–1600.
21. Kerr NM, Wang J, Barton K. Minimally invasive glaucoma surgery as primary stand-alone surgery for glaucoma. Clin Experiment Ophthalmol. 2017;45:393–400.
22. AGIS Investigators. The Advanced Glaucoma Intervention Study (AGIS): 9. Comparison of glaucoma outcomes in black and white patients within treatment groups. Am J Ophthalmol. 2001;132:311–320.
23. Ederer F, Gasterland DA, Dally LG, et al. The Advanced Glaucoma Intervention Study (AGIS): 13. Comparison of treatment outcomes within race: 10-year results. Ophthalmology. 2004;111:651–664.
24. Bargoud AR, Lira J, An S, et al. Trabecular microbypass stent and phacoemulsification in african american patients with open-angle glaucoma: outcomes and effect of prior laser trabeculoplasty. J Glaucoma. 2021;30:89–93.
25. Oyewole K, Tsogkas F, Westcott M, et al. Benchmarking cataract surgery outcomes in an ethnically diverse and diabetic population: final post-operative visual acuity and rates of post-operative cystoid macular oedema. Eye. 2017;31:1672–1677.
26. LaMattina KC, Kimura M. Racial and ethnic disparities in rates of rebound iritis after uncomplicated cataract surgery. Invest Ophthalmol Vis Sci. 2020;61:1674.