ARTICLE

Impact of dexamethasone intraocular suspension 9% on intraocular pressure after routine cataract surgery: post hoc analysis

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Purpose: To characterize intraocular pressure (IOP) response after treatment with dexamethasone intraocular suspension 9% vs placebo (vehicle) injection or topical prednisolone acetate 1% and to identify factors associated with increased IOP after cataract surgery.

Setting: Data were pooled from two multicenter phase 3 clinical trials of patients undergoing routine cataract surgery.

Design: Randomized, double-blind study and open-label study.

Methods: Subjects were randomized to treatment with dexamethasone intraocular suspension or placebo in the double-blind study 1 and to dexamethasone intraocular suspension or topical prednisolone acetate in the open-label study 2. Subjects who experienced 10 mm Hg or greater, 15 mm Hg or greater, or 20 mm Hg or greater postoperative IOP increase from baseline were stratified by baseline IOP. Univariate and multivariate logistic regression models of patient variables were applied to identify independent risk factors predictive of IOP elevation of 10 mm Hg or greater or 15 mm Hg or greater.

Results: The study comprised 414 subjects. Dexamethasone intraocular suspension was associated with a slightly higher mean IOP at the first postoperative visit vs prednisolone ($P < .05$); however, mean IOP was not statistically different between the 2 groups by postoperative day 8 ($P = .5006$) or thereafter. Univariate analysis showed that both prednisolone and dexamethasone intraocular suspension increased risk for postoperative IOP elevation compared with placebo; however, there was no statistically significant increased risk with dexamethasone intraocular suspension vs prednisolone. Aside from antiinflammatory treatment, risk factors for postoperative IOP elevation by univariate and multivariate analyses were higher baseline IOP, high myopia, and, when defining IOP increase as 15 mm Hg or greater from baseline, male sex.

Conclusions: Dexamethasone intraocular suspension was associated with IOP elevation patterns comparable with topical prednisolone. High myopia, higher baseline IOP, and male sex were significant predictors of postoperative IOP elevation in this cohort.

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As a leading cause of reversible vision loss, cataracts affect 20 to 30 million individuals ≥40 years of age in the United States, with prevalence predicted to increase as the at-risk population increases in size.[A] About 4 million cataract surgeries are performed annually in the United States, and the need will continue to rise.

Postoperative antiinflammatory therapy reduces ocular discomfort, improves healing, and lowers the risk for vision-threatening complications in patients who have undergone cataract surgery.[1,2] The dosing burden of topical postoperative antiinflammatory regimens—typically ocular corticosteroid and nonsteroidal antiinflammatory drug (NSAID) drops—falls to the patient and can be substantial: 1 or more drops up to 4 times daily for several weeks postoperatively. Success depends on patients remembering to administer their drops at the appropriate time and using proper technique (delivering the correct number of drops and reaching the ocular surface without contaminating the tip), which video studies have shown can be challenging even for experienced patients.[3–5]

Long-acting antiinflammatory therapy formulated for intraocular administration has the potential to relieve patients of the need for topical antiinflammatory medications after cataract surgery, potentially reducing patient nonadherence and dosing errors.[6] Patients who received intraocular corticosteroids and antibiotics at the end of the procedure could be discharged on fewer, or potentially no, drops. Furthermore, delivery of antiinflammatory medication intraocularly, directly to the site of inflammation, should result in improved bioavailability and lower overall corticosteroid exposure to the eye, which could reduce corticosteroid-related side effects and ocular surface toxicity.[6]

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Dexamethasone intraocular suspension 9% (DEXYCU, EyePoint Pharmaceuticals) is a new, unpreserved, sustained-release formulation of dexamethasone that is indicated for the treatment of postoperative inflammation.[B] Dexamethasone intraocular suspension 9% contains 517 μg of dexamethasone in a bioerodible liquid vehicle called Verisome (EyePoint Pharmaceuticals), formulated as a single dose for administration into the posterior chamber at the conclusion of ocular surgery.[B] Antiinflammatory activity begins immediately on placement, with active drug delivered directly to target tissue for about 21 days until all the drug is released and the depot absorbed.[6] Concentrations are highest on the day of surgery, when inflammation is highest, and taper through the early postoperative period, consistent with the eye's diminishing need for antiinflammatory action over time.

The efficacy and safety of dexamethasone intraocular suspension 9% were demonstrated in two phase 3 clinical trials.[7,8] In a placebo-controlled trial, dexamethasone intraocular suspension administered at the conclusion of cataract surgery was associated with anterior chamber cell (ACC) clearing on postoperative day 8 in 60% of eyes vs 20% of eyes treated with placebo (vehicle); anterior chamber flare (ACF) and ACC + ACF clearing rates were also superior vs placebo (secondary endpoints achieved).[B,7] Adverse events were comparable between dexamethasone intraocular suspension - and placebo-treated patients overall, and no serious adverse events occurred. Intraocular pressure (IOP) increase was more common within the active treatment group, and inflammatory adverse events (eg, anterior chamber inflammation, eye inflammation, and iritis) were more common with placebo.[7]

A second phase 3 trial compared the safety of treatment with dexamethasone intraocular suspension 9% vs Pred Forte (prednisolone acetate 1% ophthalmic suspension) eyedrops (Allergan, Inc.) dosed 4 times daily for 3 weeks.[C,8] Although the study was not powered to compare efficacy, endpoints, including ACC, ACF, and ACC + ACF, were comparable on postoperative day 8 between dexamethasone intraocular suspension - and topical prednisolone-treated groups.[8] Safety endpoints, including change in corneal endothelial cell density, were also found to be similar with dexamethasone intraocular suspension and prednisolone treatment. The most common adverse events were IOP increase and anterior segment inflammation at postoperative day 3. Overall, the safety profile of dexamethasone intraocular suspension was comparable with that of prednisolone drops.

Dexamethasone intraocular suspension 9%, as a sustained-release, intraocular formulation of dexamethasone, raises a theoretical concern for corticosteroid-related adverse events, such as increased IOP, for which corticosteroid exposure and ocular surgery are both known risk factors. Postoperative IOP spikes—believed to result from inflammation, obstruction of aqueous outflow channels, vasoactive substance release, trabecular meshwork damage, retained ophthalmic viscosurgical device material, and other mechanisms—are common among otherwise healthy patients in the first 2 to 12 hours after cataract surgery.[9–14] IOP typically returns to baseline within 24 to 72 hours, but elevations might persist for longer.[9,15] Patients with presurgical comorbidities (eg, glaucoma, ocular hypertension, pigment dispersion syndrome, pseudoexfoliation, and mechanical deformation of angle structures) and/or surgical complications (eg, vitreous fluid loss and capsular tear) are at increased risk for postoperative IOP elevation.[9,15–19] Longer axial length/high myopia, male sex, and higher presurgical IOP have also been associated with increased risk for transient postoperative IOP elevations.[9,10,16,17]

This post hoc analysis of pooled phase 3 clinical trial data was undertaken to characterize the IOP response among patients treated with dexamethasone intraocular suspension 9% for inflammation following routine cataract surgery, and, where possible, to compare the findings with those of patients who received prednisolone drops or placebo. Among patients with elevated IOP, we sought to identify factors associated with increased IOP and to detail responses to IOP-lowering treatment.

METHODS

Clinical Trials Design

Data included in this analysis were pooled from 2 previously published phase 3 clinical trials evaluating the use of dexamethasone intraocular suspension 9% for inflammation control among patients undergoing cataract surgery.[7,8] Study C13-04 (study 1) was a randomized, placebo-controlled, double-masked study conducted at 27 U.S. sites between January and June 2014. Patients enrolled in this study (N = 394) were randomly assigned to have 1 of 3 treatments injected into the posterior chamber under the edge of the iris in the inferior 180 degrees as a single 5-μL droplet at the completion of surgery: dexamethasone drug-delivery suspension 342 μg, dexamethasone drug-delivery suspension 517 μg (the marketed dose), or placebo (vehicle). Placebo- and dexamethasone intraocular suspension–treated arms were included in this analysis.

Study C15-01 (study 2) was a randomized, open-label, parallel-design study conducted at 11 U.S. sites between 2015 and 2016. Patients enrolled in this study (N = 194) were randomly assigned to receive either a single 5-μL intraocular dose of dexamethasone intraocular suspension at the conclusion of cataract surgery or 3 weeks of treatment with prednisolone acetate ophthalmic suspension 1% eyedrops (1 drop 4 times daily). Both arms were included in this analysis.

Participants

Eligible patients were men or women ≥40 years of age who were scheduled for unilateral cataract surgery by phacoemulsification with posterior chamber intraocular lens (IOL) implantation. Patients were excluded from both studies for recent exposure to an ocular, periocular, topical, or oral corticosteroid or for expected treatment with a corticosteroid by any route except inhalation; history of intravitreal injection or implant; recent topical ocular NSAID exposure; ocular surgery within 6 months; intraocular inflammation, corneal abnormality, glaucomatous optic nerve damage or visual field loss, or elevated IOP (>21 mm Hg) at screening; history of uveitis; or if they were a known corticosteroid responder. Patients with ocular hypertension well controlled on IOP-lowering monotherapy (<21 mm Hg at screening) were allowed into study 1 and excluded from study 2.

In both studies, if the patient had a significant intraoperative complication (eg, rupture of the posterior capsule or zonular dialysis, disruption of anterior hyaloid face, vitreous loss, floppy-iris syndrome, inability to place IOL in capsular bag, or requirement for use of an intraocular device other than the IOL), the patient did not receive the injection of study drug and was excluded from the analysis. Use of intracameral antibiotics, epinephrine, or nonpreserved lidocaine was discouraged but permitted at the surgeon's discretion.

Follow-Up

In both studies, patients were evaluated for 90 days postoperatively, with visits on postoperative days 1, 8, 30, and 90 (plus postoperative days 3 and 15 for study 1); IOP was measured at each visit by Goldmann application tonometry. For patients with significant postoperative inflammation in the study eye, defined in study 1 as ACC and/or ACF grade 3 or higher and in study 2 as both ACC and ACF grade 3 or higher, rescue with topical anti-inflammatory drugs was allowed at the investigator's discretion.

Management of Elevated IOP

IOP-lowering and other ocular medications (except topical NSAIDs) could be used perioperatively or postoperatively, as indicated according to the clinical judgment of the investigators. The study protocols did not specify any IOP threshold for use of IOP-lowering medication; given that patients with glaucoma were excluded, extensive use of IOP-lowering medication was not anticipated.

Statistical Analysis

Treatment Groups. This analysis was undertaken to characterize postoperative IOP among patients exposed to dexamethasone intraocular suspension or comparators (placebo or prednisolone drops) at the conclusion of cataract surgery in phase 3 clinical trials. Datasets of patients treated with dexamethasone intraocular suspension (pooled from studies 1 and 2), prednisolone drops (study 2), or placebo (study 1) were generated. Patients in study 1 treated with dexamethasone 342 μg (a lower dosage product that was not ultimately developed) were excluded from the analysis.

Patient Groups by Baseline and Postoperative Maximum IOP. Baseline IOP was measured at preoperative screening (day 45 to day 3) or prior to receiving study drug, whichever was the latest. Participants were stratified into 3 groups according to baseline IOP: (1) all patients; (2) patients with baseline IOP 10 to 16 mm Hg; and (3) patients with baseline IOP >16 mm Hg. For each baseline group, patients with a "high IOP response" (defined as an increase from baseline of ≥10, ≥15, or ≥20 mm Hg) at any time postoperatively were compared with the corresponding patient set in which IOP elevation did not occur. These IOP threshold values were selected to optimize sensitivity and specificity for clinically relevant IOP risk factors within a relatively small pool of patients.

Among all 414 patients included in the analysis, those with IOP increase of 10 mm Hg or greater, 15 mm Hg or greater, or 20 mm Hg or greater from baseline were 88, 43, and 17 individuals, respectively. Applying the same thresholds, among subjects with baseline IOP 10 to 16 mm Hg, high IOP response occurred in 58, 23, and 8 patients, respectively, and among subjects with baseline IOP >16 mm Hg, high IOP response occurred in 28, 20, and 9 patients, respectively.

Univariate and stepwise multivariate analyses included were performed on all patients with IOP increase of 10 mm Hg or greater or 15 mm Hg or greater from baseline; because of small sample size, logistic regression of the IOP increase of 20 mm Hg or greater from baseline group was not possible.

Patient Variables. For each patient group within each treatment group, relevant datapoints were summarized, including were summarized, including sex; age (mean, median, minimum, maximum, and age ≤70 years vs >70 years); ethnicity; baseline comorbidities (diabetes, ocular hypertension, and high myopia [diopter value > −5.0 D]); diopter value (mean, median, minimum, and maximum); concomitant medication use (systemic corticosteroid, α-blocker, or IOP-lowering medication); baseline IOP (mean, median, minimum, and maximum IOP among patients ≤70 vs >70 years); surgical site; and duration of IOP-lowering medication, if initiated. Documentation was insufficient to evaluate other variables of interest, including use or type of ophthalmic viscosurgical device material and surgical duration.

Logistic Regression. A simple univariate logistic regression aimed at identifying independent variables predictive of postoperative IOP elevation was performed on all subjects with IOP change from baseline of 10 mm Hg or greater or 15 mm Hg or greater. Separate logistic regression models were performed for each variable: sex; age (≤70 years or >70 years); race (White or other); comorbid diabetes; comorbid ocular hypertension; high myopia (diopter value > −5.0 D); baseline IOP (mm Hg); and treatment. Interactions between treatment and baseline variables found to increase postoperative IOP risk were analyzed using separate 2-factor logistic regression models. Stepwise multivariate analyses were performed on subjects with IOP change from baseline of 10 mm Hg or greater or 15 mm Hg or greater using 2 sets of selection criteria ($P \leq .05$ at entry; $P \leq .05$ to stay; and $P \leq .2$ at entry; $P \leq .25$ to stay); the treatment variable was either forced or floated into the model.

RESULTS

The study population comprised 414 patients (226 [54.6%] women, 188 [45.4%] men) across studies and treatment groups. Patients ranged in age from 39 to 98 years, with a mean age of 69.3 years (SD 9.17) and a median age of 70.0 years. A total of 351 (84.8%) patients were White, 43 (10.4%) were Black, 5 (1.2%) were Asian, 3 (0.7%) were American Indian or Alaska Native, and 11 (2.7%) were of other ethnicity. Baseline and surgical characteristics are presented in Table 1.

Comorbid Conditions and Medications

At baseline, 94 patients (22.7%) had a history of diabetes, 26 (6.3%) had ocular hypertension, 6 (1.4%) had pigment dispersion syndrome, and 2 (0.5%) had a history of ocular trauma. No patient included in the analysis had pseudoexfoliation syndrome. Three patients (0.7%) were on systemic corticosteroids, 22 (5.3%) were on an α-blocker, and 51 (12.3%) were on IOP-lowering medication at baseline.

Refractive Error

Refractive error data were available for 408 patients (98.6%). Mean (SD) diopter value was −1.0 D (3.27), with a median of −0.5 D and a minimum of −15.0 D to a maximum of 6.0 D. High myopia (>5.0 D) was present among 43 patients (10.4%). Patients with high myopia comprised 27 (9.7%) of dexamethasone intraocular suspension–treated subjects, 12 (21.8%) of prednisolone-treated subjects, and 4 (5.0%) of placebo-treated subjects.

Intraocular Pressure

Baseline IOP data are presented in Table 2. Mean (SD) IOP at baseline was 14.9 mm Hg (2.86), with a median of 15.00 mm Hg and a minimum of 4 to a maximum of 24 mm Hg. Most eyes (293 [70.8%]) had baseline IOP between 10 mm Hg and 16 mm Hg; baseline IOP was >16 mm Hg in 117 eyes (28.3%). Mean, median, and categorical baseline IOPs were not substantially different among treatment groups.

Table 1. Patient groups by baseline and postoperative maximum IOP.

IOP Increase Level	Any Baseline IOP	Baseline IOP 10–16 mm Hg	Baseline IOP >16 mm Hg
≥10 mm Hg from baseline	Group 1	Group 2	Group 3
≥15 mm Hg from baseline	Group 4	Group 5	Group 6
≥20 mm Hg from baseline	Group 7	Group 8	Group 9

IOP = intraocular pressure

Table 2. Demographics and baseline characteristics.

Characteristic	DIS 9% (n = 279)	Prednisolone (n = 55)	Placebo (n = 80)	Total (N = 414)
Sex, n (%)				
M/F	154 (55.2)/125 (44.8)	24 (43.6)/31 (56.4)	39 (48.8)/41 (51.3)	188 (45.4)/226 (54.6)
Age (y)				
Mean (SD)	69.0 (9.05)	68.6 (10.24)	70.69 (8.79)	69.3 (9.17)
Median (min, max)	70.0 (39, 97)	68.0 (41, 98)	71.5 (46, 90)	70.0 (39, 98)
Age median group, n (%)				
≤70 y	149 (53.4)	32 (58.2)	37 (46.3)	218 (52.7)
>70 y	130 (46.6)	23 (41.8)	43 (53.8)	196 (47.3)
Race group, n (%)				
White	232 (83.2)	52 (94.5)	67 (83.8)	351 (84.8)
Other	47 (16.8)	3 (5.5)	13 (16.3)	63 (15.2)
Diabetes flag, n (%)				
Yes/No	65 (23.3)/214 (76.7)	10 (18.2)/45 (81.8)	19 (23.8)/61 (76.3)	94 (22.7)/320 (77.3)
Ocular hypertension flag, n (%)				
Yes/No	21 (7.5)/258 (92.5)	2 (3.6)/53 (96.4)	3 (3.8)/77 (96.3)	26 (6.3)/388 (93.7)
Pigment dispersion syndrome flag, n (%)				
Yes/No	2/0 (0.7)	3/0 (5.4)	1/0 (0.1)	6 (1.4)/408 (98.6)
Ocular trauma flag, n (%)				
Yes/No	2/0 (0.7)	0	0	2 (0.5)/412 (99.5)
Pseudoexfoliation flag, n (%)				
Yes/No	0	0	0	0/414 (100.0)
High myopia flag > −5.0 D), n (%)				
Yes/No	27 (9.7)/246 (88.2)	12 (21.8)/43 (78.2)	4 (5.0)/76 (95)	43 (10.4)/365 (88.2)
Missing	6 (2.2)			6 (1.4)
Diopter, n	273	55	80	408
Mean (SD)	−1.02 (3.20)	−1.82 (4.07)	−1.86 (4.42)	−1.0 (3.27)
Median (min, max)	−0.5 (−13.5, 5)	−0.75 (−15, 4.25)	0.25 (−11.25, 5.5)	−0.5 (−15, 6)
Systemic steroids flag, n (%)				
Yes/No	1 (0.4)/278 (99.6)	0/55 (100)	2 (2.5)/78 (97.5)	3 (0.7)/411 (99.3)
α-Blocker flag, n (%)				
Yes/No	15 (5.4)/264 (94.6)	2 (3.6)/53 (96.4)	5 (6.3)/75 (93.8)	22 (5.3)/392 (94.7)
IOP-lowering med flag, n (%)				
Yes/No	34 (12.2)/245 (87.8)	17 (30.9)/38 (69.1)	0/80 (100)	51 (12.3)/363 (87.7)
Baseline IOP (mm Hg)				
Mean (SD)	14.98 (2.89)	14.42 (2.71)	15.00 (2.88)	14.91 (2.864)
Median (min, max)	15.00 (4.0, 24.0)	14.00 (10.0, 20.0)	14.00 (10.0, 21.0)	15.00 (4.0, 24.0)
Baseline IOP 10–16 mm Hg, n (%)				
Yes/No	197 (70.6)/82 (29.4)	41 (74.5)/14 (25.5)	55 (68.8)/25 (31.3)	293 (70.8)/121 (29.2)
Baseline IOP >16 mm Hg, n (%)				
Yes/No	78 (28.0)/201 (72.0)	14 (25.5)/41 (74.5)	25 (31.3)/55 (68.8)	117 (28.3)/297 (71.7)
Missing	126 (45.2)	55 (100)	1 (1.3)	182 (44.0)

DIS = dexamethasone intraocular suspension; IOP = intraocular pressure; med = medication; SD = standard deviation

Postoperative IOP

IOP Change From Baseline. Of the 414 subjects included in the analysis, 88 (21.3%) were found to have had at least a 10 mm Hg change from baseline IOP during at least 1 postoperative visit. Forty-three (10.4%) and 17 (4.1%) had at least a 15 mm Hg or 20 mm Hg change from baseline IOP, respectively (Figure 1). Patients in both studies had similar rates of IOP change from baseline.

IOP Change From Baseline Stratified by Categorical Baseline IOP. Overall, a greater proportion of patients with baseline IOP >16 mm Hg experienced an IOP increase of 15 mm Hg or greater postoperatively compared with patients with baseline IOP 10 to 16 mm Hg (P = .006) (Figure 1). Of those with IOP 10 to 16 mm Hg at baseline, 58 (19.8%), 23 (7.8%), and 8 (2.7%) patients experienced a postoperative IOP increase of 10 mm Hg or greater, 15 mm Hg or greater, or 20 mm Hg or greater, respectively. Among patients with IOP >16 mm Hg at baseline, 28 (23.9%), 20 (17.1%), and 9 (7.7%) patients experienced a postoperative IOP increase of 10 mm Hg or greater, 15 mm Hg or greater, or 20 mm Hg or greater, respectively.

IOP Change from Baseline by Treatment

IOP Change by Baseline IOP Groups and Treatment Groups. Figure 2 shows the proportion of patients who experienced an IOP increase of 10 mm Hg or greater or 15 mm Hg or greater postoperatively when stratified by baseline IOP (10 to 16 mm Hg, >16 mm Hg, or all) and treatment arm (placebo, prednisolone drops, or dexamethasone intraocular suspension). There were no statistically significant differences in rates of postoperative IOP elevation between dexamethasone intraocular suspension and prednisolone treatment groups in total or based on baseline IOP.

Fifteen (5.4%) patients treated with dexamethasone intraocular suspension experienced postoperative IOP elevation of 20 mm Hg or

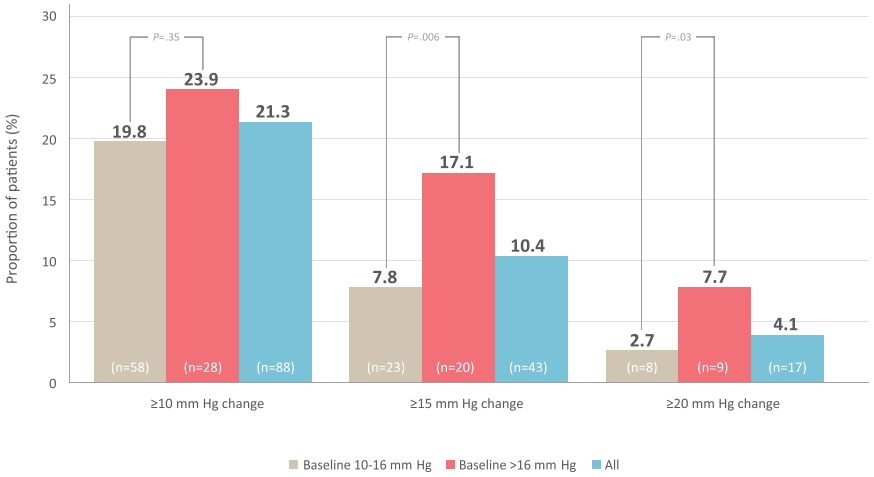

Figure 1. Categorical change in IOP by baseline threshold. Proportion of patients with at least 10, 15, or 20 mm Hg IOP change from baseline by baseline IOP (IOP = intraocular pressure).

greater, compared with 0 (P = .14) and 2 (2.5%) (P = .38) of patients treated with prednisolone and placebo, respectively (data not shown).

IOP Over Time. *Mean IOP and maximum IOP.* Irrespective of treatment group, mean IOP was highest at the first postoperative visit (Figure 3). Mean IOP was slightly higher in dexamethasone intraocular suspension - vs placebo-treated eyes on postoperative days 1, 3, and 8 (P < .05 all timepoints). However, by day 15 (P = .2630) and thereafter, no statistically significant difference in mean IOP was observed between dexamethasone intraocular suspension– and placebo-treated eyes. Similarly, IOP was slightly higher in dexamethasone intraocular suspension– vs prednisolone-treated eyes on the eyes on the first postoperative visit (P < .05). There was no statistically significant difference in mean IOP between dexamethasone intraocular suspension and prednisolone by the following visit, postoperative day 8 (P = .5006), or thereafter.

Categorical IOP by treatment by visit. On the first postoperative visit, a greater proportion of subjects treated with dexamethasone intraocular suspension had IOP 25 mm Hg or greater (21.4%) compared with subjects treated with prednisolone (14.5%) or placebo (10%) (Figure 4). By postoperative days 3 and 8, 98.1% and 97.9% of dexamethasone intraocular suspension–treated subjects, respectively, had IOP <25 mm Hg compared with 100% of prednisolone- and placebo-treated subjects at both timepoints. By postoperative day 15 and through the end of the study, no subject in any treatment group had IOP 25 mm Hg or greater, and IOP distribution resembled baseline.

Change from baseline IOP by treatment group by visit. On the first postoperative visit, overall and within each treatment group, most subjects experienced a decrease, no change, or less than 10 mm Hg increase in IOP compared with baseline (Table 3). On postoperative days 3 and 8, 4 (2.6%) and 7 (2.5%) subjects treated with dexamethasone intraocular suspension, respectively, had IOP increases from baseline of at least 10 mm Hg, compared with 0 subjects treated with prednisolone or placebo. By postoperative day 15, 65.2% of subjects overall had no change or decreased IOP from baseline and 34.8% had a <10 mm Hg increase from baseline; IOP change from baseline was similar among treatment groups from postoperative day 15 through the end of the study.

In each treatment group, the highest rates of IOP elevation from baseline occurred at the first postoperative visit and diminished substantially at each postoperative visit thereafter. By postoperative day 15, the IOP difference from baseline was <10 mm Hg increase for all patients treated with dexamethasone intraocular suspension or placebo, and by postoperative day 30, the IOP difference from baseline was <10 mm Hg for patients treated with prednisolone.

Need for Antiinflammatory Rescue Therapy

Administration of rescue treatment to the study eye was permitted per prespecified criteria indicating postoperative inflammation: ACC and/or ACF grade 3 or higher (study 1), and both ACC and ACF of grade 3 or higher (study 2); rates are presented in this analysis to show the total corticosteroid exposures among the groups. Study 1 rescue medication rates for dexamethasone intraocular suspension and placebo groups are summarized in

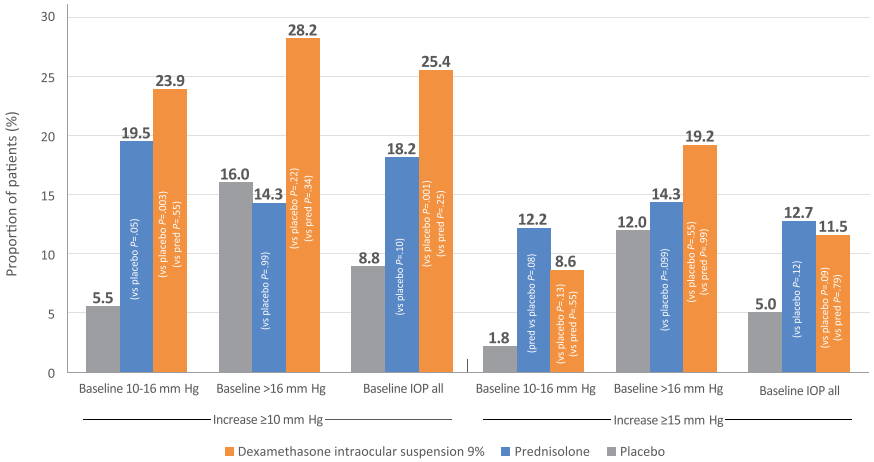

Figure 2. Categorical change in IOP by baseline threshold and treatment. Proportion of patients with at least 10 or 15 mm Hg IOP change from baseline by baseline IOP and treatment group (IOP = intraocular pressure).

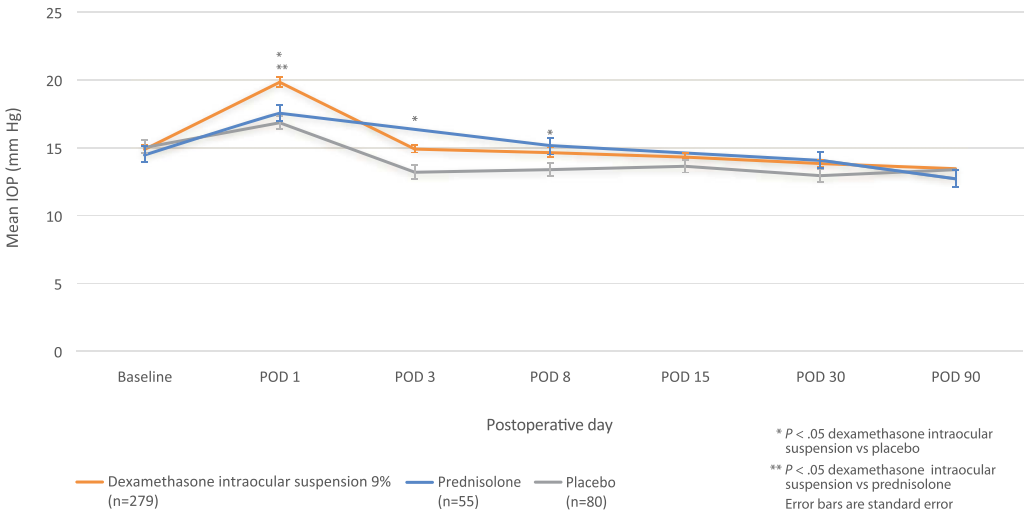

Figure 3. Least-squares mean IOP by visit. Mean IOP per visit by treatment group (IOP = intraocular pressure; POD = postoperative day).

Table 4. In study 2, which was not blinded, 13 (10.3%) dexamethasone intraocular suspension–treated patients were treated with rescue medication through postoperative day 30, and no prednisolone-treated patients were given additional "rescue" medications. Thus, in the 2 studies combined, 44 (15.6%), 0, and 43 (54%) subjects treated with dexamethasone intraocular suspension, prednisolone, and placebo, respectively, were exposed to additional topical antiinflammatory medication through postoperative day 30.

Predictors of IOP Elevation

In the pooled study population as a whole, univariate analysis demonstrated that baseline variables of male sex, high myopia, and IOP baseline IOP >16 mm Hg were independent risk factors for IOP increase postoperatively. Variables not associated with significant risk for postoperative IOP elevation in this analysis included age older or younger than 70 years, ethnicity (although only a small proportion of subjects were non-White), history of diabetes, and history of ocular hypertension. Relationships between risk for elevated postoperative IOP and concomitant α-blocker use and study site could not be demonstrated due to insufficient numbers.

Univariate Analysis—Baseline Variables

Intraocular Pressure. Baseline IOP >16 mm Hg was a risk factor for postoperative IOP change from baseline of 15 mm Hg or greater (odds ratio [OR], 2.456; P = .0061) but not a risk factor for postoperative IOP increases of 10 mm Hg or greater (OR, 1.243; P = .4041) (≥20 mm HG OR, 3.011; P = .0271). Among subjects who had an increase in IOP of 15 mm Hg or greater (n = 43), baseline mean and median IOP were slightly higher at 15.63 (2.91) mm Hg and 16.0 mm Hg, respectively, compared with 14.82 (2.85) mm Hg and 15.00 mm Hg among subjects who did not have an increase of 15 mm Hg or greater. Among subjects who had an increase in IOP of 20 mm Hg or greater from baseline (n = 17), mean and median IOP were again slightly higher at 16.35 (2.87) mm Hg and 17.0 mm Hg, respectively, compared with those who did not have an IOP increase of 20 mm Hg (n = 397).

A similar increased risk for patients with higher baseline IOP was observed among the dexamethasone intraocular suspension– and placebo-treated groups as in the overall population but the overall population but was not seen in the prednisolone-treated group.

Sex. Overall and in each of the 3 treatment groups, male sex was associated with a slightly greater risk for elevated IOP, defined as any postoperative IOP increase of 10 mm Hg or greater or 15 mm Hg or greater from baseline (Table 5). However, risk associated with male sex reached statistical significance only when IOP elevation was defined as 15 mm Hg or greater from baseline (OR, 2.201; P = .018). There was an observable trend toward higher overall risk for increased postoperative IOP among men with baseline IOP was >16 mm Hg compared with men with baseline IOP between 10 mm Hg and 16 mm Hg (Table 6).

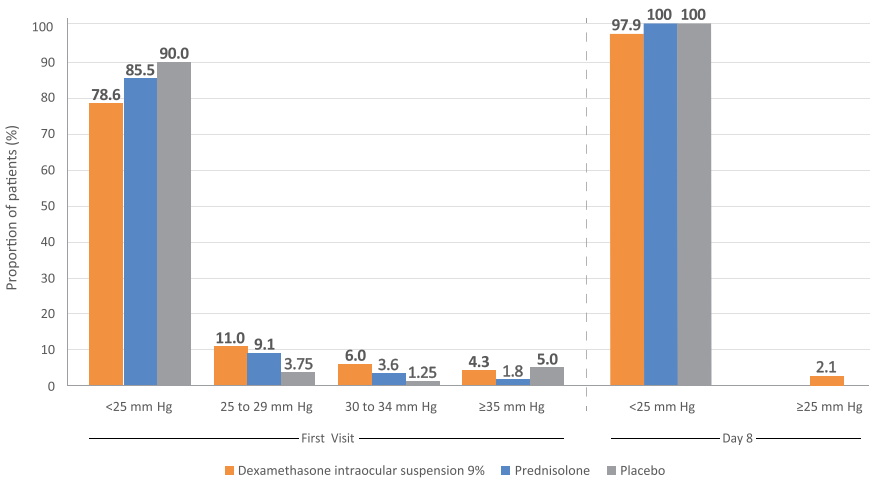

Figure 4. Categorical intraocular pressure on the first postoperative visit and postoperative day 8, by treatment group.

Table 3. Change from baseline IOP by treatment group by visit: separate post hoc analysis.

IOP (mm Hg)	DIS 9% (n = 282), n (%)	Prednisolone (n = 55), n (%)	Placebo (n = 80), n (%)	Total (N = 417), n (%)
1st postoperative visit, n	278	55	80	413
Reduction or no change	75 (27.0)	24 (43.6)	43 (53.75)	142 (34.4)
+1–9	136 (48.9)	21 (38.2)	30 (37.5)	187 (45.3)
+10–19	56 (20.1)	10 (18.2)	5 (6.25)	71 (17.2)
+20–29	11 (4.0)	0	1 (1.25)	12 (2.9)
+30–39	0	0	1 (1.25)	1 (0.2)
POD 3 (study 1 only), n	151		79	230
Reduction or no change	86 (57.0)		60 (75.9)	146 (63.5)
+1–9	61 (40.4)		19 (24.1)	80 (34.8)
+10–19	3 (2.0)		0	3 (1.3)
+20–29	1 (0.7)		0	1 (0.4)
POD 8, n	279	54	80	413
Reduction or no change	177 (63.4)	25 (46.3)	56 (70.0)	258 (62.5)
+1–9	95 (34.1)	29 (53.7)	24 (30.0)	148 (35.8)
+10–19	5 (1.8)	0	0	5 (1.2)
+20–29	2 (0.7)	0	0	2 (0.5)
POD 15 (study 1 only), n	149		78	227
Reduction or no change	94 (63.1)		54 (69.2)	148 (65.2)
+1–9	55 (36.9)		24 (30.8)	79 (34.8)
+10–19	0		0	0
POD 30, n	272	52	78	402
Reduction or no change	195 (71.7)	36 (69.2)	62 (79.5)	293 (72.9)
+1–9	77 (28.3)	16 (30.8)	16 (20.5)	109 (27.1)
+10–19	0	0	0	0
POD 90, n	274	52	76	405
Reduction or no change	205 (74.8)	45 (86.5)	59 (77.6)	309 (76.3)
+1–9	69 (25.2)	7 (13.5)	17 (22.4)	93 (23.0)
+10–19	0	0	0	0
+20–29	0	0	0	0

DIS = dexamethasone intraocular suspension; IOP = intraocular pressure; POD = postoperative day

High Myopia and Visual Acuity. High myopia (> −5.0 D) was associated with a greater risk for elevated postoperative IOP, defined as any postoperative IOP increase from baseline of 10 mm Hg or greater, 15 mm Hg or greater, or 20 mm Hg or greater, overall and within each of the 3 treatment groups, with a few exceptions related to low numbers (Table 7). In the overall population (N = 414), 43 subjects (10.4%) had high myopia, and 15 (35%) of these 43 subjects had an IOP increase from baseline of 10 mm Hg or greater, compared with 72 (20%) of 365 subjects without high myopia (OR, 2.180; P = .024). Similarly, high myopia was also a statistically significant risk for IOP increase from baseline of 15 mm Hg or greater (OR, 3.155; P = .0046).

By all IOP elevation categories and irrespective of treatment group, mean diopter values among subjects with elevated postoperative IOP were categorically higher compared with those who did not experience IOP elevation (Table 8). Curiously, there was an observable trend toward higher overall risk for increased postoperative IOP among patients with high myopia with baseline IOP 10 to 16 mm Hg, compared with patients with high myopia with baseline IOP >16 mm Hg (Table 9).

Table 4. Cumulative rescue medication use by visit: study 1.

POD	DIS 9% (N = 156), n (%)	Placebo (n = 80), (%)
1	10 (6)	10 (13)
3	16 (10)	30 (38)
8	16 (10)	40 (50)
15	26 (17)	43 (54)
30	31 (20)	43 (54)

DIS = dexamethasone intraocular suspension; POD = postoperative day

Univariate Analysis

Risk for Postoperative IOP Increase Based on Antiinflammatory Treatment. Relative to treatment with placebo, treatment with dexamethasone intraocular suspension was associated with increased risk for a change from baseline IOP of 10 mm Hg or greater (OR, 3.558; P = .0024). Risk for postoperative IOP elevation with dexamethasone intraocular suspension was higher relative to placebo among subjects with baseline IOP 10 of 16 mm Hg (OR, 5.431; P = .0061); among subjects with baseline IOP >16 mm Hg, there was no statistically significant increased risk for postoperative IOP elevation in dexamethasone intraocular suspension– vs placebo-treated groups (OR, 2.062; P = .2282). Additionally, there was no statistically significant increased risk for IOP elevation postoperatively among dexamethasone intraocular suspension– vs placebo-treated subjects using either the 15 mm Hg or greater (OR, 2.461; P = .0992) or 20 mm Hg or greater (OR, 2.216; P = .2975) change from baseline thresholds (Table 10).

There was no statistically significant increased risk for IOP elevation postoperatively among dexamethasone intraocular suspension– vs prednisolone-treated subjects using the 10 mm Hg or greater (OR, 1.536; P = .2532) or 15 mm Hg or greater (OR,

Table 5. Influence of sex on elevated postoperative IOP.

IOP Increase Level	Total, n (%)	DIS 9%, n (%)	Prednisolone, n (%)	Placebo, n (%)
≥ 10 mm Hg				
Male	45/188 (24)	35/125 (28)	6/24 (25)	4/39 (10)
Female	43/226 (19)	36/154 (23)	4/31 (13)	3/41 (7)
OR M > F	1.339 (*P* = .225)			
≥ 15 mm Hg				
Male	27/188 (14)	19/125 (15.2)	5/24 (20.8)	3/39 (7.7)
Female	16/226 (7)	13/154 (8.4)	2/31 (6.45)	1/41 (2.4)
OR M > F	2.201 (*P* = .0176)			
≥ 20 mm Hg				
Male	10/188 (5)	9/125 (7.2)	0/24 (0)	1/39 (2.6)
Female	7/226 (3)	6/154 (3.9)	0/31 (0)	1/41 (2.4)
OR M > F	1.758 (*P* = .2622)			

DIS = dexamethasone intraocular suspension; IOP = intraocular pressure; OR = odds ratio

0.888; *P* = .7908) change from baseline thresholds (data insufficient to assess the ≥20 mm Hg change from baseline threshold). There was also no statistically significant difference in risk for IOP increase postoperatively among dexamethasone intraocular suspension– and prednisolone-treated subjects when stratified by baseline IOP.

Two-Factor Logistic Regression

Two-factor logistic regression models were generated to examine interactions between baseline risk factors (high myopia for ≥10 mm Hg IOP change from baseline and high myopia, male sex, and baseline IOP >16 mm Hg for ≥15 mm Hg IOP change from baseline) and treatment group. However, low sample sizes precluded meaningful analysis.

Multivariate Logistic Regression

Results of a multivariate analysis were consistent with the univariate analysis. Overall, using the stricter selection criteria, factors significantly associated with postbaseline IOP change of 10 mm Hg or greater included treatment with dexamethasone intraocular suspension vs placebo and high myopia. Factors associated with postbaseline IOP change of 15 mm Hg or greater also included male sex. Using the more liberal criteria, White ethnicity was also significantly associated with postbaseline IOP change of 10 mm Hg or greater.

DISCUSSION

Although the evolution of corticosteroid development toward a single-use, sustained-release, intraocular formulation satisfies the need for tissue-targeted delivery, dosing precision, and simplicity for patients relative to topical corticosteroid therapy, it should do so while maintaining patient safety. The first U.S. Food and Drug Administration–approved intraocular corticosteroid for inflammation control after ocular surgery, dexamethasone intraocular suspension 9% represents a significant departure from incremental topical anti-inflammatory dosing. To help address concerns of surgeons just beginning to adopt this product, a deeper evaluation of the pooled phase 3 data about IOP seemed warranted.

In our analysis, about 1 (21.3%) in 5 study patients experienced an IOP increase from baseline of 10 mm Hg or greater in the 90 days after cataract surgery. The risk for an IOP increase of 10 mm Hg or greater from baseline was higher among dexamethasone intraocular suspension– vs prednisolone-treated subjects (25.4% vs 18.2%, respectively; *P* = .25); however, the risk for a larger increase (≥15 mm Hg from baseline) was slightly lower with dexamethasone intraocular suspension treatment compared with prednisolone (11.5% vs 12.7%, respectively; *P* = .79), and neither difference was statistically significant. Univariate analysis confirmed that treatment with dexamethasone intraocular suspension did not significantly increase risk for postoperative IOP elevation compared with treatment with prednisolone.

In this analysis, most IOP elevations were observed at the first postoperative visit, which is consistent with previous research showing that IOP peaks within the first 24 hours after cataract surgery and likely reflects surgery-related trauma, retained ophthalmic viscosurgical device material, or mild foreign body reaction to the newly implanted IOL. At the first postoperative visit in our patient pool, 21.3% of patients treated with dexamethasone intraocular suspension (compared with 14.5% treated with prednisolone and 18% of study eyes overall) had IOP of 25 mm Hg or greater. Mean IOP between the dexamethasone

Table 6. Influence of sex and categorical baseline IOP on elevated postoperative IOP.

IOP Increase Level	Baseline IOP 10–16 mm Hg, n (%)	Baseline IOP >16 mm Hg, n (%)
≥10 mm Hg		
Male	30/139 (21.6)	14/47 (29.8)
Female	28/154 (18.2)	14/70 (20)
OR M > F	1.239 (*P* = .466)	1.697 (*P* = .226)
M% – F%	3.40	9.80
≥15 mm Hg		
Male	15/139 (10.8)	12/47 (25.5)
Female	8/154 (5.2)	8/70 (11.4)
OR M > F	2.208 (*P* = .0814)	2.657 (*P* = .052)
M% – F%	5.60	14.10
≥20 mm Hg		
Male	4/139 (2.9)	6/47 (12.8)
Female	4/154 (2.6)	3/70 (4.3)
OR M > F	1.111 (*P* = .8832)	3.268 (*P* = .1068)
M% – F%	0.30	8.50

IOP = intraocular pressure; OR = odds ratio

Table 7. Influence of high myopia (> −5 D) on postoperative IOP elevation.

IOP Increase and Myopia Level	Overall, n (%)	DIS 9%, n (%)	Prednisolone, n (%)	Placebo, n (%)
≥10 mm Hg				
HiMy	15/43 (35)	8/27 (30)	6/12 (50)	1/4 (25)
noHiMy	72/365 (20)	62/246 (25)	4/43 (9)	6/76 (7.9)
OR (*P*)	2.180 (.024)			
≥15 mm Hg				
HiMy	10/43 (23)	5/27 (19)	5/12 (42)	0/4 (0)
noHiMy	32/365 (9)	26/246 (11)	2/43 (5)	4/76 (5)
OR (*P*)	3.155 (.0046)			
≥20 mm Hg				
HiMy	4/43 (9)	4/27 (15)	0/12 (0)	0/4 (0)
noHiMy	12/365 (3)	10/246 (4)	0/43 (0)	2/76 (3)
OR (*P*)	3.017 (.0664)			

DIS = dexamethasone intraocular suspension; HiMy = high myopia; IOP = intraocular pressure; noHiMy = not high myopia; OR = odds ratio

intraocular suspension–treated and prednisolone-treated groups was similar by postoperative day 8.

The incidence of elevated IOP on the first postoperative visit after cataract surgery was similar to that of previous studies (although this is defined variably in the literature). A retrospective analysis by Coban-Karatas et al. demonstrated that in 812 eyes among 584 consecutive patients with cataract who were treated with uneventful phacoemulsification surgery, 30.7% of patients had elevated IOP (>22 mm Hg) on the first postoperative day, 8.8% of patients on day 7, and 1.2% of patients on day 30.[20] Other analyses have shown that between 15% and 22% of patients undergoing cataract surgery had IOP of 23 mm Hg or greater on the first postoperative day using standard antiinflammatory treatment regimens.[9,17] In a prospective study, Browning et al. demonstrated a 12% incidence of IOP elevation of 26 mm Hg or greater at 22 to 24 hours after cataract surgery.[21]

By univariate analysis in the study population overall, independent risk factors for IOP increase of 10 mm Hg or greater after cataract surgery were higher baseline IOP (>16 mm Hg) and high myopia; for IOP elevation of 15 mm Hg or greater, risk factors also included male sex. The most consistent baseline predictor of IOP elevation on multivariate analysis was high myopia; baseline IOP, male sex, and White ethnicity might also be important predictors of postoperative IOP elevation. These data confirm risk factors identified in previous reports.[10,15–17,21,22] We were not able to provide confirmatory evidence of other previously established risk factors for postoperative IOP elevation, including comorbid diabetes or (IOP-stable) ocular hypertension.[15,16] Other factors that have been associated with increased risk for postoperative IOP elevation—including pseudoexfoliation; history of ocular trauma; α-blocker use; previous laser trabeculoplasty; surgical complications (eg, vitreous loss, anterior and posterior capsular tear, and zonular lysis); residual ophthalmic viscosurgical device material; and surgical inexperience—were either insufficiently present, not documented, or otherwise not evaluable in our population.[15,16]

The question remains as to how to approach a patient who experiences elevated postoperative IOP after treatment with dexamethasone intraocular suspension. It is generally agreed that high corticosteroid responders comprise roughly 4% to 6% of the population; they typically experience an IOP of >31 mm Hg (or increase of >15 mm Hg from baseline) at 3 to 6 weeks, and almost never within the first 5 days, after corticosteroid exposure.[23–25] Known corticosteroid responders were excluded from the phase 3 clinical trials; however, many individuals approaching cataract surgery might not have had previous ocular

Table 8. Influence of mean and median diopter on postoperative IOP elevation.

IOP Increase and RE	Overall		DIS 9%		Prednisolone		Placebo	
≥10 mm Hg	Y	N	Y	N	Y	N	Y	N
Mean D	−1.94 (3.67)	−0.70 (3.10)	−1.55 (3.33)	−0.84 (3.14)	−4.73 (4.57)	−1.18 (3.71)	−1.86 (4.42)	−0.03 (2.45)
Median D	−1.00	−0.25	−1.00	−0.50	−5.75	−0.50	−1.50	0.25
≥15 mm Hg	Y	N	Y	N	Y	N	Y	N
Mean D	−2.59 (4.08)	−0.78 (3.11)	−2.02 (3.89)	−0.89 (3.09)	−5.96 (4.56)	−1.22 (3.67)	−1.06 (1.42)	−0.14 (2.73)
Median D	−1.88	−0.50	−1.00	−0.50	−6.00	−0.50	−1.50	0.25
≥20 mm Hg	Y	N	Y	N	Y	N	Y	N
Mean D	−2.61 (4.01)	−0.90 (3.22)	−2.95 (4.16)	−0.92 (3.12)	NA	−1.82 (4.07)	−0.25 (1.77)	−0.19 (2.71)
Median D	−2.00	−0.50	−2.75	−0.50	NA	−0.75	−0.25	0.25

DIS = dexamethasone intraocular suspension; IOP = intraocular pressure; NA = not applicable; RE = refractive error

Table 9. Influence of high myopia (> −5 D) and categorical baseline IOP on elevated postoperative IOP.

IOP Increase and Myopia Level	Baseline IOP 10–16 mm Hg, n (%)	Baseline IOP >16 mm Hg, n (%)
≥ 10 mm Hg		
HiMy	9/24 (37)	6/19 (32)
noHiMy	49/267 (18)	21/94 (22)
Odds ratio	2.669 (*P* = .0292)	1.605 (*P* = .3917)
HiMy% – noHiMy%	19.00	10.00
≥15 mm Hg		
HiMy	6/24 (25)	4/19 (21)
noHiMy	17/267 (6)	15/94 (16)
Odds ratio	4.902 (*P* = .0029)	1.405 (*P* = .5892)
HiMy% – noHiMy%	19.00	5.00
≥20 mm Hg		
HiMy	2/24 (8)	2/19 (11)
noHiMy	6/267 (2)	6/94 (6)
Odds ratio	3.955 (*P* = .1041)	1.725 (*P* = .5251)
HiMy% – noHiMy%	6.00	5.00

HiMy = high myopia; IOP = intraocular pressure; noHiMy = not high myopia

Table 10. Risk for postoperative IOP increase among patients treated with dexamethasone intraocular suspension 9% vs placebo.

IOP Increase and Baseline Level	Odds Ratio	*P* Value
≥10 mm Hg, total	3.558	.0024
≥10 mm Hg, baseline 10–16 mm Hg	5.431	.0061
≥10 mm Hg, baseline >16 mm Hg	2.062	.2282
≥15 mm Hg, total	2.461	.0992
≥20 mm Hg, total	2.216	.2975

IOP = intraocular pressure

surgery or disease requiring corticosteroid therapy and are unaware of their steroid responder status.

Although it is reasonable to take a cautious approach to any patient group excluded from clinical trials, our data indicate that surgeons should be comfortable administering dexamethasone intraocular suspension to otherwise healthy individuals undergoing cataract surgery with standard follow-up procedures in place. As mentioned, our analysis showed that IOP elevation peaked within the first 24 hours of surgery and, importantly, no subsequent IOP spike (characteristic of corticosteroid response after prolonged exposure) was observed. Furthermore, it is worth noting that dexamethasone intraocular suspension is a self-tapering formulation designed to release an initial bolus of drug that tapers rapidly.

In both studies, IOP-lowering medications were administered based on investigator discretion; rates of IOP-lowering medication use were low for all groups, including those treated with dexamethasone intraocular suspension, and, as previously stated, nearly all courses of treatment were brief. A separate post hoc analysis of dexamethasone intraocular suspension phase 3 data revealed that in both studies combined, 25 (8.9%) dexamethasone intraocular suspension–treated subjects received topical IOP-lowering medication.[D] In study 1, 13 (8.3%) of 156 dexamethasone intraocular suspension–treated patients and 5 (6.3%) of 80 placebo-treated patients were given IOP-lowering medication; mean maximum IOPs in this subgroup were 34.1 mm Hg and 36.8 mm Hg, respectively. Nearly all patients started on IOP-lowering medication did so on postoperative day 2; the latest timepoint for treatment initiation was postoperative day 4. Overall, mean and median duration of postoperative IOP-lowering treatment were 6.4 days and 3 days, respectively.

In study 2, 12 (9.5%) of 126 dexamethasone intraocular suspension–treated patients and 2 (3.6%) of 55 prednisolone-treated patients were given IOP-lowering medication; mean maximum IOPs in this subgroup were 34.5 mm Hg and 33.5 mm Hg, respectively. Again, nearly all patients started on IOP-lowering medication did so on postoperative day 1, with 2 patients starting on postoperative day 7 or 8. (Note: there was no follow-up day 3 in study 2.) Mean and median duration of postoperative IOP-lowering treatment were 25 days and 7 days, respectively. The difference between mean and median duration of IOP-lowering medication in this study was attributable to 1 patient who received IOP-lowering medication from day 2 to day 90. Maximum IOP for this patient was 25 mm Hg in the early postoperative course, which had returned to normal by postoperative day 8.

Whether the timing of corticosteroid response to intraocular corticosteroids differs from topically delivered corticosteroids is not known. Although IOP-lowering medication might in theory mask (ie, prevent) a second IOP spike, this is unlikely given the early onset and brevity of IOP-lowering treatments detailed earlier.

There were several limitations to this analysis. Patients with glaucoma, recent ocular surgery, history of intravitreal injection or implant, history of uveitis or other inflammatory disorder, corneal abnormality, and recent exposure to topical NSAID or corticosteroid were excluded from these trials. Thus, the results reported here might not apply to all patients who are at risk for corticosteroid-related adverse events. The study population was also mostly of White ethnicity; thus, caution must be used in interpreting our results in non-White populations.

In study 1, a subset of dexamethasone intraocular suspension–treated subjects received rescue antiinflammatory medication (Table 4), which increased total corticosteroid exposure and might or might not have impacted mean postoperative IOP in the dexamethasone-treated arm. At the time of rescue medication administration, a minority of patients in either treatment group met the prespecified criteria of ACC and/or ACF grade 3 on examination. Given the blinded, placebo-controlled trial design, it is not surprising that some investigators would deviate from protocol and administer topical antiinflammatory drops because they could not know whether a given patient had received any corticosteroid. In practice, however, surgeons might be less concerned about mild ocular inflammation and less inclined to add topical drops to a sustained-release intraocular corticosteroid that they knowingly instilled.

In addition, several baseline variables found to be risk factors for IOP elevation were not evenly balanced within

the treatment groups. The dexamethasone intraocular suspension–treated group had a slightly higher proportion of men, whereas the prednisolone-treated group had higher proportions of subjects with high myopia and who were on IOP-lowering medication at baseline.

Data were also unavailable for some variables that might have contributed to postoperative inflammation and IOP elevation, including variations in surgical technique and experience, phacoemulsification power, and surgical complications or retained ophthalmic viscosurgical device material. We did evaluate postoperative IOP elevations by surgical site and did not find any pattern of clustering. Finally, given the post hoc nature of these analyses and the often relatively small groups, measures of significance should be interpreted cautiously.

In summary, dexamethasone intraocular suspension represents a step forward in the treatment of postoperative inflammation for patients undergoing cataract surgery, because of reliable antiinflammatory efficacy, elegant mode of delivery, and safety comparable with that of topical prednisolone. There are no contraindications to the use of dexamethasone intraocular suspension; however, until further research is performed, dexamethasone intraocular suspension might be used with caution in patients with poorly controlled glaucoma, ocular hypertension, and other populations not represented in the clinical trials. As with other ocular corticosteroids, patients treated with dexamethasone intraocular suspension should be monitored for postoperative IOP elevation, regardless of baseline risk factors, although the available evidence indicates that postoperative IOP elevations with dexamethasone intraocular suspension are transient and responsive to topical IOP-lowering treatments.

WHAT WAS KNOWN

- It is well known that corticosteroid exposure after cataract surgery is a risk factor for IOP elevation. Less is known about the effect of new corticosteroid delivery mechanisms on IOP risk, because they are new to surgical practice.
- Rates of IOP elevation in dexamethasone intraocular suspension clinical trials have been previously published.[7,8]

WHAT THIS PAPER ADDS

- Among patients undergoing cataract surgery in clinical trials, a new sustained-release formulation of corticosteroid, dexamethasone intraocular suspension 9%, was not an independent risk factor for postoperative IOP increase relative to conventional topical corticosteroid use.
- Sustained-release intraocular delivery of corticosteroid did not significantly alter the risk profile for postoperative IOP elevation relative to conventional topical delivery.
- Because of low numbers of subjects experiencing elevated postoperative IOP, intertreatment comparisons of risk factors could not be determined.

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