Myopia Is Risk Factor for Globe Perforation With Periocular Anesthesia

Risks and Sequelae of Scleral Perforation During Peribulbar or Retrobulbar Anesthesia.

Schrader WF, Schargus M, et al:

J Cataract Refract Surg 2010; 36 (June): 885-889

Longer axial length is a significant risk factor for scleral perforation during peribulbar or retrobulbar anesthetic injection.

Objective: To evaluate risks of scleral perforation during peribulbar or retrobulbar anesthesia, and to evaluate clinical sequelae of this complication.
Design: Retrospective, interventional clinical case series.
Methods: An analysis was performed of patients who received treatment for inadvertent globe perforation during peribulbar or retrobulbar anesthetic injection for ophthalmic surgery. Cases were identified from 3 academic medical centers during the 17-year period. Clinical information abstracted from medical records included demographic information, refractive error and axial length measurements, and clinical outcomes following this complication.
Results: 9 cases of inadvertent globe perforation were identified that led to complications ranging from retinal perforation with subretinal hemorrhage to vitreous hemorrhage and retinal detachment. These cases were drawn from >50,000 patients who underwent periocular anesthetic injections, leading to an estimated incidence of this complication of <1 in 5000 cases. Of cases, 2 experienced minor complications such as subretinal hemorrhage with retinal perforation requiring only laser photocoagulation. All cases required at least 1 pars plana vitrectomy to manage intraocular hemorrhage and retinal detachment. Only 2 eyes regained visual acuity at the level of reading (20/40 or better), while 6 had ambulatory vision only, and 1 eye developed visual impairment to a level of no light perception. Longer axial length was a significant risk factor for globe perforation, with 7 eyes having an axial length of ≥24.
Conclusions: Although globe perforation is a relatively rare complication of periocular anesthetic injection, clinical consequences of this complication can be severe. Longer axial length is a significant risk factor for the development of globe perforation in conjunction with periocular anesthetic injection.
Reviewer's Comments: Although this complication is rare, the severity of consequences that can result has prompted me to avoid periocular anesthetic injections as much as possible. In a wide range of anterior segment surgical procedures, topical anesthesia with supplemental sub-Tenon's infusion of anesthetic on a blunt cannula can provide very adequate anesthesia allowing safe performance of ophthalmic surgical procedures. Topical anesthetic alone, of course, can be very effective in cases such as cataract surgery and even trabeculectomy, and in my experience, implantation of glaucoma implants can also be performed using this technique with only a minority of patients requiring supplemental sub-Tenon's anesthetic infusion. Topical anesthesia with sub-Tenon's supplementation can avoid risks associated with periocular injections and should be considered, particularly in patients with longer axial length. In addition, patients should be informed of risks associated with periocular anesthetic injection and alternatives to this form of anesthesia. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Anesthetics, Complications, Scleral Perforation

Print Tag: Refer to original journal article

Single-Piece Acrylic IOL Not Suitable for Implantation in Ciliary Sulcus

Retrospective Ultrasound Biomicroscopic Analysis of Single-Piece Sulcus-Fixated Acrylic Intraocular Lenses.

Vasavada AR, Raj SM, et al:

J Cataract Refract Surg 2010; 36 (May): 771-777

Implantation of a single-piece acrylic foldable posterior chamber intraocular lens in the ciliary sulcus results in an unacceptably high risk of postoperative inflammation and/or glaucoma.

Objective: To evaluate anatomic characteristics of the anterior segment in eyes that has undergone implantation of a single-piece sulcus-fixated intraocular lens (IOL) during complicated cataract surgery.
Design: Retrospective, interventional clinical case series.
Methods: A retrospective review was completed of clinical records of 10 patients who underwent primary sulcus implantation of a single-piece acrylic AcrySof® posterior chamber IOL in the ciliary sulcus following posterior capsule rupture. All eyes had an intact anterior capsulorrhexis to provide uniform support of the IOL. In addition, all eyes had a preoperative anterior chamber depth >2.7 mm. Postoperative clinical examination and performance of ultrasound biomicroscopy was performed in order to document complications, intraocular pressure (IOP), and anatomic features of the anterior segment.
Results: Time between surgery and ultrasound biomicroscopy examination ranged from 7 to 85 months after surgery. In 70% of eyes, symmetric fixation of both haptics in the ciliary sulcus was present. In the remaining cases, however, contact between the haptic and the iris and/or ciliary body was seen. Mean distance between the optic edge and iris was 0.16 mm, indicating very close proximity between the optic and iris in most cases. Of patients, 1 developed pigment dispersion with elevation of IOP to 24 mmHg that was managed with topical glaucoma medication. No patient required glaucoma surgery during this study.
Conclusions: Implantation of a single-piece acrylic foldable IOL in the ciliary sulcus results in very close proximity of the optic and the iris, and predisposes to complications including pigment dispersion and elevation of IOP.
Reviewer's Comments: I have managed numerous patients referred for management of severe IOP elevation following implantation of a single-piece acrylic foldable IOL in the ciliary sulcus. This can occur days to months or even years after surgery. The thick haptics and close proximity of the optic to the iris can lead to significant pigment dispersion, or to chronic anterior uveitis that can predispose patients to significant complications. Management of such cases requires the IOL exchange with replacement using an appropriately designed 3-piece posterior chamber lens in the ciliary sulcus; 3-piece lenses should be used in all cases since they have thinner haptics and posterior haptic angulation that are compatible with safe use for sulcus fixation. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Intraocular Lens Surgery, Complications

Print Tag: Refer to original journal article

Dietary Carbohydrate Intake Linked to Cortical Cataract

Dietary Carbohydrate in Relation to Cortical and Nuclear Lens Opacities in the Melbourne Visual Impairment Project.

Chiu C-J, Robman L, et al:

Invest Ophthalmol Vis Sci 2010; 51 (June): 2897-2905

Increased carbohydrate intake has been linked to the development of cortical cataract.

Objective: To evaluate the association between dietary carbohydrate intake and the risk of cortical and nuclear lens opacity in non diabetic individuals.
Design: Cross-sectional population-based study.
Participants: 1609 eligible non diabetic patients of the Melbourne Visual Impairment Project.
Methods: Participants completed a clinical examination and food frequency questionnaire, allowing the estimation of total dietary carbohydrate intake. Lens opacities were evaluated during clinical examination by lens grading using the Wilmer protocol, which classified the individual as having a cortical cataract defined by grade ≥4/16 cortical capacity. Nuclear cataract was defined as having grade ≥2 nuclear opacity. Statistical analysis was performed using a multivariate approach to control for potential confounding factors and to isolate the relationship between dietary carbohydrate intake and presence of cortical or nuclear lens opacity based on these definitions.
Results: Multivariate analysis demonstrated an increased risk of having cortical lens opacity in the quartile of subjects with the highest dietary carbohydrate intake. Odds ratio was 3.19 (95% CI; 1.10 to 9.27). Although a 64% increase in odds of having a nuclear cataract was seen in the quartile of subjects with the highest dietary carbohydrate intake, no significant dose response was seen. **Conclusion:** Carbohydrate intake appears to be associated with increased risk of cortical lens opacity in non diabetic individuals.
Reviewer's Comments: Diabetes has long been known to be associated with the development of cortical cataract. This study goes further in suggesting that glucose metabolism is related to the development of lens opacity even in non diabetic individuals. This study has important public health implications, and should be included in the discussion with patients about methods of reducing the risk of development of lens opacity. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Cataract, Risk Factors, Carbohydrate Intake

Print Tag: Refer to original journal article

Phacoemulsification Effective in Managing Phacomorphic Glaucoma

Long-Term Therapeutic Efficacy of Phacoemulsification With Intraocular Lens Implantation in Patients With Phacomorphic Glaucoma.

Lee SJ, Lee CK, Kim W-S:

J Cataract Refract Surg 2010; 36 (May): 783-789

Phacoemulsification can lead to significant reduction of intraocular pressure and improvement of visual acuity in patients with phacomorphic glaucoma.

Objective: To evaluate the long-term therapeutic efficacy of phacoemulsification in the management of patients with phacomorphic glaucoma.
Design: Retrospective, interventional clinical case series.
Participants: Consecutive series of 26 eyes in 26 patients managed at a single institution in Korea.
Methods: Participants with phacomorphic glaucoma using phacoemulsification with posterior chamber intraocular lens (IOL) implantation was evaluated. Pre- and postoperative assessment of intraocular pressure (IOP) and visual acuity, as well as the occurrence of intraoperative and postoperative complications were reordered. All patients had a minimal involvement of 4 years.
Results: Mean patient age was 68.8 years (range 40 to 80 years). Mean follow-up was 54.8 months. Postoperative IOP was significantly lower than preoperative IOP (49 versus 13 mmHg, P <0.001). Significant improvement in postoperative visual acuity was noted in all patients who had glaucoma symptoms of ≤1 week. Those patients who had preoperative glaucoma symptoms of >1 week had significantly worse postoperative visual acuity. No vision-threatening intraoperative complications occurred in this series.
Conclusions: Phacoemulsification of posterior chamber IOL implantation is an effective approach to the treatment of phacomorphic glaucoma.
Reviewer's Comments: As the technique of cataract surgery has improved, phacoemulsification has reached the point that it can be safely and appropriately used for management of phacomorphic glaucoma. Intraoperative difficulties are likely to arise in these patients with a hypermature cataract and shallow anterior chamber. An experienced phacoemulsification surgeon who is comfortable with managing difficult cases should perform such procedures. In addition, patients must be informed of the greater risks associated with the surgery as well as the possible need for further glaucoma surgery if synechial angle closure is present postoperatively. If extreme pressure elevation continues up to the time of surgery or when evidence of chronic glaucoma is seen prior to surgery, consideration of combined phacoemulsification and trabeculectomy may also offer better postoperative IOP control. However, most patients do not require combined surgery, and can be effectively managed with phacoemulsification alone. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Phacomorphic Glaucoma, Cataract Surgery

Print Tag: Refer to original journal article

YAG Laser Can Treat Common Problems Following Cataract Surgery

Ablation of Lens Epithelial Cells With a Laser Photolysis System: Histopathology, Ultrastructure, and Immunochemistry.

Mamalis N, Grossniklaus HE, et al:

J Cataract Refract Surg 2010; 36 (June): 1003-1010

A YAG laser photolysis system is effective in removing residual lens epithelial cells from the capsule after phacoemulsification.

Objective: To evaluate the efficacy of a neodymium:YAG (Nd:YAG) laser photolysis system to remove lens epithelial cells from the lens capsule after phacoemulsification.
Design: Laboratory investigation.
Methods: 16 cadaver eyes were evaluated. All cadaver specimens were obtained and evaluated within 72 hours of death. A laboratory model of phacoemulsification was used to remove the crystalline lens, and following its removal, the Nd:YAG laser photolysis system was used to clean lens epithelial cells from the capsule. Areas treated and untreated with the photolysis system were subjected to histology and immunohistochemistry in order to evaluate efficacy of removal of lens epithelial cells from the lens capsule.
Results: Histologic evaluation demonstrated that lens epithelial cells were effectively removed from the lens capsule by comparing treated and untreated areas of the capsular fornix and anterior capsule. Immunohistochemical staining confirmed that components of the lens epithelium were present in areas not treated with the photolysis system, and were absent in areas that were treated.
Conclusions: The Nd:YAG laser photolysis system is effective in removing lens epithelial cells from the anterior lens capsule and capsule fornix.
Reviewer's Comments: The efficacy of removal of lens epithelial cells demonstrates the potential for this device to prevent posterior capsule opacification and anterior capsule contraction, which are both common occurrences after cataract surgery. Although YAG laser capsulotomy is effective in managing these conditions, a simple technique to prevent this common complication of cataract surgery could be beneficial. In particular, patients who undergo cataract surgery with implantation of specialty intraocular lenses, including multifocal and toric eye wells that are more sensitive to decentration, rotation, and tilt, may demonstrate better clinical outcomes with prevention of posterior capsule opacification. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Cataract Surgery, Complications, Histopathology, Immunochemistry, Ultrastructure

Print Tag: Refer to original journal article

Incision Size for Cataract Surgery Can Change Postop Corneal Shape

Corneal Shape Changes After 2.0-mm or 3.0-mm Clear Corneal Versus Scleral Tunnel Incision Cataract Surgery.

Hayashi K, Yoshida M, Hayashi H:

Ophthalmology 2010; 117 (July): 1313-1323

Clear corneal incisions for cataract surgery of ≥3.0-mm in width can induce significant corneal shape changes that may affect the clinical outcome of cataract surgery.

Objective: To compare changes in corneal curvature after 2.0-mm or 3.0-mm clear corneal or corneal scleral tunnel incisions during cataract surgery.
Design: Randomized, comparative clinical trial.
Participants: 90 patients scheduled for bilateral cataract surgery.
Methods: Patients were randomized into 1 of 2 groups. One group received a 3.0-mm clear corneal incision for surgery in one eye and a 3.0-mm corneal scleral tunnel incision in the other eye. A second group of patients received a 2.0-mm clear corneal incision for the first eye and a 2.0-mm corneal scleral tunnel incision for the second eye. Those patients undergoing 2.0-mm cataract surgery had the procedure performed with coaxial microincision instrumentation specifically designed for 2.0-mm wounds. Pre- and postoperative evaluation through 2 months of follow-up allowed the comparison of induced astigmatism following each incision type.
Results: No significant difference in the amount of induced astigmatism was seen following 2.0-mm clear corneal or scleral tunnel incisions. In contrast, patients who underwent 3.0-mm clear corneal cataract surgery experienced approximately 0.3 diopters of flattening in the axis of the corneal incision, while no significant change in corneal shape was seen with 3.0-mm scleral tunnel incision.
Conclusions: Significant changes in corneal astigmatism were seen after 3.0-mm clear corneal incision for cataract surgery.
Reviewer's Comments: Although the amount of induced astigmatism following 3.0-mm clear corneal incisions appears to be relatively small, in this day and age of increasing expectations on the part of patients in terms of the keratorefractive outcomes of cataract surgery, it is important to be aware of the induction of astigmatism caused by different incision types. Clear corneal incisions of ≥3.0-mm in width can induce significant change in corneal curvature that must be accounted for, particularly if specialty IOLs are being used. For toric IOL implantation, the amount of induced astigmatism must be incorporated into the surgical plan. For patients undergoing multifocal IOL implantation, minimization of residual astigmatism is an important part in achieving a desirable clinical outcome. Awareness on the part of each surgeon as to the effect of their preferred incision type and location on corneal astigmatism is an important part of achieving good clinical outcomes. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Cataract Surgery, Astigmatism, Corneal Scleral Tunnel Incision

Print Tag: Refer to original journal article

Smoking Increases Risk of Recurrence of Ocular Inflammatory Disease

Adverse Effects of Smoking on Patients With Ocular Inflammation.

Galor A, Feuer W, et al:

Br J Ophthalmol 2010; 94 (July): 848-853

Smoking increases the rate of recurrence of ocular inflammation in patients who suffer from uveitis and other inflammatory diseases of the eye.

Objective: To evaluate the relationship between smoking and the clinical course of ocular inflammatory disease.
Design: Retrospective cohort study.
Participants: 2676 patients with noninfectious ocular inflammatory disease.
Methods: Data from the Systemic Immunosuppressive Therapy for Eye Diseases (SITED) Cohort Study were analyzed. Of 6325 individuals enrolled in the study, those who had undergone a questionnaire that included a detailed smoking history were included; total enrollment therefore was 2676 patients who were monitored prospectively to allow estimation of the rate of recurrence of ocular inflammation. A multivariate statistical analysis was performed in order to determine the independent relationship between the clinical course of ocular inflammation and smoking, with patients being classified as current smokers, former smokers, or nonsmokers.
Results: Current smokers were more likely to have bilateral ocular inflammatory disease and worse visual acuity at the time of presentation in comparison to nonsmokers and former smokers. In addition, time to recurrence of ocular inflammation after achievement of disease quiescence was shorter in current smokers than in nonsmokers (7.8 versus 10.7 months, P =0.02).
Conclusions: Smoking is associated with an increased likelihood of bilateral ocular inflammatory disease and worse visual acuity at the time of presentation. In addition, it is associated with an increased recurrence of ocular inflammation in comparison to not smoking.
Reviewer's Comments: Understanding this relationship between smoking and ocular inflammatory disease offers a potentially important method of reducing the severity and/or rate of recurrence of ocular inflammation in patients who suffer from ocular inflammatory disease and who smoke. All patients with such conditions should be informed of this potential relationship in order to motivate them to decrease smoking, and thereby potentially improve their course of disease and improve their cardiovascular health. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Uveitis, Smoking

Print Tag: Refer to original journal article

Differentiating Dry Eye Conditions Using Rose Bengal Staining

Rose Bengal Staining of the Temporal Conjunctiva Differentiates Sjögren's Syndrome from Keratoconjunctivitis Sicca.

Caffery B, Simpson T, et al:

Invest Ophthalmol Vis Sci 2010; 51 (May): 2381-2387

Patients with Sjögren's syndrome are much more likely to demonstrate rose bengal staining of the temporal conjunctiva than those with ordinary keratoconjunctivitis sicca.

Objective: To compare the clinical presentation of patients with Sjögren's syndrome and keratoconjunctivitis sicca (KCS) and to determine factors that can differentiate these groups.
Design: Retrospective, comparative clinical case series.
Participants: 320 patients evaluated in a tertiary referral center with a Sjögren's syndrome clinic.
Methods: Patients were referred by ophthalmologists and/or rheumatologists based upon suspicious symptoms and clinical findings. All patients underwent a comprehensive ophthalmic examination as well as laboratory investigation; standardized criteria of the American European Consensus Group were used to define the diagnosis of Sjögren's syndrome. Analysis of data was performed to determine factors that differed between those with Sjögren's syndrome and those with ordinary KCS.
Results: There was no significant difference in the severity of dry eye symptoms between Sjögren's syndrome and KCS patients. The presence of rose bengal staining of the temporal conjunctiva was the most important finding on clinical examination that differentiated these groups. When using only noninvasive techniques to categorize subjects, staining of the temporal conjunctiva with rose bengal and the severity of dry mouth symptoms were the major factors useful in distinguishing Sjögren's syndrome from KCS.
Conclusions: Rose bengal staining of the temporal conjunctiva is an important clinical feature that is useful for identifying Sjögren's syndrome.
Reviewer's Comments: Sjögren's syndrome is a systemic autoimmune disease that often presents to ophthalmologists given that dry eye is one of its characteristic symptoms. Identifying and referring these patients for further evaluation is important, since they have a systemic condition that predisposes to other significant health problems, including a 40-fold increased risk of mucosa-associated lymphatic tissue lymphoma. Performance of rose bengal staining and questioning patients with dry eye symptoms about dry mouth is important features that can be useful in making an appropriate referral. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Dry Eye, Sjögren's Syndrome, Keratoconjunctivitis Sicca

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Gabapentin, Memantine Benefits Patients With Acquired Nystagmus

Crossover Trial of Gabapentin and Memantine as Treatment for Acquired Nystagmus.

Thurtell MJ, Joshi AC, et al:

Ann Neurol 2010; 67 (May): 676-680

Gabapentin and memantine may benefit patients with acquired nystagmus.

Background: There are very few effective treatments for patients with acquired nystagmus.
Objective: To compare gabapentin and memantine in the treatment of various forms of acquired nystagmus.
Design: Double-masked, crossover treatment trial.
Participants: 10 patients with various forms of nystagmus from Cleveland, Ohio.
Methods: Patients with acquired nystagmus were randomized to receive either gabapentin or memantine for a 2-week period. After a 2 to 3 week washout period the other medication was taken. Gabapentin capsules were 300 mg and memantine capsules were 10 mg. In each arm, the patient took 1 capsule for 3 days, then twice daily for 3 days, then thrice daily for 3 days, then 4 times daily for the final 5 days. The main outcome measures were best corrected distance acuity (measured in logMAR) and median speed of the nystagmus. Examinations took place at baseline, at the end of the first 2 weeks on medication, after the washout period, and at the end of the second 2 weeks on medication. After the study was completed, patients were allowed to stay on either medication, if desired.
Results: All 10 patients completed the study, but 1 patient could not increase the memantine beyond 20 mg/day. Both medications significantly reduced median eye speed. Gabapentin reduced median eye speed by 33% and memantine by 28%. Visual acuity improved statistically for both drugs. Mean gain was 0.084 logMAR which equates to ≤1 lines of Snellen acuity. Of patients, 8 continued medications: 5 took gabapentin, 1 took memantine, and 2 took both. Side effects included imbalance more commonly with memantine and fatigue more commonly with gabapentin.
Conclusions: Memantine and gabapentin could be considered in the treatment of acquired nystagmus.
Reviewer's Comments: While acuity did not improve much, it is the oscillopsia that bothers patients the most. Median eye speed improved with both drugs, but it is the fact that 8 of 10 patients stayed on one of both of the medications really speaks volumes about the benefit. Keep in mind that memantine should be avoided in patients with multiple sclerosis since it may increase relapses. (Reviewer-Michael S. Lee, MD).

Keywords: Gabapentin, Memantine, Nystagmus

Print Tag: Refer to original journal article

Botulinum Toxin A Successful Treatment for Eyelid Retraction

Transcutaneous Dysport Injection for Treatment of Upper Eyelid Retraction Associated With Thyroid Eye Disease.

Salour H, Bagheri B, et al:

Orbit 2010; 29 (April): 114-118

Transcutaneous botulinum toxin can successfully be used to treat eyelid retraction.

Background: Thyroid eye disease (TED) causes eyelid retraction and corneal exposure. Typically the disease worsens for 1 to 3 years before permanent surgical correction can take place.
Objective: To evaluate the use of Dysport® for the treatment of upper eyelid retraction in TED.
Design: Prospective, interventional uncontrolled case series.
Participants: 25 eyes of 16 patients from Iran.
Methods: Patients had to have stable TED for ≥6 months. Pre-injection measurements of extraocular movements and margin reflex distance (MRD) were taken. MRD was measured from the central corneal reflex distance to the upper eyelid margin. A single injection of 1 mL of Dysport (20 IU/mL) was given to the central superior tarsal border without anesthesia. Post-injection, patients were reexamined at 2 weeks, 4 weeks, and 6 months.
Results: There were 11 women and 5 men with a mean age of 36 years. Almost three fourths of patients required a single injection and the rest received a second injection 10 days after the first one. Overall mean MRD improved by 4 mm. Of patients, 14 were satisfied with the post-treatment eyelid position; 4 patients suffered ptosis (MRD of ≤1mm) persisting from 1 to 4 weeks. There was no worsening of diplopia. Duration of effect was approximately 4 months.
Conclusions: Transcutaneous injection of Dysport in the central superior tarsal border improves eyelid retraction among patients with TED.
Reviewer's Comments: This might be an option for patients with TED. These authors found that almost 90% were happy with the outcome after 1 or 2 shots. Others have tried subconjunctival botulinum toxin A. I think the transcutaneous route is probably more comfortable. I also think that injecting 1 mL is a lot and that you could consider reducing the dilution to get a lower volume and same dose to achieve the desired effect. (Reviewer-Michael S. Lee, MD).

Keywords: Dysport, Botulinum Toxin, Treatment, Eyelid Retraction, Thyroid Eye Disease, Graves

Print Tag: Refer to original journal article

Retinopathy Risk Increases With Intravitreal Triamcinolone

Triamcinolone-Associated Crystalline Maculopathy.

Sarraf D, Vyas N, et al:

Arch Ophthalmol 2010; 128 (June): 685-690

Intravitreal triamcinolone use can cause a crystalline maculopathy.

Background: Crystalline retinopathies can result from intravenous drug, tamoxifen, canthoxanthine, and nitrofurantoin use. Crystals can be seen in Bietti's dystrophy or cystinosis as well. Triamcinolone is a suspension of steroids in an inert vehicle.
Objective: To report a series of patients receiving intravitreal triamcinolone who developed crystalline maculopathy.
Design: Retrospective case series.
Participants: 21 eyes of 13 patients from a single center in Los Angeles.
Methods: A detailed historical evaluation was performed on each patient to exclude other known causes of crystalline retinopathy. Further assessment included careful evaluation of the anterior segment and retinal periphery, color fundus photography, fluorescein angiography, optical coherence tomography (OCT), and autofluorescence imaging.
Results: There were 7 men and 6 women with a mean age of 64 years. Of eyes, 20 had chronic cystoid macular edema and 1 had macular edema following branch retinal vein occlusion. All eyes received between 1 to 5 injections (mean of 2) of 4 mg/0.1 mL. Of eyes, 18 received preserved triamcinolone, 2 received preservative-free triamcinolone, and 1 received Triesence. Crystals were observed at a mean of 21 months following first injection (range 7 to 48 months). Crystals were refractile, white or yellow-green, deposited asymmetrically within the macula. OCT showed these to be pre-retinal along the posterior hyaloid surface in nonvitrectomized eyes and along the retinal surface in vitrectomized eyes. Crystals were neither hypo- nor hyper-fluorescent on fluorescein angiography. Crystals did not appear to affect visual function.
Conclusions: Intravitreal triamcinolone injections can cause a crystalline retinopathy.
Reviewer's Comments: There were 5 patients with unilateral injections and crystals, which argues against an undetected systemic or toxic cause. The location of the crystals along the posterior hyaloid also supports the association. These crystals are likely composed of large, insoluble triamcinolone clumps. (Reviewer-Michael S. Lee, MD).

Keywords: Triamcinolone, Kenalog, Intravitreal, Crystalline, Maculopathy, Retinopathy

Print Tag: Refer to original journal article

Preop Pupil Diameter Predicts Floppy-Iris Syndrome in Patients Using Tamsulosin

Pharmacologic Prophylaxis and Risk Factors for Intraoperative Floppy-Iris Syndrome in Phacoemulsification Performed by Resident Physicians.

Chen AA, Kelly JP, et al:

J Cataract Refract Surg 2010; 36 (June): 898-905

Smaller preoperative pupillary diameter is associated with a higher risk of developing intraoperative floppy-iris syndrome in patients using tamsulosin prior to cataract surgery.

Objective: To determine the incidence of intraoperative floppy-iris syndrome (IFIS) in patients using tamsulosin undergoing cataract surgery by resident surgeons, and to evaluate the effect of prophylactic use of intracameral lidocaine-epinephrine on the occurrence of this condition.
Design: Prospective, interventional clinical case series.
Participants: 59 patients (81 eyes) using tamsulosin.
Methods: A study was conducted of a consecutive series of patients using tamsulosin prior to undergoing phacoemulsification by a resident surgeon at a university hospital during a 3-year period. Operative notes were used to identify the occurrence of IFIS. Preoperative pupil diameter was measured in each patient. The effect of prophylactic use of lidocaine-epinephrine injected intracamerally on the development of IFIS was evaluated.
Results: IFIS occurred in 29.6% of cases. The occurrence of IFIS was observed more frequently in those given prophylactic lidocaine-epinephrine (39.5% vs. 25.5%), although the difference was not statistically significant. Preoperative pupillary diameter <6.5mm was associated with an increased likelihood of developing IFIS.
Conclusions: Smaller preoperative pupillary diameter is associated with a higher risk of developing IFIS in patients using tamsulosin prior to cataract surgery.
Reviewer's Comments: IFIS has been well described as a risk in patients using alpha blockers such as tamsulosin at the time of cataract surgery. This study demonstrated that the majority of such patients do not develop the condition and that prophylactic use of intracameral lidocaine-epinephrine does not alter its occurrence. Surgeons should be prepared to manage such patients with iris retractors at the earliest sign of iris prolapse or inadequate pupil diameter. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Cataract Surgery, Complications, Floppy-Iris Syndrome

Print Tag: Refer to original journal article

Intravitreal Kenalog Reduces Macular Thickness in Diabetic Cataract Surgery

Effect of Intravitreal Triamcinolone Acetonide Injection on Central Macular Thickness in Diabetic Patients Having Phacoemulsification.

Ahmadabadi HF, Mohammadi M, et al:

J Cataract Refract Surg 2010; 36 (June): 917-922

Intravitreal injection of triamcinolone reduces central foveal thickness in diabetic patients undergoing phacoemulsification, but has little effect on the visual outcome.

Objective: To evaluate the effect of intraoperative injection of triamcinolone into the vitreous cavity in diabetic patients undergoing phacoemulsification.
Design: Prospective, randomized controlled clinical trial.
Participants: 41 eyes of diabetic patients with moderate nonproliferative diabetic retinopathy undergoing phacoemulsification.
Methods: Participants were randomized to undergo intravitreal injection of triamcinolone acetonide 2mg into the vitreous cavity at the conclusion of surgery, or to phacoemulsification alone. Pre- and postoperative evaluation included performance of optical coherence tomography imaging of the macula to measure macular thickness, as well as measurement of best-corrected visual acuity. These clinical outcomes were compared between those who did and who did not receive the intraoperative steroid injection.
Results: No statistically significant difference in visual acuity was seen between groups at any time point through the 6-month study period. Mean change in central foveal thickness and in the central subfield foveal thickness was significantly lower in those patients who received the intraocular steroid injection. Of eyes, 4 in the control group and none in the treatment group developed cystoid macular edema during follow-up. Intraocular pressure elevation requiring treatment was observed in 15% of patients who received the intraocular steroid.
Conclusions: Intravitreal injection of triamcinolone reduces postoperative macular thickness, but appears to have little effect on the final visual outcome of cataract surgery in diabetic patients.
Reviewer's Comments: It is possible that with a larger sample size, significant differences in visual acuity would be demonstrable between treated and untreated patients. Further investigation is warranted to determine whether intraocular steroid injection is more effective as routine therapy for diabetic patients undergoing cataract surgery, or is best reserved for patients who develop clinically significant macular edema not responsive to less invasive therapy, such as topical non-steroidal anti-inflammatory drugs. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Cataract Surgery, Complications, Macular Edema, Diabetes

Print Tag: Refer to original journal article

IOL Exchange May Help Severe Negative Dysphotopsia After Cataract Surgery

Intraocular Lens Exchange in Patients With Negative Dysphotopsia Symptoms.

Vámosi P, Csákány B, Németh J:

J Cataract Refract Surg 2010; 36 (March): 418-424

Intraocular lens exchange with implantation of the new lens in the ciliary sulcus may eliminate symptoms of severe negative dysphotopsia after cataract surgery.

Objective: To assess the efficacy of intraocular lens (IOL) exchange for management of severe symptoms of negative dysphotopsia following cataract surgery.
Design: Prospective, comparative clinical study.
Participants: 5 eyes of 4 patients who experienced severe negative dysphotopsia symptoms.
Methods: Ultrasound biomicroscopy (UBM) was performed to evaluate the anterior segment anatomy. Of eyes, 3 underwent IOL exchange with postoperative UBM to assess changes in the iris-IOL relationship following surgery.
Results: In 2 patients, the IOL was replaced with a sulcus fixated lens with reduced iris-IOL distance. In both cases, symptoms resolved. In 1 patient whose IOL was replaced with another lens placed in the capsular bag, symptoms persisted.
Conclusions: Reduction of the iris-IOL distance appears to improve symptoms of negative dysphotopsia following cataract surgery.
Reviewer's Comments: Negative dysphotopsia is a common and usually minor and temporary symptom that can follow IOL implantation after cataract surgery. Severe, persistent symptoms are uncommon, and the need to perform an IOL exchange to manage patients with this condition is not likely to occur frequently. However, when patients have debilitating symptoms, finding a reliable manner to manage the situation is important. This study suggests that if patients undergo replacement of an in-the-bag IOL with a sulcus fixated lens, symptoms can improve, and that replacement with another in-the-bag IOL may not alter the symptoms. Thus, in patients with debilitating symptoms, IOL exchange with implantation of an alternative lens in the ciliary sulcus may be a useful option to consider. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Cataract Surgery, Intraocular Lens, Complications

Print Tag: Refer to original journal article

Refractive Outcome Less Predictable in Patients With Denser Lens Opacity

Relationship Between Postoperative Refractive Outcomes and Cataract Density: Multiple Regression Analysis.

Ueda T, Ikeda H, et al:

J Cataract Refract Surg 2010; 36 (May): 806-809

Increased cataract density appears to result in greater error in measurement of axial length and reduced accuracy in predicting the refractive outcome of cataract surgery.

Objective: To investigate the relationship between the accuracy of prediction of refractive outcome and density of lens opacity in patients undergoing cataract surgery.
Design: Prospective, comparative clinical study.
Participants: 96 patients undergoing phacoemulsification and intraocular lens implantation.
Methods: Measurement of axial length (AL) with the IOLMaster was performed before and after cataract surgery in patients. Cataract density was measured objectively with a dilated pupil using anterior segment Scheimpflug imaging. Predicted postoperative refraction based on preoperative AL and keratometry values was compared to the actual postoperative refractive outcome. Statistical analysis allowed the investigation of the relationship between the error in prediction of refractive outcome and cataract density.
Results: A significantly greater error in prediction of refractive outcome was seen in association with increased cataract density. This appeared to result from the measurement of AL, as there was a greater difference in pre- and postoperative AL measurement with greater cataract density.
Conclusions: Increased cataract density appears to result in greater uncertainty of refractive outcome after cataract surgery.
Reviewer's Comments: Although increased error in prediction of refractive outcome appeared to be small, results of this study indicate a need to further investigate factors that underlie this association. It is possible that the use of other means of measurement of AL such as immersion A-scan ultrasonography may be more reliable in patients with denser lens opacity, even when the IOLMaster is capable of providing a result. This issue should be considered by cataract surgeons in completing their preoperative preparation and IOL selection. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Cataract Surgery, Refractive Outcome, Lens Opacity Density

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Artificial Tears Beneficial for Comfort, Vision in Dry-Eye Patients

Optical Quality After Instillation of Eyedrops in Dry-Eye Syndrome.

Montés-Micó R, Cerviño A, et al:

J Cataract Refract Surg 2010; 36 (June): 935-940

Optical quality improves after instillation of artificial tears in dry-eye patients.

Objective: To evaluate the effect of artificial tear instillation on the optical quality of the tear film in patients with dry-eye syndrome.
Design: Prospective clinical study.
Participants: Patients diagnosed with mild to moderate dry-eye syndrome.
Methods: Patients with prior history of ophthalmic surgery or use of punctual plugs were excluded. Diagnosis of dry eye was made on the basis of symptoms and clinical testing including the Schirmer I test, tear-film breakup time, and fluorescein and rose Bengal staining of the ocular surface. Measurement of corneal aberrations was performed by videokeratography before and 10 minutes after instillation of lubricating eyedrops (Blink Intensive Tears), with 3 repeated measures. Testing was repeated on different days to confirm results.
Results: Comparison of results of wavefront analysis performed before and after instillation of artificial tears demonstrated a significant reduction in corneal higher-order aberrations after instillation of topical lubricants. Reduction was maintained for ≥10 minutes after eyedrop instillation. A significant increase in tear film breakup time was also seen following eyedrop instillation.
Conclusions: Optical quality of the tear film improves after instillation of topical lubricants in patients with dry-eye syndrome.
Reviewer's Comments: This study demonstrates that tear film abnormalities in patients with dry eyes result not only in ocular discomfort, but in a reduction in the quality of vision. Improvement of the tear film is important not only for ocular comfort, but for visual improvement as well. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Dry-Eye Syndrome, Artificial Tears, Optical Quality

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iStent May Be Viable Option for Cataract Surgery Patients

Fluorophotometric Study of the Effect of the Glaukos Trabecular Microbypass Stent on Aqueous Humor Dynamics.

Fernández-Barrientos Y, García-Feijoó J, et al:

Invest Opthhalmol Vis Sci 2010; 51 (July): 3327-3332

Implantation of the Glaukos iStent significantly increases aqueous outflow facility when performed in conjunction with cataract surgery.

Objective: To evaluate the effect of the Glaukos iStent on aqueous dynamics in patients with glaucoma or ocular hypertension undergoing cataract surgery.
Design: Prospective, randomized clinical trial.
Participants: 33 eyes of 33 patients with open-angle glaucoma or ocular hypertension undergoing phacoemulsification.
Methods: Patients were randomized to have either cataract surgery alone or cataract surgery with implantation of 2 iStent devices. Pre-and postoperative fluorophotometry to measure aqueous outflow facility and aqueous flow rate. Statistical comparison of aqueous outflow parameters and intraocular pressure (IOP) was performed between patients who did and did not have iStents placed in conjunction with cataract surgery.
Results: Implantation of the iStent devices was associated with a significantly greater increase in aqueous outflow facility following cataract surgery at all time points through 12 months follow-up. Mean reduction of IOP was also greater in the iStent group than the cataract surgery alone group (6.6 vs. 3.9 mmHg, *P* =0.002). Fewer postoperative glaucoma medications were required in patients who received the iStent devices.
Conclusions: Implantation of the Glaukos iStent in conjunction with cataract surgery reduces IOP and increases aqueous outflow facility.
Reviewer's Comments: This device, which is not yet approved for use by the Food and Drug Administration, shows promise as another method of controlling IOP in patients with open-angle glaucoma without subjecting them to the risks of filtering surgery such as hypotony and bleb-related infection. This is the latest in a series of new surgical procedures for glaucoma that are designed to alter the normal outflow pathways, rather than to bypass them altogether as has been traditionally done with trabeculectomy and glaucoma implant surgery. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Glaucoma Surgery, iStent, Ocular Hypertension

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Use of Beta-Blocker May Protect Against Glaucoma Development

Hypotensive Medication, Statins, and the Risk of Glaucoma.

Owen CG, Carey IM, et al:

Invest Opthalmol Vis Sci 2010; 51 (July): 3524-3530

Oral β-blockers use may protect against the development of glaucoma.

Objective: To evaluate whether treatment with oral blood pressure lowering medication or statins alters the risk of development of glaucoma.
Design: Case-control study.
Participants: 8778 cases and an equal number of matched controls.
Methods: A database of individual primary care medical records in the United Kingdom was used to obtain data on the use of blood pressure lowering medications and statins in a large, population-based sample. In addition, diagnostic information for a glaucoma diagnosis was also available. Cases diagnosed with glaucoma or ocular hypertension during a 7-year time period were matched to control subjects without such a diagnosis. Cases were compared for the use of the different medications under investigation.
Results: Prevalence of oral β-blocker use in the 5 years prior to glaucoma diagnosis was lower in cases (22.5%) than in controls (23.6%). This resulted in an odds ratio (OR) of 0.81 (95% CI; 0.74 to 0.88). Use of thiazide diuretics was higher in glaucoma cases than in controls (OR 1.13, 95% CI; 1.04 to 1.23).
Conclusions: Oral β-blocker use may be protective against the development of glaucoma.
Reviewer's Comments: Both β_1 selective and nonselective β-blockers result in a slight reduction of intraocular pressure. β_1 selective β-blockers were found to be more protective against the development of glaucoma than non-selective β-blockers in this study. This observation suggests that in addition to their direct effect on intraocular pressure reduction, other possible mechanisms by which this effect may occur should be explored. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Glaucoma, Epidemiology, Blood Pressure Medication

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Ocular Perfusion Pressure Linked to Risk of Glaucoma

Distribution of Ocular Perfusion Pressure and Its Relationship With Open-Angle Glaucoma: The Singapore Malay Eye Study.

Zheng Y, Wong TY, et al:

Invest Ophthalmol Vis Sci 2010; 51 (July): 3399-3404

Various ocular perfusion parameters including low diastolic blood pressure, low mean ocular perfusion pressure, and low diastolic perfusion pressure are independent risk factors for glaucoma.

Objective: To investigate contributors to ocular perfusion pressure (OPP) and their relationship with open-angle glaucoma (OAG) in a population-based sample.
Design: Cross-sectional, population-based study.
Participants: 3280 Malay residents of Singapore.
Methods: Intraocular pressure (IOP), as well as systolic and diastolic blood pressure (SBP and DBP), were measured in each subject. In addition, subjects underwent a comprehensive ophthalmic evaluation including visual field testing that allowed the diagnosis of glaucoma. Statistical analysis allowed evaluation of various contributors to ocular perfusion pressure and their relationship to the presence of glaucoma.
Results: Mean age of subjects was 58.7 years. In the study population, 131 cases of glaucoma were identified. Multivariate statistical analysis adjusting for differences in IOP demonstrated that lower DBP, mean OPP or diastolic perfusion pressure (DPP) was associated with an increased probability of having glaucoma.
Conclusions: Low DBP, low mean OPP and low DPP are independently associated with OAG.
Reviewer's Comments: Various studies have demonstrated that factors other than IOP are involved in the pathogenesis of glaucoma. One important category that has been investigated is factors that affect ocular blood flow. This study confirms that ocular perfusion, which is affected by both elevated IOP and decreased blood pressure is associated with OAG. It also shows that a variety of blood pressure parameters independently contribute to this increased risk. Identification of individuals with low blood pressure, especially when it results from excessive treatment with blood pressure-lowering medication, may be another way to improve the clinical course in patients with glaucoma. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Glaucoma, Ocular Perfusion

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PASCAL System Safe in Treating a Range of Retinal Conditions

Pattern Scan Laser Photocoagulation: Safety and Complications, Experience After 1301 Consecutive Cases.

Velez-Montoya R, Guerrero-Naranjo JL, et al:

Br J Opthalmol 2010; 94 (June): 720-724

The Pattern Scan Laser (PASCAL) system allows safe and efficient application of laser burns for retinal photocoagulation.

Objective: To evaluate the safety of the Pattern Scan Laser (PASCAL) system for the treatment of patients requiring panretinal photocoagulation.
Design: Retrospective, interventional clinical case series.
Participants: 1301 cases of retinal photocoagulation performed with PASCAL.
Methods: Medical records were reviewed of all patients who underwent treatment with PASCAL during an 8-month period at a single tertiary ophthalmic referral center. Patient demographics, indication for photocoagulation, number of treatment sessions, and occurrence of intraoperative and postoperative complications were recorded. All treatments were performed by 1 of 2 experienced surgeons, primarily using 2x2 to 5x5 laser spot arrays. Burns were applied 1 burn width apart. For treatment of retinal tears and holes, arc patterns and single shots were primarily used.
Results: Complications included retinal hemorrhage in 1.30% of cases, choroidal detachment in 0.15%, and exudative retinal detachment in 0.10%. There was no difference in laser parameters used to treat patients who did and who did not experience complications.
Conclusions: Treatment with PASCAL is safe for the management of a variety of retinal disorders that require laser photocoagulation. Adverse effects occurred with similar frequency to those reported in other studies.
Reviewer's Comments: PASCAL is a novel device that allows the rapid application of multiple laser spots for retinal photocoagulation. The device is a semi-automatic photocoagulator that allows the placement from 1 to 56 burns per foot pedal activation in a wide range of pre-defined patterns. In comparison to traditional photocoagulation, it uses shorter pulse duration of 10 to 30 ms with significantly greater power. With shorter pulse durations, thermal diffusion to surrounding tissue is more limited, and is theoretically able to result in a more predictable area of laser burn size. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Photocoagulation, Pattern Scan Laser

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Loss of Color Vision, Visual Acuity Can Help Determine Cause of Vision Loss

The Correlation Between Visual Acuity and Color Vision as an Indicator of the Cause of Visual Loss.

Almog Y, Nemet A:

Am J Ophthalmol 2010; 149 (June): 1000-1004

Relative loss of color vision perception is greater in patients with optic nerve disease as a cause of vision loss as opposed to other categories of eye disease.

Objective: To evaluate the correlation between loss of visual acuity and loss of color vision perception, and to establish guidelines useful in diagnosing the cause of vision loss based upon this relationship.
Design: Retrospective, comparative clinical case series.
Participants: 249 patients with visual impairment from a variety of different causes.
Methods: Patients were classified into 4 categories based upon the etiology of vision loss: (1) optic neuropathy; (2) macular disease; (3) media opacity; and (4) amblyopia. Patients with vision loss attributable to more than 1 category were excluded. All patients in the study had undergone complete ophthalmic examination that included assessment of color vision using the Ishihara color vision test and measurement of best corrected visual acuity. Statistical analysis was performed to compare relative loss of color vision perception and visual acuity in each category.
Results: Loss of visual acuity and loss of color vision perception was observed in each category of ophthalmic disease. However, for any given level of loss of visual acuity, a greater reduction of color vision perception was observed in patients with optic neuropathy in comparison to the other categories of disease. Patients with optic neuropathy had, on average, a significantly lower level of performance on Ishihara testing in comparison to the other patients. Mean number of the 15 Ishihara plates correctly identified in patients with an optic neuropathy was 6.7, in comparison to 11.1 in patients with macular disease, 13.2 in patients with media opacity, and 13.4 in patients with amblyopia.
Conclusions: Relative loss of color vision perception is greater in patients with optic nerve disease as a cause of vision loss as opposed to other categories of eye disease.
Reviewer's Comments: Assessment of color vision is an important part of the clinical examination of patients with vision loss, particularly if neuro-ophthalmic disease is in the differential diagnosis or if the cause of vision loss is unknown. Evaluation of relative loss of color vision in proportion to loss of visual acuity can be an important clue in pointing the clinician toward neuro-ophthalmic disease as the underlying etiology of vision loss, and can aid in the determination of further evaluation that may be required to discover the precise etiology. (Reviewer-Scott D. Smith, MD, MPH).

Keywords: Vision Loss, Optic Neuropathy, Diagnosis

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