Comparative Efficacy of Intravitreal Triamcinolone and Dexamethasone Intravitreal Implant for Diabetic Macular Edema

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Abstract

Purpose: To compare the efficacy, adverse effects, and treatment burden of two injectable corticosteroids, triamcinolone acetonide (Kenalog® or Triesence®) and the dexamethasone intravitreal implant (Ozurdex®), for treating diabetic macular edema (DME).

Methods: This was a retrospective review at a single tertiary care center. Eyes treated with either intravitreal triamcinolone two mg (IVTA) or the intravitreal dexamethasone 0.7 mg implant for center-involving DME and with follow up of at least six months were included. Main outcomes were visual acuity (VA), intraocular pressure (IOP), IOP medication use, central macular thickness (CMT), and time to next treatment of any kind.

Results: There were 24 eyes in the IVTA group and 15 eyes in the dex group. Baseline mean VA was 20/60 (range 20/30-20/800) in the IVTA group and 20/35 (range 20/20-20/100) in the dex group ($p=0.0011$). Only the subgroup of pseudophakic IVTA patients experienced a statistically significant increase in vision early on (+2 letters at month 1, +3 letters at month three), though not at month six. Mean IOP increased by 2.5 and 0.20 mmHg at month one in the IVTA and dex groups, respectively ($p=0.27$). Mean CMT decreased by 143 μ m with IVTA and 39 μ m with dex at month one ($p=0.00025$). Mean time to next treatment of any kind was 19 weeks for IVTA and 20.3 weeks for dex ($p=0.41$).

Conclusions: Intravitreal triamcinolone and the intravitreal dexamethasone implant both show similar efficacy at reducing DME and its treatment burden, but neither significantly affected visual acuity over six months.

Introduction

A minority of patients respond poorly to anti-VEGF and may benefit from local corticosteroids, like dexamethasone or triamcinolone, which reduce macular edema by inhibiting inflammatory mediators, improving leukostasis, and enhancing tight junctions between endothelial cells [1].

Despite being the only medium-acting, intravitreal corticosteroids, triamcinolone acetonide is a short-to-medium-acting injectable intravitreal corticosteroid lasting from one to several months. No randomized trials comparing the two agents for DME have been performed, so their comparative risk-benefit profiles are unclear. The purpose of this study was to assess and compare the efficacy of these two treatments in a real-world setting.

Word Count: 95 words

Methods

This study was approved by the institutional review board of the home institution and adhered to the Health Insurance Portability and Accountability Act of 1996 and the Declaration of Helsinki. A

retrospective chart review was performed on patients 18 or older who had diabetic macular edema and had been treated with either the intravitreal dexamethasone implant, Ozurdex © (Allergan PLC; Dublin, IE) or intravitreal triamcinolone acetonide, Kenalog® (Bristol-Myers Squibb Company; Princeton, NJ) or Triesence® (Alcon Laboratories, Inc; Fort Worth, TX), injections between January 2012 and July 2019 at a single academic medical center. Diabetic macular edema was diagnosed based on center-involving intraretinal cystoid spaces on spectral domain optical coherence tomography (SD-OCT) findings in combination with diabetic retinopathy on clinical exam. Patients with initial central macular thickness (CMT) values under 300 µm were removed from the data set. Patients were excluded from the study if they had retinal vein occlusions, retinal artery occlusions, age-related macular degeneration, or any other pre-existing macular conditions that would otherwise affect the retinal vasculature or macular thickness, or if they had significant media opacity precluding OCT evaluation of the macula. Patients were also excluded if they did not maintain regular follow-up for at least six months after their first corticosteroid injection or if they received centrifuged Kenalog® injections. Patients who had received prior anti-vascular endothelial growth factor (VEGF) treatments were not excluded from the study. Furthermore, some patients continued to receive anti-VEGF treatments a month or more after their first corticosteroid injection, as is consistent with a real-world clinical setting. Similarly, treatment of ocular hypertension with topical ocular hypotensive agents was at the discretion of the treating physician.

Data collected included patient demographics, diabetic diagnosis (DM1 or DM2), prior treatments, lens status, central macular thickness (CMT), best-corrected visual acuity (BCVA), intraocular pressure (IOP), use and number of IOP medications, and time to next treatment (anti-VEGF or corticosteroid). Main outcomes measures were CMT at month one, general trend of CMT change over time, BCVA, IOP and number of IOP medications, and time to next treatment. Outcomes were compared both within a given treatment group over time and between treatment groups. CMT measurements were obtained using the Spectralis (Heidelberg Engineering, Heidelberg, Germany) or the Zeiss Cirrus Angioplex 5000 (Carl Zeiss Meditec, Jena, Germany), with a given patient consistently undergoing imaging on the same machine.

The dexamethasone 0.7 mg implant was inserted according to manufacturer's recommendation. Triamcinolone acetonide two mg, either Kenalog or Triesence, was administered in 0.05 cc. Statistical tests used were student t-tests, hazard ratios, and Cox proportional hazards models. Student t-tests were all carried out using Microsoft Excel (Microsoft, Redmond, Washington), and proportional hazard tests were carried out using IBM SPSS Statistics (IBM, Armonk, New York).

Results

42 patients were screened, and 35 eyes of 29 patients were included after inclusion and exclusion criteria were applied (Table 1). 20 eyes (14 patients) received triamcinolone treatment (IVTA), while 15 eyes (11 patients) received dexamethasone (dex) treatment.

Both groups were well matched in most respects. Fourteen patients, six in the IVTA treatment group and eight in the dex group, had co-existing heart disease. Thirty-four patients, twenty in the IVTA group and

fourteen in the dex group, had co-existing hypertension. Finally, fourteen patients, ten in the IVTA group and four in the dex group, had hyperlipidemia. A1c measures were elevated in both groups with an average overall A1c of 7.29. The IVTA group had an average A1c of 7.07 and the dex group had an average A1c of 7.56 ($p = 0.11$). Median age was 60 years (IQR 14 years) in the IVTA group versus 63.7 years (IQR 12 years) in the dex group. Women made up 56% of patients in IVTA group and 36.4% of the dex group, type 1 diabetics 28% of the IVTA group and 27% of the dex group, and phakic patients 20% of the IVTA group and 33% of the dex group. Mean baseline CMT was 464.5 μm in the IVTA group and 426.3 μm in the dex group ($p = 0.13$). Average decimal BCVA was 0.33 (Snellen equivalent 20/60) for IVTA patients and 0.57 (Snellen equivalent ~ 20/35) in the dex group ($p = 0.0011$), and average IOP 15.3 mmHg for IVTA patients and 16.1 mmHg for dex patients. The average number of anti-VEGF injections prior to first corticosteroid injection was 3.7 for patients in the IVTA group and 6.5 for patients in the dex group ($p = 0.02$).

Anatomical Outcomes

Compared with baseline, the CMT at month one post-treatment was reduced by 143.2 μm ($p = 3.6 \times 10^{-8}$) in the IVTA group and 39.3 μm ($p = 0.02$) in the dex group (Table 2). There was a greater mean decrease in CMT values for triamcinolone compared to dexamethasone treatment, which was statistically significant ($p = 2.5 \times 10^{-4}$, Fig. 1).

In addition to the CMT change seen from baseline at one month, there were also statistically significant differences for both triamcinolone and dexamethasone recipients three months post-treatment. The IVTA group demonstrated a mean CMT decrease of 103.8 μm from baseline ($p = 5.6 \times 10^{-4}$), while the dex group had a mean CMT decrease of 91.1 μm ($p = 3.6 \times 10^{-3}$). IVTA continued to show an average decrease (111.5 μm , $p = 0.013$) in CMT at month six, while dexamethasone showed an increase in CMT (Fig. 2). When comparing the two at six months, the difference was statistically significant in favor of IVTA ($p = 0.015$). Notably, from months three to six, the mean CMT change within the dex group increased significantly from - 110 to + 85.8 μm ($p = 0.028$).

Vision

There was little change in VA within either the IVTA or the dex groups over time (Fig. 2). There was a statistically significant difference between the two treatments at baseline, with the triamcinolone group having a lower mean BCVA of 0.33 (Snellen 20/60) and the dexamethasone group having one of 0.57 (Snellen 20/35, $p = 4.6 \times 10^{-3}$). From month zero to month one, visual acuity did not change significantly for either group, although there was less of a decline in vision in the IVTA group compared to the dex group; there was a loss of one letter in the IVTA group and loss of 3 letters in the dex group, $p = 0.02$). Differences between groups in change in VA were not statistically significant at any other time point.

Nine eyes were phakic (four in the IVTA group and five in the dex group) and 26 eyes were pseudophakic (16 in the IVTA group and 10 in the dex group). Change in VA with regard to lens status was compared both overall and within treatment groups (Table 3). From month zero to month one, phakic patients in the

IVTA group lost two lines of vision, while pseudophakic patients in the IVTA group improved two letters ($p = 0.011$). In the same time frame, phakic patients in the dex group lost one line of vision, while pseudophakic patients lost 2.5 letters ($p = 0.22$). Pooling both groups from month zero to month one, phakic patients lost 1.5 lines of vision while pseudophakic patients improved one letter (difference 1.5 lines, $p = 0.006$).

From month zero to month three, dex demonstrated a statistically significant difference between phakic patients (-1.5 lines) and pseudophakic patients (+ 1.5 lines, $p = 0.044$). From month three to month six, when pooling both treatment groups, there was a statistically significant difference between phakic patients (-1.5 lines) and pseudophakic patients (no change, $p = 0.040$). The subgroup of patients that gained vision w pseudophakes in the IVTA group at months one and three (both + 2.5 letters) and pseudophakes in the dex group at month one (+ 1 line).

Intraocular Pressure Response

At month one post-treatment, mean IOP in the IVTA group rose from 15.28 mmHg to 18.96 mmHg ($p = 0.063$), compared with the slight decrease from 16.75 to 16.42 ($p = 0.43$) in the dex group. The two treatments did not have a significant variation in IOP from one another at month one ($p = 0.27$). At month three, the IVTA group continued to have a slightly elevated mean IOP of 17.81 mmHg ($p = 0.11$), though lower than the IOP at month one, and IOP continued to decline thereafter (Fig. 3).

With regard to number of IOP medications, there were no dex patients on IOP-lowering medications at baseline, while 16.7% (three patients) in the IVTA group were on IOP medications at baseline. There was a trend towards slightly higher IOPs in the IVTA group; after receiving one treatment, 38.9% (seven patients) of IVTA patients were on topical ocular hypotensive therapy (mean 1.83 IOP-lowering medications) and 6.6% (one patient) in the dex group had been prescribed two IOP-lowering medications ($p = 0.07$).

Treatment Burden

While this study focused on IVTA versus dex therapy, most patients continued to receive anti-VEGF treatments thereafter. The median time between treatments of any kind (namely, either an anti-VEGF injection or a corticosteroid injection) was 19 weeks in the IVTA group and 20.3 weeks in the dex group. However, seven patients who received triamcinolone and three patients who received dexamethasone did not receive additional injections of any kind for six months post treatment. The two survival curves were compared by the log-rank test (Cox-Mantel test) and were found to be statistically insignificant ($p = 1.00$, Fig. 4). Nine patients comprising 28% of the patient population, six from the IVTA group and three from the dexamethasone group, received more than one corticosteroid injection of the same type within six months. Although only the outcomes from the first injection were considered in the results above, we also assessed how many corticosteroids were administered on average within six months. For patients receiving triamcinolone, the average was 1.45 ± 0.69 treatments (range: 1–3). For patients receiving dexamethasone, the average was 1.38 ± 0.52 (range: 1–2).

Adverse Events

One IVTA patient developed non-infectious intraocular inflammation (“sterile endophthalmitis”), and one in the dex group developed infectious endophthalmitis post-injection. This did not appear to drastically affect BCVA and IOP, but it may have affected CMT averages. No other serious adverse events occurred.

When planning this study, the intention was to also analyze all parameters (CMT, BCVA, IOP, etc.) in patients status post-vitrectomy and compare them to non-vitrectomized patients. However, only five patients were vitrectomized, and only one of these patients received dexamethasone. Thus, this subgroup analysis was insufficiently powered to be meaningful.

Discussion

Presently, both triamcinolone acetonide and dexamethasone are widely used in the treatment of diabetic macular edema refractory to anti-VEGF treatment with or without focal or grid macular photocoagulation. Triamcinolone is administered as an injection approximately every three months, while dexamethasone is an implant advertised to last six months. The zero-order kinetics of dexamethasone implant theoretically improves its IOP profile in contrast to large-bolus triamcinolone injections. Both treatments have been assessed separately to measure efficacy with regard to diabetic macular edema [2, 3]. They have also been directly, prospectively compared in a comparative effectiveness trial for the treatment of uveitic macular edema and retrospectively for retinal vein occlusions [4, 5]. Data comparing the two for diabetic macular edema are surprisingly very limited. This retrospective study sought to compare the efficacy and adverse effects of triamcinolone with the dexamethasone implant for treating DME.

The main outcome measure for this study was change in central macular thickness at one month. While a large amount of additional and still informative data was collected, this outcome was chosen because it represents an important clinical outcome that was free of any confounding by combination treatments. The results clearly demonstrate a superior effect of IVTA over dexamethasone in treating DME at month one, with a change in CMT of $-143\text{ }\mu\text{m}$ versus $-39.3\text{ }\mu\text{m}$ ($p = 2.5 \times 10^{-4}$). This difference is not only highly statistically significant, but is clinically significant as well. CMT changes beyond month one cannot be reliably attributed to the effects of these two corticosteroids because combination treatment was allowed at the discretion of the treating physician. Thus, overall CMT trends across the six months are difficult to interpret. However, one important observation in the dexamethasone group is that there is an inflection point of mean CMT at month three. It falls for the first three months and then begins to rise thereafter. Again, one cannot definitively conclude that the dexamethasone implant’s peak effect is three months because some of these patients received anti-VEGF from month one onwards, but it suggests that the agent’s efficacy declines after month three. These results are consistent with the anatomical data in the Ozurdex PLACID Study comparing the dexamethasone implant plus macular laser photocoagulation to sham treatment plus laser [6]. Peak effect was seen at approximately month one, and there was a steady increase in CMT thereafter. To the authors’ knowledge, anatomical data between injections during the three-year Ozurdex MEAD Study were never published [3, 7]. Interestingly, the POINT Trial comparing the

dexamethasone implant to IVTA or periocular triamcinolone for uveitic macular edema, a different indication for corticosteroids but similarly an exudative maculopathy, did not find greater size or duration of effect for the dexamethasone implant over triamcinolone [4].

Visual acuity showed no significant improvement within either group. Both groups contained a mix of phakic and pseudophakic patients. This result is not particularly surprising given the well documented experience with each of these agents in mixed phakic and pseudophakic populations. The Diabetic Retinopathy Clinical Research Network's Protocol I study, comparing ranibizumab with prompt or deferred laser, triamcinolone with laser, or sham plus laser found no visual acuity benefit at two years with IVTA [8]. In a later DRCR trial, adding dexamethasone to regular anti-VEGF therapy similarly did not improve visual acuity over ranibizumab alone [9].

To assess the potential impact of lens status on visual acuity, visual acuity data was compared for phakic and pseudophakic patients, both within each treatment group and overall. From month zero to month one, there were statistically significant differences favoring improved visual acuity in both pseudophakic triamcinolone patients ($p = 0.01$). From month zero to month three, dexamethasone patients demonstrated the same trend ($p = 0.044$). Overall, pseudophakes had better visual outcomes. Although we did not specifically collect data on lens grading in the phakic group, a notoriously subjective assessment, we strongly suspect this was due to corticosteroid-induced cataract formation in these patients, effectively nullifying the expected visual gains from improved DME.

Because all efficacy data after month one are of course confounded by the use of combined anti-VEGF therapy, we sought alternate methods to assess the effect of these two corticosteroids on treatment burden for DME after month one in this real-world setting. In other words, to what extent does use of either of these drugs impact the need for future injections? To answer this question, we created a survival curve of time to next treatment of any kind (anti-VEGF or corticosteroid) and compared the two curves in general by a log-rank (Cox-Mantel) test and in particular for median time to next treatment. The mean time to next treatment was 19 weeks for IVTA and 20.3 weeks for dex. Similarly, the log-rank test showed no difference between the two curves. When only corticosteroid treatments were taken into account, there were on average 1.45 corticosteroid treatments administered within six months when patients were treated with triamcinolone, and 1.38 corticosteroid treatments administered within six months when patients were treated with dexamethasone.

With regard to corticosteroid response, both groups experienced modest increases in IOP, but with a trend towards more significant elevation in the triamcinolone group. Of course, post-injection IOPs were influenced by concurrent ocular hypotensive treatment. 16.7% of IVTA group patients were on IOP medications prior to treatment, which increased to 38.9% after one triamcinolone injection. In comparison, there were no patients in the dexamethasone treatment group receiving IOP-lowering medications prior to treatment, and only 6.6% were prescribed IOP-lowering medications after one implant. Considering the statistically and clinically significantly greater fraction of patients requiring

ocular hypotensive treatments post-injection, it is possible that adverse IOP effects induced by triamcinolone may be greater than those of the slow-releasing dexamethasone implant.

This study was limited by several factors. First, it suffers from the usual weaknesses of retrospective studies. The groups were not randomized, and thus there may be imbalances between them. Indeed, the IVTA group had slightly greater CMT at baseline, which increases this group's ability to improve CMT, the so-called ceiling or floor effect. Similarly, they differed in number of prior anti-VEGF treatments, 3.9 in the IVTA group and 6.53 in the dexamethasone group. However, the implications of this difference are unclear. On one hand, it may suggest DME that is more resistant to treatment. On the other hand, a suboptimal response to eight anti-VEGF injections should not necessarily preclude response to intravitreal corticosteroids because of their different mechanism of action, which is precisely why they remain a second-line treatment option. Moreover, physicians treated their patients per clinical judgment, and thus times to next treatment reflect the treating physicians' degree of aggressiveness and not simply the efficacy of these different agents. Last, as already mentioned, efficacy data after month one were confounded by combination treatment with anti-VEGF in most cases, and IOP data by the use of ocular hypotensive treatments. However, analyzing several metrics like use of ocular hypotensive agents in each group and time to next treatment "survival" curves allow us to make meaningful if limited real-world conclusions about comparative IOP profiles and treatment burdens with these agents.

Last, we concede on two points. We realize that the retrospective design of our study allowed for there to be less chronic cases in one group over the other. This is something that we tried to control for by following records back to the first recorded injection at our facility, assumedly documenting all anti-VEGFs used as well as the first corticosteroid administered. Many of these were 2012 or prior, so paper records were used at that time. It is possible that we did not catch the first injection for everyone, but we strived to ensure that we did.

Secondly, 29 patients (35 eyes) meeting inclusion and exclusion criteria do not constitute a large group. One example of this is that there was only one treatment-naïve patient per group, which prevented comparison of treatment-naïve to non-naïve. While certain limited conclusions can be reached, other questions can only be answered with larger numbers and in a prospective fashion. For instance, determining the comparative duration of effect of the two agents can only be determined in a randomized, head-to-head trial without the use of combination therapy.

In summary, intravitreal triamcinolone and the intravitreal dexamethasone implant both show efficacy at improving DME and reduce treatment burden similarly, but both had little effect on visual acuity. Triamcinolone had superior anatomical efficacy at one month, but possibly at the expense of a worse IOP profile. While this study could not determine which drug has the greater duration of effect, the dexamethasone implant showed waning efficacy after three months. Additionally, pseudophakic patients receiving either treatment demonstrate better outcomes with regard to visual acuity measures.

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Tables

Table 1. Baseline Demographics and Clinical Values by Group at Baseline^a

		<u>Triamcinolone</u>	<u>Dexamethasone</u>
<i>Median age, years (IQR) 60 (14)</i>		60 (14)	63.7 (12)
<i>Sex, n (% of total patients)</i>			
		10 (55.6%)	7 (63.6%)
<i>Male 17 (58.6)</i>		8 (44.4%)	4 (36.4%)
<i>Female 12 (41.4)</i>			
<i>Diabetic Diagnosis, n (% of total patients)</i>	<i>T1D 8 (25.8%)</i>	5 (27.8%)	3 (27.3%)
	<i>T2D 23 (74.1%)</i>	13 (72.2%)	8 (72.7%)
<i>Lens status, n (% of total eyes)</i>		4 (20%)	5 (33.3%)
<i>Phakic 9 (25.7%)</i>		16 (80%)	10 (66.7%)
<i>Pseudophakic 26 (74.3%)</i>			
<i>Previous Anti-VEGF</i>		3.7 (0-21)	6.5 (0-11)
<i>Injections (range)</i>			
	p= 0.02		
		464.5 (330-602)*	429.8 (306-758)
<i>Mean CMT in μm (range)</i>			
	p= 0.13		
		0.33 (0.025-0.80)	0.55 (0.05- 1.0)
<i>Decimal Best Corrected Visual Acuity (range)</i>			
	p= 0.0011		
<i>IOP in mmHg (range)</i>			

	15.3 (9-22)	15.9 (11-23)
<i>Number of Patients on IOP-Lowering</i>		
<i>Medications (% of total patients) 3 (8.8%)</i>	3 (16.7%)	0

^aTwo patients were excluded from the baseline CMT calculations due to inaccurate computed CMT values

Table 2. Clinical Outcomes of CMT, BCVA, and IOP Following Administration of Triamcinolone or Dexamethasone. In the Difference Between Groups section, the desirable result (decrease for CMT and change in IOP and increase for BCVA) is listed, along with a D or T (dexamethasone or triamcinolone) for which treatment group was comparatively better and a p value comparing the two groups. P values are in parentheses.

Table 2. CMT, BCVA, and IOP Following Intravitreal Injection of Triamcinolone or Dexamethasone

Change in CMT (μm)

<i>Month 0 (p)</i>	463.6	426.3	D -38.1 (0.13)
<i>Month 1 (p)</i>	-143.2 (3.6 x 10 ⁻⁸)	-39.3 (0.019)	T -96.7 (2.5 x 10 ⁻⁴)
<i>Month 3 (p)</i>	-103.8 (5.6x10 ⁻⁴)	-91.1 (3.6 x 10 ⁻³)	T -12.7 (0.17)
<i>Month 6 (p)</i>	-111.5 (0.013)	85.8 (0.12)	T -197.3 (0.015)

Change in BCVA

<i>Month 0 to</i>	-1 letter	-3 letters	T <1 line (0.051 logMAR,
<i>Month 1 (logMAR value, p)</i>			<i>p</i> = 0.022)
<i>Month 0 to</i>	+3.5 letters	+1 letter	T < 1 line (-0.050 logMAR,
<i>Month 3 (p)</i>			<i>p</i> = 0.36)
<i>Month 0 to</i>	no change	+2 letters	D < 1 line (-0.035 logMAR,
<i>Month 6 (p)</i>			<i>p</i> = 0.43)

Change in IOP (mm Hg)

<i>Month 0 (p)</i>	15.28	16.62	T -1.40 (0.15)
<i>Month 1 (p)</i>	17.73 (0.063)	16.42 (0.43)	D -1.32 (0.27)
<i>Month 3 (p)</i>	17.81 (0.11)	17.50 (0.48)	T -0.32 (0.43)
<i>Month 6 (p)</i>	15.33 (0.47)	16.4 (0.32)	T -1.07 (0.31)

Table 3. logMAR Change in BCVA Over Time for Pseudophakic and Phakic Patients. This table compares change in BVCA over time for phakic and pseudophakic patients, both within dexamethasone and triamcinolone trials and overall. Units are reported in logMAR to allow comparison. There was no dexamethasone data for phakic patients receiving follow-up at both month 1 and moth 6 post-treatment, so only triamcinolone data is reflected in the “Month 1 to Month 6” section.

Table 3. logMAR Change in BCVA Over Time for Pseudophakic and Phakic Patients

Change in BCVA			<u>Triamcinolone</u>	<u>Dexamethasone</u>	<u>Both Treatment Groups</u>
<i>Month 0 to Month 1</i>	Phakic		-2 lines	-1 line	-1.5 lines
	Pseudophakic		+2 letters	-2.5 letters	+1 letter
<i>VA difference</i>			<i>Pseudo 2.5 lines</i>	<i>Pseudo 2.5 letters</i>	<i>Pseudo 1.5 lines</i>
<i>p value</i>			<i>0.01</i>	<i>0.22</i>	<i>7.0 x10⁻³</i>
<i>Month 0 to Month 3</i>	Phakic		-2 letters	-1.5 lines	-1 line
	Pseudophakic		+4 letters	+1.5 lines	+1 line
<i>VA difference</i>			<i>Pseudo 1 line</i>	<i>Pseudo 3 lines</i>	<i>Pseudo 2 lines</i>
<i>p value</i>			<i>0.32</i>	<i>0.044</i>	<i>0.059</i>
<i>Month 0 to Month 6</i>	Phakic		-1 line	-1 line	-1 line
	Pseudophakic		+2 letters	+4 letters	+3 letters
<i>VA Differences</i>			<i>Pseudo 1 line</i>	<i>Pseudo 2 lines</i>	<i>Pseudo 1.5 lines</i>
<i>p value</i>			<i>0.35</i>	<i>0.2</i>	<i>0.22</i>

Figures

Figure 1: Change in CMT at One Month

Figure 1: A box plot demonstrating the change in CMT 1 month post-treatment for triamcinolone (25th percentile -189.75 μm, median -130 μm, and 75th percentile -66 μm) and dexamethasone (25th percentile -80.75 μm, median -45.5 μm, and 75th percentile -34.25 μm). Mean CMT decreased by 124.9 μm for triamcinolone and 39.3 μm for dexamethasone at month 1 ($p= 2.5 \times 10^{-4}$).

Figure 1

See image above for figure legend

Figure 2: Change in CMT and BCVA Over Time

Figure 2: Graphs depicting the change in CMT and change in BCVA over time for both treatment groups. (a) As demonstrated by the trendlines, despite dexamethasone having an average CMT decrease of 91.1 mm ($p=0.0036$) at month 3, the values begin to increase instead by month 6. Triamcinolone has an overall decrease in CMT over time. (b) BCVA did not significantly improve in either group compared to baseline.

Figure 2

See image above for figure legend

Figure 3: Change in IOP Over Time

Figure 3: As demonstrated by the trendlines, both treatment groups experience a slight increase in mean IOP after treatment which resolves over time.

Figure 3

See image above for figure legend

Figure 4: Survival Function for Time to Next Treatment

Figure 4: A survival function demonstrating the time in weeks until patients received subsequent treatments of any kind. The median time to next treatment for triamcinolone was 19 weeks and for dexamethasone was 20.3 weeks. The two survival curves were not significantly different by the log-rank test ($p=1.00$). Eight patients from the triamcinolone group and 3 patients from the dexamethasone group never received additional treatments.

Figure 4

See image above for figure legend