9th Annual Residents Research Forum

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Rhode Island Hospital Continuing Medical Education has reviewed this activity’s speaker disclosures and resolved all identified conflicts of interest, if applicable.
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**Keynote Speaker,**

Anthony Adamis, MD, Clinical Professor of Surgery (Ophthalmology) Pro Tempore, will speak on

“The Role of VEGF in Health and Disease”
Visual Morbidity After Motorcycle Accident-Related Eye Injuries
Nickolas Katsoulakis, M.D., Sunil Rao, M.D., Theodoros Filippopoulos, M.D., Neal Desai, and
Michael Migliori, M.D.

Purpose: Determination of factors associated with poor visual outcome in patients involved in motorcycle accidents (MCAs).

Methods: Retrospective review of 31 patients involved in MCAs at a level I trauma center. Analysis of Variance was used to determine if age, sex, helmet, ethanol level, orbital fractures or an eye injury severity scale was predictive of final visual acuity.

Results: 66% of patients did not wear a helmet at time of injury. Four patients lost vision to the level of legal blindness in at least one eye (mean follow-up: 155 days). 75% of those were not wearing a helmet. The odds ratio for 20/20 presenting visual acuity for helmeted patients was 3.33 (95% CI: 1.66-5.0).

Conclusion: Helmet is associated with better visual outcomes after MCAs.

We conducted a study to determine predictive factors (age, sex, helmet, ethanol level, orbital fractures or an eye injury severity scale) of visual outcome in patients suffering Motorcycle Accidents evaluated at a level I trauma center. The use of helmet which is not enforced by law in our referral area, appears to be the single factor associated with no visual sequelae (odds ratio for 20/20 presenting visual acuity 3.33).
Rhode Island Airbag Study (RIAS)
Sunil K. Rao, M.D., Theodoros Filipopoulos, M.D., Nickolas P. Katsoulakis, M.D. and Yoash Enzer, M.D.

Airbags: Restraint Status as a Risk Factor for Injury Severity and Final Visual Acuity

Purpose: Determination of risk factors for ocular injuries suffered in motor vehicle accidents (MVAs) with airbag deployment.

Methods: A retrospective review of 47 patients involved in MVAs with airbag deployment at a level one-trauma center.

Results: Seventy-one percent of patients without restraints suffered severe ocular injuries (injury severity scale score >2) as opposed to 30.8% with restraints (p=0.0002). After a median follow-up of six months, 14% of unrestrained patients had a final visual acuity less than 20/100 versus 0% of restrained patients (p=0.03).

Conclusions: Seatbelts reduce the severity of ocular injuries suffered in MVAs with airbag deployment and lead to better final visual acuities.
Established Practice Patterns to Prevent Postoperative Endophthalmitis after Cataract Surgery in New England

Theodoros Filippopoulos, M.D., Kent L. Anderson, M.D., Ph.D., Paul B. Greenberg, M.D., Sunil Kao Rao, M.D., Nickolas P. Katsoulakis, M.D. and Elliot M. Perlman, M.D.

Purpose: To determine the established practice patterns employed to prevent postoperative endophthalmitis after routine cataract surgery in New England.

Methods: A questionnaire was distributed to all the active New England Ophthalmological Society members in 2006. 32.9% of members responded. Out of the 231 responses 203 did routinely perform cataract extractions. Preferences on operative technique, pre-, intra- and post- operative antibiotics, mode of anesthesia along with demographic information were recorded.

Results: Half of the responders perform more than 200 cataract extractions per year and 51% practice in a group practice setting. Half of our cohort is not fellowship trained. 23% did have a case of culture proven postoperative endophthalmitis within the last 5 years. 60% utilize a clear corneal incision and 41% place the incision temporally. 91% do employ topical antibiotics preoperatively. The vast majority (86%) of the surgeons who routinely use preoperative antibiotics, prefers one of the new 4th. generation fluoroquinolones. Intracameral antibiotics and antibiotics in the infusion line are being used by 18% and 11% respectively. 53% never perform postoperatively a subconjunctival antibiotic injection. The majority of the cohort utilizes postoperative antibiotics with 78% preferring one of the 4th. generation fluoroquinolones.

Conclusion: Secondary to the lack of controlled clinical trials, there is some variability in the practice patterns employed in New England to prevent postoperative endophthalmitis after routine cataract surgery. There is widespread utilization of 4th generation fluoroquinolones for antibiotic prophylaxis, which raises concerns about emerging resistance, and many physicians do actually use a variety and/or combination of modalities to achieve bacteriostatic/bacteriocidal intraocular levels. Development of a NEOS postoperative endophthalmitis registry would be a useful research tool to screen for practices that are associated with a higher incidence of this devastating but rare complication.
Accuracy of Predicted Refractive Error in a Cohort Cataract Surgery Patients at a Veterans Administration Medical Center
Molly Ritsema, M.D., Dalia Saha, Lavkuma Panchal, M.D., and Paul Greenberg, M.D.

Abstract

Purpose: To determine accuracy of predicted post-operative refraction in a cohort of patients undergoing cataract surgery at a Veterans Affairs Medical Center.

Methods: Retrospective chart review of patients who underwent extracapsular cataract surgery with or without phacoemulsification between June 2001 and August 2004. Patients without target and actual post-operative refractions and patients with post-operative visual acuity worse than 20/40 were excluded. The most recent post-operative refraction was used in all cases.

Results: 234 patients had cataract surgery and all had axial length measured by applanation biometry; 122 patients had target and actual post-operative refractions documented in the chart; 106 also had post-operative visual acuities of 20/40 or better and were used for the study. All of the 106 eligible patients were male with a mean age of 69.5 years. The mean pre-operative VA was -0.78 (20/120), the mean post-operative VA -0.06 (20/23) and the mean deviation from target refraction 0.60D; 52% of patients were within 0.5D of target refraction, 81% within 1D, 96% within 2D and 100% within 3D.

Conclusion: The accuracy of target refractions in patients undergoing cataract surgery at a Veteran Affairs Medical Center was comparable to prior studies in which applanation biometry was used to calculate axial length.
The Prevalence of High-Risk Factors and Adherence to Screening Guidelines for Hydroxychloroquine Retinopathy in a Cohort of United States Veterans

Gaurav Gupta, M.D., Paul B. Greenberg, M.D., and William G. Tsiaras, M.D.

**Purpose:** To determine the prevalence of high-risk factors for retinal toxicity and adherence to screening guidelines as outlined by the American Academy of Ophthalmology (AAO) in a cohort of veterans taking hydroxychloroquine.

**Methods:** Retrospective chart review of all patients with active prescriptions for hydroxychloroquine in a Veterans Affairs Medical Center.

**Results:** Of the 62 patients taking hydroxychloroquine, 87% had at least one high risk factor for retinal toxicity and 56% had two or more high risk factors; 40% of patients did not have a documented eye exam.

**Conclusion:** Veterans taking hydroxychloroquine may be at increased risk for retinal toxicity, and a significant proportion may not be managed according to AAO screening guidelines.
**Frontalis Suspension as an Effective Treatment of Eyelid Apraxia and Blepharospasm**
Xiaoqin Lu, M.D. and Michael E. Migliori, M.D.

**Introductory Sentence:** In patients with eyelid apraxia and essential blepharospasm, it has been theorized that a frontalis suspension can strengthen the retractor muscles and improve eyelid opening, and increase the effectiveness of the associated blepharospasm treatment.

**Methods:** 9 patients with eyelid apraxia and essential blepharospasm (including 4 patients with Meige’s Syndrome) were treated with frontalis suspensions with silicon rods during a 7-year interval. The follow-up periods ranged from 3 to 53 months. In all cases, a blepharoplasty or a limited myomectomy was performed at the same time as the frontalis suspension.

**Results:** 8 out of 9 patients experienced subjective improvements, such as the increased comfort and ability to open eyes, decreased blepharospasms, satisfaction with surgical results, and regaining the ability to drive.

Blepharospasm recurred in 8 out of 9 patients at 1 to 3 months post-operation. After the operation, 5 patients required fewer units of botulinum toxin injections, 3 patients required more units, and 1 case required the same amount. 3 patients experienced better response to botulinum toxin injections. In the 3 patients who used oral medications to control blepharospasms, all 3 eliminated the need for systemic medications post-operation.

Most common complications were dry eyes, exposure, lagophthalmos, and ptosis.

**Conclusion:** After frontalis suspensions, almost all of the patients experienced subjective improvements with their ability to open their eyes and perform daily activities. Even though blepharospasms recurred in most of the patients, the treatments of blepharospasm were more efficient after surgery in terms of elimination of oral medications and more effectiveness of botulinum toxin injections.

**Bibliography:**
Anthony P. Adamis, M.D. is a co-founder of Eyetech and has been our Chief Scientific Officer since July 2002. From January 1998 to June 2002, Dr. Adamis was Associate Professor of Ophthalmology at Harvard Medical School. Dr. Adamis also served as a principal investigator and co-director of the Retina Research Institute for Diabetic Retinopathy and Macular Degeneration at the Massachusetts Eye and Ear Infirmary. Dr. Adamis is a specialist in ocular vascular disease and ocular drug delivery. He is best known for his co-discovery of the role that VEGF plays in new blood vessel growth and blood vessel leakage related to various diseases of the eye.