



Substantial Increase in IOP vs. Baseline

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Outline

- Definition(s)
- Examples
 - Cataract Surgery Alone
 - Cataract Surgery + Trabeculectomy
 - Cataract Surgery + TM Bypass Procedures

Needed Outcome Measure

- High IOP is likely to have been the causal factor in the immediate, intermediate, or late postoperative period of
 - a. Acute optic nerve injury - "snuff out" or "wipe out"
Hayreh SS. *Arch Ophthalmol* 1980;98:1410-1416
 - b. Retinal occlusive events
Steinert RF, Oster JG, Francis JM. *Am J Ophthalmol* 1997;123:124-125
 - c. Corneal endothelial damage associated with persistently elevated IOP as seen after primary acute angle closure

Definitions

- Colloquially “IOP spike”
- Difficult to singularly define as it is likely very individualized for ON susceptibility
- Depends on baseline IOP

EXTENDED REPORT

Intraocular pressure alterations following intravitreal triamcinolone acetonide

D J Rhee, R E Peck, J Belmont, A Martidis, M Liu, J Chang, J Fontanarosa, M R Moster

Br J Ophthalmol 2006;90:999–1003. doi: 10.1136/bjo.2006.090340

- Steroid-induced IOP spikes

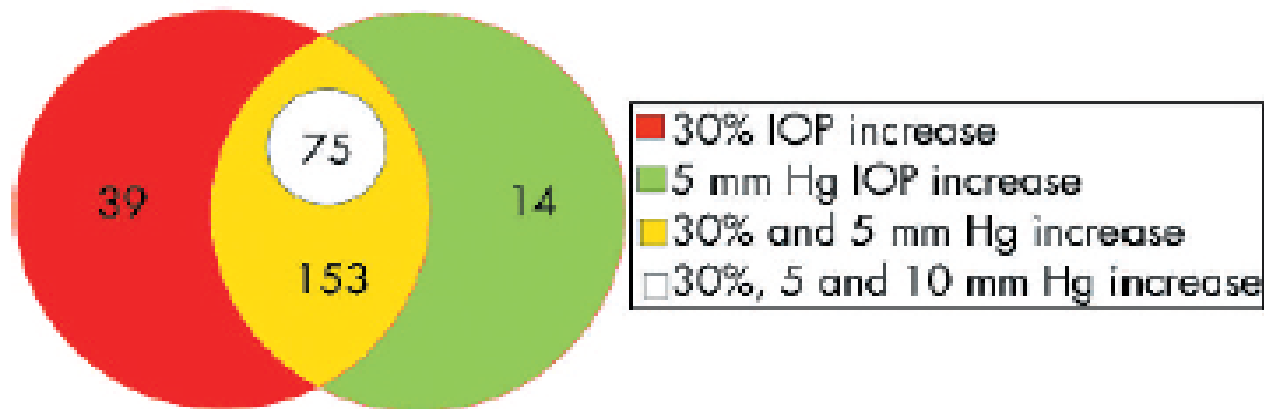


Figure 2 Venn diagram showing overlapping definitions of IOP elevation. The 39 eyes in the red coloured area had >30% rise which was less than 5 mm Hg. In all eyes that had a 10 mm Hg, the elevation represented more than a 30% increase of baseline IOP.

Estimated Rates of IOP Spikes

- Cataract extraction alone
- Cataract extraction with trabeculectomy

Reported Post-op IOP Spike

- Cataract + trabectome

ARTICLE

Combined cataract extraction and trabeculotomy by the internal approach for coexisting cataract and open-angle glaucoma: Initial results

Brian A. Francis, MD, MS, Don Minckler, MD, MS, Laurie Dustin, Shahem Kawji, MD, Jason Yeh, MD, Arthur Sit, MD, Sameh Mosaed, MD, Murray Johnstone, MD, and the Trabectome Study Group

J Cataract Refract Surg 2008;34:1096-1103

Table 4. Postoperative combined complications.

Complication	Number (%)
Trabeculectomy post Trabectome	7 (2.3)
Shunt post Trabectome	1 (0.3)
SLT post Trabectome	1 (0.3)
Hypotony (IOP < 5 mm Hg) at 1 d	4 (1.3)
IOP at 1 d >10 mm Hg higher than preop	26 (8.6)
IOP at 1 wk >10 mm Hg higher than preop	6 (2.0)
Intraop blood reflux	
Yes	238 (78.3)
No	12 (3.9)
Not reported	54 (17.8)

IOP = intraocular pressure; SLT = selective laser trabeculoplasty

Combined Trabectome and Cataract Surgery versus Combined Trabeculectomy and Cataract Surgery in Open-Angle Glaucoma

Brian A. Francis, MD, MS; Jonathan Winarko, MD

Table III Postoperative observations

	Trabectome+PCE (n=89)	Trabeculectomy+PCE (n=23)	p value
Hypotony at postoperative day 1 (IOP <5 mmHg)	0	3 (13%)	<0.01
Sustained hypotony 1 month postoperative (1 day IOP) – (preoperative IOP) ≥10 mmHg	0	4 (17%)	<0.01
Surgical reintervention (within 12 months after surgery)	4 (4%)	4 (17%)	0.03
Trabeculectomy	4 (4%)	3 (13%)	0.13
Vitrectomy	2	0	
Aqueous tube shunt	0	1	
Ptosis repair	2	2	
BRVO	0	2 (9%)	<0.01
Aqueous misdirection	0	1 (4%)	0.05
Revision of trabeculectomy	0	1 (4%)	0.05
YAG capsulotomy	0	3 (13%)	<0.01
Infection	0	3 (13%)	<0.01
Choroidal detachment	0	0	
Choroidal drainage	0	2 (9%)	<0.01
Wound leaks	0	1 (4%)	0.05
Choroidal hemorrhage	0	0	
Visual acuity decrease (>2 lines from baseline)	0	0	

Rhee Data (unpublished)

	1 day postop			1 week postop			1 month postop		
	phaco-Trab (n = 48)	phaco-AIT (n = 156)	P value	phaco-Trab (n = 48)	phaco-AIT (n = 155)	P value	phaco-Trab (n = 32)	phaco-AIT (n = 156)	P value
Definition 1	21 (43.8%)	13 (8.3%)	< 0.001	2 (4.2%)	7 (4.5%)	0.912	1 (3.1%)	0	0.126
Definition 2	33 (68.8%)	42 (26.9%)	< 0.001	8 (16.7%)	25 (16.1%)	0.944	1 (3.1%)	0	0.126
Definition 3	19 (39.6%)	14 (9.0%)	< 0.001	2 (4.2%)	5 (3.2%)	0.801	0	0	-

(n = total number of eyes at follow-up ;
 data is presented as absolute numbers (percentage);
 definition 1 = IOP increase of > 20% over baseline and > 10 mmHg over baseline;
 definition 2 = IOP increase of > 20% over baseline;
 definition 3 = IOP above the absolute threshold of > 30 mmHg plus an IOP increase of > 20%
 over baseline)

Reported Post-op IOP Spike

- Cataract + iStent

Randomized Evaluation of the Trabecular Micro-Bypass Stent with Phacoemulsification in Patients with Glaucoma and Cataract

Thomas W. Samuelson, MD,¹ L. Jay Katz, MD,² Jeffrey M. Wells, PharmD,³ Yi-Jing Duh, PhD,⁴ Jane Ellen Giamporcaro, BS,³ for the US iStent Study Group*

Ophthalmology 2011;118:459-467

Table 4. Secondary Surgical Interventions (n and %) through Month 12

Secondary Surgical Intervention	iStent with Cataract Surgery N = 111	Cataract Surgery Only N = 122
Paracentesis	31 (28%)	33 (27%)

Table 3. Frequently Reported Postoperative Ocular Complications ($\geq 2\%$) through Month 12

Complication	iStent with Cataract Surgery N = 111	Cataract Surgery Only N = 122
Anticipated early postoperative event	14 (13%)	15 (12%)
Stent obstruction by iris, vitreous, fibrous overgrowth, fibrin, blood, and so forth	4 (4%)	0 (0%)
Posterior capsular opacification	3 (3%)	8 (7%)
Stent malposition	3 (3%)	0 (0%)
Subconjunctival hemorrhage	2 (2%)	2 (2%)
Elevated IOP, other	2 (2%)	1 (1%)
Epiretinal membrane	2 (2%)	1 (1%)
Iris atrophy	2 (2%)	0 (0%)
Blurry vision or visual disturbance	1 (1%)	6 (5%)
Iritis	1 (1%)	6 (5%)
Dry eye	1 (1%)	2 (2%)
Elevated IOP requiring treatment with oral or intravenous medications or with surgical intervention	1 (1%)	2 (2%)
Macular edema	1 (1%)	2 (2%)
Foreign body sensation	0 (0%)	3 (2%)
Allergic conjunctivitis	0 (0%)	2 (2%)
Mild pain	0 (0%)	2 (2%)
Rebound inflammation from tapering steroids	0 (0%)	2 (2%)

IOP = intraocular pressure.

"Anticipated, early postoperative events" included transient events such as corneal edema, trace folds, trace striae, transient hypotony at 5–7 hrs, inflammation, epithelial defect, and discomfort as expected after cataract

Reported Post-op IOP Spike

- Cataract + hydrus (Ivantis)
- Following 3 slides provided by Ivantis with permission to present. Data is **not** published

Conclusions

- Data Concerning IOP spikes must be collected
- Multiple definitions should be used and reported
- Trabecular meshwork bypass procedures offer a benefit to controlling IOP spikes