

**AMERICAN UVEITIS SOCIETY
FALL MEETING
SUNDAY, NOVEMBER 12, 2017
7:00 PM**



AMERICAN  UVEITIS SOCIETY

**AAO 2017
NEW ORLEANS, LA**

**NEW ORLEANS MARRIOTT
555 CANAL STREET**

SCHEDULE – AMERICAN UVEITIS SOCIETY – SUNDAY, NOVEMBER 12, 2017

7:00 PM

Social Hour

8:00 PM

Introduction to the Plenary Session

Nisha Acharya, MD, MS
Program Chair, AUS Fall Meeting

Plenary Session

Year in Review: Uveitis Basic and Clinical Science

Russell N. Van Gelder, MD, PhD
Professor and Chair, Dept of Ophthalmology
University of Washington School of Medicine

8:45 PM

Business Meeting and Break

Free papers

9:00 PM

John Sheppard, MD, MMSc: Topical Aldehyde Trap Agent was Non-inferior to Corticosteroid in a Randomized, Comparator-Controlled Phase 2 Clinical Trial in Noninfectious Anterior Uveitis

9:07 PM

Jose S. Pulido: Berger's space-An Anatomically Privileged Site?

9:14 PM

Sunir Garg MD: Evaluation of ocular iontophoresis to deliver dexamethasone phosphate to treat noninfectious anterior uveitis.

9:21 PM

Matthew Starr, MD: Histoplasmosis following Systemic Immunomodulatory Therapy for Ocular Inflammation

9:28 PM

Camilo Resende, MD: Prognostic factors in toxoplasmic retinochoroiditis

9:35 PM

Faazil Kassam: The role of the gut microbiome in uveitis among patients with inflammatory bowel disease

SCHEDULE – AMERICAN UVEITIS SOCIETY – SUNDAY, NOVEMBER 12, 2017

Free papers

- 9:42 PM** **Oren Tomkins-Netzer:** Comparing treatment of acute retinal necrosis with either oral valaciclovir or intravenous aciclovir
- 9:49 PM** **Elisabetta Miserocchi:** Bilateral Acute Retinal Necrosis: Clinical Features and Outcomes in a Large Multicenter Study
- 9:56 PM** **John A. Gonzales:** Metagenomic Deep Sequencing Identifies Common and Rare Cancer Mutations Associated with Primary Vitreoretinal Lymphoma
- 10:03 PM** **Edmund Tsui:** Vision loss associated with the opioid epidemic: a study of endogenous endophthalmitis at a New Hampshire tertiary hospital
- 10:10 PM** **Jessica Weinstein:** Swept Source (SS) Optical Coherence Angiography identifies choriocapillaris and choroidal flow voids in patients with Birdshot Chorioretinopathy
- 10:17 PM** **Bo Li:** Surgical outcomes of custom, flexible artificial iris prosthesis implantation for the treatment of diffuse iris atrophy in uveitic eyes
- 10:24 PM** **Varun Pawar:** The negative correlation between smoking history and the development of Keratoconjunctivitis Sicca
- 10:31 PM** **Ben Chaon:** Full-field Electroretinographic changes among uveitis patients with persistent fluorescein angiographic retinal vascular leakage
- 10:38 PM** **Marib Akanda:** Development of an automated methodology for quantitative analysis of OCT angiography studies of choriocapillaris

Topical Aldehyde Trap Agent was Non-inferior to Corticosteroid in a Randomized, Comparator-Controlled Phase 2 Clinical Trial in Noninfectious Anterior Uveitis

Sheppard, John D.^{1,2}; Brady, Todd³; Clark, David³; Foster, C. Stephen^{4,5}.

Institution: 1. Ophthalmology, Eastern Virginia Medical School, Norfolk, VA, United States. 2. Cornea & Uveitis, Virginia Eye Consultants, Norfolk, VA, United States. 3. Aldeyra Therapeutics, Lexington, MA, United States. 4. Harvard Medical School, Boston, MA, United States. 5. MERSI, Waltham, MA, United States.

Purpose: Aldehydes are pro-inflammatory mediators of allergic and autoimmune inflammation, and thus prevention of toxic aldehyde accumulation may diminish inflammation and fibrosis associated with ocular disease. ADX-102 is a novel aldehyde sequestering agent that represents a new anti-inflammatory drug class. A corticosteroid -controlled Phase 2 clinical trial evaluated the safety and efficacy of ADX-102 in subjects with noninfectious anterior uveitis (NAU).

Methods: A randomized, multi-center, investigator-masked, comparator-controlled, parallel-group trial of 0.5% ADX-102 topical ophthalmic solution was conducted in 45 subjects with acute flares of NAU at 15 US sites. Subjects were randomized equally to 6 weeks of therapy with ADX-102 QID, 1% Prednisolone Acetate (PA, Pred Forte®, Allergan, Irvine, CA) QID (tapered), or a combination of ADX-102 QID and 1% PA BID (tapered). Efficacy was assessed by anterior chamber cell (ACC) counts and aqueous flare (AF) grade.

Results: Kaplan-Meier estimates of time to ACC treatment success, ACC grade reduction, AF treatment success, and AF grade reduction were similar across treatment groups and not statistically significantly different for any ADX-102 treatment group compared with PA alone. For ACC results, improvement to Grade 0 was seen in all treatment groups over the course of the study. At Week 4, the proportion of subjects with Grade 0 ACC was similar across groups, with 53% and 38% in the ADX-102 and PA groups, respectively. Post hoc inference testing showed that the Least Square mean change from Baseline in ACC grade for the ADX-102 and combination treatment groups was consistently greater than the PA group. At week 2 ($p = 0.03$) and week 4 ($p = 0.04$) (the last on treatment assessment of ACC) ADX-102 was statistically non-inferior to PA using a 0.5 unit ACC limit.

Conclusions: These results suggest that ADX-102 treatment alone, or in combination with PA, was effective in the treatment of NAU, with activity that was statistically non-inferior to PA monotherapy. presentation were granulomatous keratic precipitates, vitreous snowballs and peripheral multifocal chorioretinal lesions. Compared to other noninfectious uveitis, sarcoid uveitis has a good prognosis, with better visual acuity outcomes and subjects less likely to require second line immunosuppression.

Disclosures: John Sheppard: Commercial Relationship(s);Aldeyra Therapeutics:Code F (Financial Support) ;Allergan:Code C (Consultant) ;EyeGate:Code C (Consultant); Alcon:Code C (Consultant); Bausch & Lomb:Code C (Consultant) | Todd Brady: Commercial Relationship(s);Aldeyra Therapeutics:Code E (Employment) | David Clark: Commercial Relationship(s);Aldeyra Therapeutics:Code E (Employment)| C. Stephen Foster: Commercial Relationship(s);Aldeyra Therapeutics:Code F (Financial Support)

Berger's space-An Anatomically Privileged Site?

Pulido, Jose; Salomao, Diva; Mares, Virginia; Mansukhani, Sasha; Khanna, Sunil

Institutions: Departments of Ophthalmology, Molecular Medicine and Pathology, Mayo Clinic, Rochester, MN

Purpose: To show how Berger's space effects the results of treatment of vitreous disease

Methods: Report of cases including amyloidosis cases and vitreoretinal lymphoma. Also anatomic pathologic specimens

Results: In amyloidosis and in patients with vitreoretinal lymphoma, the amyloid or the VRL cells reaccumulate in this space. Anatomic specimens show that there is a space that is bounded by adhesions to the lens.

Conclusions: Berger's space is an anatomically privileged site that is difficult to access at the time of vitrectomy in phakic eyes. Because of the adhesions, it might also be privileged to chemotherapeutic agents to the immune system

Disclosures: None.

Evaluation of ocular iontophoresis to deliver dexamethasone phosphate to treat noninfectious anterior uveitis.

Garg, Sunir MD,¹ Wirostko, Barbara MD,² Brandano, Lisa,² John, Sheppard MD³

Institutions: 1. Mid-Atlantic Retina/Wills Eye Hospital, Philadelphia, PA, US. EyeGate Pharmaceuticals, Inc., Waltham, MA, US 3. Virginia Eye Consultants, Norfolk, VA, US

Purpose: To determine the safety and efficacy of EGP-437 iontophoretic treatment (dexamethasone phosphate (DP) formulated for iontophoresis) to control inflammation in subjects with noninfectious anterior uveitis.

Methods: Prospective, multicenter, double-masked, positive-controlled clinical trial. Subjects (n=193) were randomized to either 2 iontophoretic treatments at a dose of 4.0 mA-min delivering 40 mg/ml DP ophthalmic solution (day 0 and 7) with daily vehicle eyedrops or 2 placebo iontophoretic treatments of sodium citrate buffer solution with prednisone acetate 1% eyedrops (PA) instilled 8 times daily for one week with taper over 28 days in 1 qualifying eye. The primary endpoint was anterior chamber cell (ACC) of zero at day 14. Subjects received iontophoresis via the EyeGate® II Delivery System (EGDS) and were followed until day 56.

Results: Overall, 33.3% (32/96) of EGP-437-treated subjects vs. 33.0% (32/97) of PA-treated subjects achieved an ACC=0 at day 14 (P=0.064). Among subjects with more severe uveitis (baseline ACC count >25), 25.0% (13/52) of EGP-437 vs. 20.0% (8/40) of PA-treated subjects achieved an ACC=0 at day 14. The mean (SD) change in ACC score from baseline to day 28 was -1.9 (1.2) with EGP-437 and -1.9 (0.9) with PA. Mean best-corrected visual acuity remained relatively stable. Fewer EGP-437 vs. PA-treated subjects had IOP elevations >6 mm Hg (13 vs. 26). Common AEs in EGP 437 and PA-treated eyes, respectively, were conjunctival hyperemia (8.2% vs. 5.5%), eye pain (6.8% vs. 7%), and iris adhesions (6.2% vs. 5.5%) and were mostly mild to moderate in severity. No treatment related serious ophthalmic AEs occurred.

Conclusions: In this study, EGP-437 was well-tolerated. Compared to PA, EGP-437 effectively controlled inflammation in eyes with noninfectious anterior uveitis and could reduce or eliminate the need for daily topical steroids in affected eyes.

Disclosures: Financial support for the conduct of the study was provided by EyeGate Pharmaceuticals, Inc. Drs. Garg and Sheppard were compensated as investigator for this study. Mrs. Brandano and Dr. Wirostko are employees of EyeGate.

Histoplasmosis following Systemic Immunomodulatory Therapy for Ocular Inflammation

Starr, Matthew R; Smith, Wendy M

Institutions: Mayo Clinic, Rochester, MN, USA

Purpose: Histoplasmosis is a known complication of systemic immunosuppressive therapy, particularly among patients receiving tumor necrosis factor alpha (TNF α) inhibitors. There is limited data on the development of disseminated or pulmonary histoplasmosis among patients receiving systemic immunosuppressive medication for the management of non-infectious ocular inflammation.

Methods: We conducted a retrospective review of all patients diagnosed with uveitis who subsequently developed pulmonary or disseminated histoplasmosis at the Mayo Clinic in Rochester, MN from September 1994 through July 1st, 2017. Patients had to develop histoplasmosis after the initiation of immunomodulatory therapy.

Results: We identified 9 patients with intraocular inflammation who were diagnosed with histoplasmosis while receiving systemic immunomodulatory medication. Systemic medications included methotrexate, prednisone, TNF α inhibitors, dapsone, and cyclosporine. Of the 9 cases, two had disseminated histoplasmosis, while the rest had pulmonary histoplasmosis. Both of the patients with disseminated histoplasmosis were on TNF α inhibitors; three patients on TNF α inhibitors had symptomatic pulmonary histoplasmosis. The 4 patients not on TNF α inhibitors were receiving oral prednisone in addition to corticosteroid-sparing immunomodulatory therapy.

Conclusions: Ocular inflammation patients on systemic immunomodulatory therapy may develop pulmonary or disseminated histoplasmosis. Ophthalmologists should be aware of the risk of Histoplasma infections following initiation of immunosuppressive medication especially if the patient lives in an endemic region.

Disclosures: None.

Prognostic factors in toxoplasmic retinochoroiditis

Resende, Camilo Lara, Camila;; Queiroz, Rafael; Gontijo, Tabata; Campos, Wesley; Vasconcelos-Santos, Daniel

Institution: Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

Purpose: To investigate factors predictive of worse visual outcome in toxoplasmic retinochoroiditis (TRC).

Methods: Longitudinal retrospective interventional study. Data were collected from charts of all patients with active TRC consecutively presenting to a university-based uveitis referral center in Belo Horizonte, Brazil from 2004 to 2013. Univariate/multivariate logistic regression models were applied, with significance level of 5%.

Results: From 973 patients included, 516 (53%) were male, with mean age of 29.7 years. Ocular symptoms had been present for a mean of 31 days, with 944 cases (97%) being unilateral. 21.1% patients recovered at least one previous episode of TRC. At presentation, 332 (34.1%) had visual acuity (BCVA) $<20/200$ in the affected eye. On multivariate logistic regression, factors associated with BCVA $<20/200$ at presentation were older age (>60 years; $p=0.005$), longer duration of ocular symptoms (>20 days; $p=0.003$), keratic precipitates ($p=0.04$), particularly of mutton-fat type ($p=0.02$) and lesion located at zone 1 ($p=0.001$). Serum anti-*T. gondii* IgM was not associated with BCVA $<20/200$ at presentation ($p=0.11$).

Treatment consisted of PO sulfadiazine/pyrimethamine/folinic acid in 87.5%, supplemented with PO prednisone in 93.7%, for a mean of 37.3 days. Mean follow-up was 9.4 months. BCVA $<20/200$ at 3 months was not associated with age, sex or duration of symptoms at presentation. History of prior episode(s) of TRC was also not associated with worse BCVA at 3 months. On univariate logistic regression, BCVA $<20/200$ at 3 months was associated with worse BCVA ($<20/200$) at presentation ($p<0.001$), multiple active TRC lesions ($p=0.01$) and with presence of serum anti-*T.gondii* IgM antibodies ($p=0.01$). On multivariate logistic regression model, however, only BCVA $<20/200$ ($p=0.001$) and multiple active TRC lesions ($p=0.004$) remained predictive of worse visual prognosis.

Conclusion: Visual acuity at presentation was the most important visual outcome predictor for TRC.

Disclosures: None.

The role of the gut microbiome in uveitis among patients with inflammatory bowel disease

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Institutions: University of Calgary, Massachusetts Institute of Technology, Openbiome

Purpose: Inflammatory bowel disease (IBD) including Crohn's disease (CD) and ulcerative colitis (UC) may result from alterations in the gut microbiome driving immune modulation. The etiology of non-infectious uveitis in IBD is poorly understood. Accordingly, our aim was to investigate the link between the gut microbiome and IBD patients with and without uveitis.

Methods: We conducted a case-control study comparing colonic biopsies from IBD patients with and without uveitis. Case-controls were matched for key factors including age, sex, diagnosis (CD vs UC) and biopsy location (left vs right-side colon), to minimize confounding. A 2:1 ratio of controls to cases was targeted when tissue was available. Biopsy samples were analyzed using standard 16s rRNA sequencing. Microbiome analysis was conducted to assess for differentially abundant taxa using DESeq2 and a false discovery rate adjusted p-value cut off in keeping with standard practices.

Results: We identified 18 IBD patients with uveitis or episcleritis (case) (mean age 46.8 years, 61% female, 78% CD) and 34 IBD patients without any extra-intestinal manifestations (control) (mean age 44.8 years, 62% female, 76% CD). Overall, the microbiome profile of IBD patients with uveitis was distinct with notable differences at the family and genus level. Specifically, there was a decrease in relative abundance of Coriobacteriaceae ($P=0.0007$) in IBD patients with uveitis compared to those without. Additionally, there was an increased abundance of Fusobacteriaceae ($P=0.005$) in IBD patients with uveitis compared to those without extra-intestinal manifestations.

Conclusion: To our knowledge, this is the first study to demonstrate a possible association between the gut microbiome and uveitis in IBD. This pilot suggests Coriobacteriaceae and Fusobacteriaceae may have key roles in the development of uveitis in IBD; however, well-powered studies are required to validate these findings.

Disclosures: None.

Comparing treatment of acute retinal necrosis with either oral valaciclovir or intravenous acyclovir

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Institutions: ¹ UCL/Institute of Ophthalmology and Moorfields Eye Hospital, London, UK

Purpose: To compare the long term visual outcomes of patients with acute retinal necrosis (ARN) treated initially with intravenous aciclovir versus oral valaciclovir therapy.

Methods: This is a retrospective case series including 62 patients (68 eyes) with ARN, treated at Moorfields Eye Hospital (United Kingdom) between 1992 and 2016, were identified through the hospital's electronic database. Exclusion criteria included insufficient patient records or follow-up (<150 days). 56 patients had unilateral ARN, while 6 had bilateral ARN. Patients who received intravenous aciclovir on diagnosis (n=33) were compared with patients treated with oral valaciclovir (n=29) across outcomes including best corrected visual acuity, retinal detachment, severe vision loss and other long-term complications. The impact of adjunctive intravitreal antiviral and prophylactic barrier laser treatment was also assessed.

Results: Change in best corrected visual acuity was not significantly different for patients treated initially with intravenous therapy versus oral therapy over 5 years of follow-up data (p=0.16). In both groups, approximately half of ARN patients developed severe vision loss (p=0.18), while close to 30% retained good vision regardless of treatment type (p=0.80). Retinal detachment occurred in approximately two-thirds of cases and did not differ across treatment groups (p=0.67). Barrier laser and intravitreal therapy had no effect on retinal detachment rate in either group.

Conclusion: Oral valaciclovir is non-inferior compared with intravenous therapy in the management of ARN. Oral valaciclovir therapy as an out-patient—with or without intravitreal foscarnet—can therefore be considered as an acceptable alternative to in-patient therapy required for intravenous treatment.

Disclosures: None.

Bilateral Acute Retinal Necrosis: Clinical Features and Outcomes in a Large Multicenter Study

Elisabetta Miserocchi, Cristobal Couto, Ariel Schlaen, Victor Llorenç, Alfredo Adan, Francesco Bandello

Institution: 1. Department of Ophthalmology, San Raffaele Scientific Institute, University Vita-Salute, Milan, Italy. 2. Ophthalmology Service, Hospital de Clinicas "José de San Martín", Universidad de Buenos Aires, Buenos Aires, Argentina. 3. Clinic Institute of Ophthalmology, Clínic Hospital, Barcelona Spain

Purpose: To describe the clinical features and outcome in patients affected by bilateral acute retinal necrosis (BARN).

Methods: Longitudinal observational retrospective multi-center study. A total of 15 patients examined in three different tertiary referral uveitis centers in Europe and South America between 1998 and 2016. The charts of all patients were reviewed. The diagnosis was based on the standard clinical criteria of the American Uveitis Society, and confirmed by polymerase chain reaction (PCR) on aqueous or vitreous. Demographics, general medical history, neurologic involvement, trigger event were collected for each patient.

Main outcome measures: Ocular findings included visual acuity, inflammation characteristics, delay between the two eyes, etiology and complications.

Results: Thirty eyes of 15 Caucasian patients (11 males-4 females, age 44.1 ± 15.8 years) were included in the study. Corticosteroid therapy was the trigger event in 7 subjects. Encephalitis occurred in 2 patients. The delay of involvement between the two eyes was 57.2 ± 105.2 months (1 week-30 years). Herpes Simplex Virus Type 1 was the most frequent etiology (20 eyes, 66.6%), followed by Herpes Simplex Virus Type 2 (5 eyes, 16.7%) and Varicella Zoster Virus (2 eyes, 6.7%). The best-corrected visual acuity (BCVA) improved in 30% of eyes, remained stable in 26.7%, worsened in 43.3% of eyes during follow up. Two eyes presented with no light perception, and 5 became completely blind by the end of follow-up. By the last visit 36% of eyes had a retinal detachment, and 33% developed optic atrophy. Proliferative vitreoretinopathy and neovascular glaucoma were respectively observed in 13.3% at the last follow-up visit. Phthisis bulbi was observed in 3 eyes (10%).

Conclusions: In our study BARN was associated with a severe visual outcome and with a high rate of ocular complications. Although BARN is a rare disease, the course of the disease is very aggressive, regardless prompt referral in tertiary care uveitis centers.

Disclosures: None.

Metagenomic Deep Sequencing Identifies Common and Rare Cancer Mutations Associated with Primary Vitreoretinal Lymphoma

Gonzales, John A.,^{1,2} Acharya, Nisha R.,^{1,2} Armin Hinterwirth,^{1,2} Doan, Thuy^{1,2}

Institution: 1. Francis I. Proctor Foundation, University of California, San Francisco 2. Department of Ophthalmology, University of California, San Francisco

Purpose: To describe the utility of metagenomic deep sequencing (MDS) in identifying common and rare cancer mutations in primary vitreoretinal lymphoma (PVRL).

Methods: Anterior chamber paracentesis or vitrectomy was performed in three patients referred to the Francis I. Proctor Foundation for uveitis suspicious for a masquerade syndrome. Fundus photography, fluorescein angiography, and fundus autofluorescence was obtained in all cases. Ocular fluid underwent MDS and, using an in-house-developed computational pipeline for host genome mutational analysis, lymphoproliferative-associated mutations were identified.

Results: MRI of the brain was negative in all three cases. One patient had large atypical B-lymphocytes present on cytopathology, but too few to diagnose definitively as PVRL. Another patient had numerous large, atypical lymphocytes consistent with B-cell lymphoma. Two patients had confirmation of B-cell lymphoma based on immunoglobulin kappa gene rearrangement studies. All patients were found to have multiple mutations in genes associated with lymphoproliferative disorders using MDS. One patient exhibited mutations (some multiple) in 39 lymphoma-associated genes. None of these patients had the L265P MyD88 mutation.

Conclusions: The results in this study show that MDS is a useful unbiased approach for the identification of common and rare cancer mutations, while requiring as little as 30-50 μ L of intraocular fluid. MDS may complement current diagnostic tests for the evaluation of PVRL. Importantly, MDS identified mutations not commonly tested for using widely-available PCR-directed assays.

Disclosures: None.

Vision loss associated with the opioid epidemic: a study of endogenous endophthalmitis at a New Hampshire tertiary hospital

Tsui, Edmund; Luong, Preston; Batra, Nikhil; Chapman, Christopher; Zegans Michael

Institution: Department of Ophthalmology, New York University School of Medicine, New York, NY and Section of Ophthalmology, Department of Surgery, Dartmouth-Hitchcock Medical Center, Lebanon, NH

Purpose: From 2000 to 2014, the United States experienced a tripling in number of opioid overdose deaths. As of 2015, New Hampshire has one of the highest age-adjusted rates of death due to drug overdose at 34.3 per 100,000 persons. We investigated clinical characteristics of injection drug use (IDU) versus non-IDU endogenous endophthalmitis (EE) at Dartmouth-Hitchcock Medical Center (DHMC) during the opioid epidemic.

Methods: A retrospective chart review identified EE cases from January 2012 to December 2016 at DHMC via International Classification of Diseases (ICD-9, ICD-10) codes 360.0*, 360.1*, H44.0*, and H44.1*. Patient demographics, IDU history, microbial data, and clinical courses were recorded and analyzed.

Results: Fifteen patients with EE were identified, of which 9/15 (56.3%) had a history of IDU. Reduced vision was the most common presenting symptom in all IDU (9/9) and most non-IDU (5/6) patients. Compared with non-IDU patients, IDU patients were younger (31 vs 63 years, $P < 0.001$) and had fewer co-morbidities. There was a trend for IDU patients to delay seeking care compared with non-IDU patients (24.7 vs 2.0 days). IDU patients demonstrated significantly more improvement in visual acuity after intervention than non-IDU patients. Non-IDU cases were more likely to present during hospitalization or shortly after discharge and less likely to undergo surgical intervention because of more frequent resolution of vitritis.

Conclusions: Patients with IDU-related EE were younger, ambulatory, and presented later than non-IDU related EE patients. Importantly, IDU-related EE patients were more likely to experience improved vision with treatment than non-IDU related EE patients. IDU patients represent a younger and healthier subset of the EE population and may regain vision upon prompt recognition and treatment.

Disclosures: None.

Swept Source (SS) Optical Coherence Angiography identifies choriocapillaris and choroidal flow voids in patients with Birdshot Chorioretinopathy

Weinstein, Jessica E.,¹ Zhongdi, Chu,² Wang, Ruikang,^{1,2} Pepple, Kathryn L.¹

Institution: 1. Department of Ophthalmology, University of Washington
2. Department of Bioengineering, University of Washington

Purpose: To compare swept-source optical coherence tomography angiography (SS-OCTA) and indocyanine green angiography (ICGA) for detection of choriocapillaris and choroidal lesions in acute and chronic Birdshot chorioretinopathy (BSCR).

Methods: An SS-OCTA prototype was used to image patients with BSCR longitudinally. Choriocapillaris (CC) and choroidal (Ch) en face images were generated from slabs defined by their position in relationship to the retinal pigment epithelium (RPE) best fit. The CC slab was defined as 6 to 29 μm below the RPE best fit line, and the Ch slab was defined as 40 to 120 μm below the RPE best fit line. Lesions identified on CC and Ch slabs were compared to Optos ICGA, Fluorescein angiography, Humphrey visual fields and fundus autofluorescence (FAF) images. Studies obtained after initiation of immune modulation therapy were compared to pre-treatment results.

Results: 4 eyes of 2 patients with BSCR were imaged at baseline and follow up. Patient #1 had a history of chronic disease while patient #2 presented with recent onset BSCR. Both patients demonstrated multiple hypocyanescent lesions throughout the posterior pole and periphery on ICGA. Corresponding flow voids were identified by SS-OCTA en-face images of the CC and Ch in patient #1. Corresponding flow voids were only identified in the Ch in patient #2. Patient #1 also demonstrated abnormal peripapillary hypo-autofluorescence. No FAF abnormalities were identified in patient #2. In patient #2 treatment with corticosteroids led to resolution of ICGA lesions and Ch lesions seen by SS-OCTA. In Patient #1, lesions that demonstrated abnormal FAF, and flow voids in the CC and Ch did not resolve with immunomodulatory therapy.

Conclusions: SS-OCTA provides a non-invasive method for identifying and monitoring BSCR lesions previously reported only with ICGA. SS-OCTA also provides depth information that suggests acute lesions primarily impact the deeper choroid while chronic lesions involve the choroid, choriocapillaris, and ultimately the overlying RPE. Our results suggest SS-OCTA represents a new and non-invasive method for monitoring disease activity in BSCR.

Disclosures: Author R.K. received research support from Carl Zeiss Meditec Inc., Tasso Inc. and Colgate Palmolive Company. Dr. Wang and the Oregon Health and Science University co-own a patent that is licensed to Carl Zeiss Meditec Inc. and Kowa Inc. He is a consultant to Insight Photonic Solutions. All other authors have no disclosures

Surgical outcomes of custom, flexible artificial iris prosthesis implantation for the treatment of diffuse iris atrophy in uveitic eyes

Li, Bo; Kaufman, Adam; Snyder, Michael

Institutions: Cincinnati Eye Institute

Purpose: To determine the effectiveness of a custom, flexible artificial iris prosthesis implantation in uveitic eyes with diffuse iris atrophy.

Methods: Retrospective chart review for patients who had a custom, flexible artificial iris prosthesis implantation in uveitic eyes with diffuse iris atrophy was performed. The pre-operative assessment, evaluation, surgical intervention, and surgical outcomes were recorded.

Results: A total of 10 eyes (9 patients) were identified. The average patient age was 59.0 years old. The causes of iris atrophy included herpes zoster ophthalmicus (4 eyes), idiopathic (4 eyes), suspected herpes simplex virus infection (1 eye), and undefined herpetic eye disease (1 eye). The average amount of iris atrophy was 10.5 clock hours (315 degrees) and 7 eyes had severe and fixed mydriasis under all light conditions. The degree of photic symptoms was graded as severe in 7 eyes, moderate in 2 eyes, and mild in 1 eye. The average pre-operative best correct visual acuity was 0.68 LogMAR (range 0.0097 – 1.7 LogMAR). All eyes had successful cataract surgery with IOL implantation and in-the-bag placement of a custom, flexible artificial iris prosthesis. The average post-operative BCVA was 0.041 LogMAR (range -0.097 – 0.398 LogMAR). Post-operatively, all patients reported improvement in photic symptoms with 5 patients reporting complete resolution of photic symptoms. Post-operatively, 2 eyes had transient cystoid macular edema, 1 eye had transient IOL precipitate, and 1 eye suffered from a complex retinal detachment 12 month after the initial surgery. At the last follow-up visit, 9 eyes had no evidence of active inflammation and one eye had mild anterior chamber reaction. No eyes required an increase in topical glaucoma medications compared with the pre-operative baseline.

Conclusion: The implantation of a custom, flexible artificial iris prosthesis at the time of cataract surgery in uveitic eyes with diffuse iris atrophy resulted in improved vision, reduced photic symptoms and good functional outcomes with high patient satisfaction.

Disclosures: None.

The association between smoking and the ocular signs of keratoconjunctivitis sicca. Is smoking protective?

Varun Pawar,^{1,2} Jennifer Rose-Nussbaumer,^{1,2} Thomas Lietman,^{1,2} John Gonzales^{1,2}

Institutions: 1. Francis I. Proctor Foundation, University of California, San Francisco 2. Department of Ophthalmology, University of California, San Francisco

Purpose: To evaluate the association between smoking history and ocular signs and symptoms of keratoconjunctivitis sicca (KCS) in participants enrolled into the Sjögren's International Collaborative Clinical Alliance (SICCA) Registry.

Methods: Cross-sectional study of 3,514 participants enrolled into the SICCA registry from 9 international research sites. Participants met at least one of five inclusion criteria to enter the registry (including abnormal serologic testing or having complaints of dry eyes or mouth). Past, current or never smoker status was obtained from a questionnaire. Mixed effects logistic regression was performed to determine how smoking status predicted signs and symptoms of KCS as well as being classified as having Sjögren's syndrome.

Results: Compared to never smokers, current smokers had a 0.39 fold odds of being classified as Sjögren's syndrome (95% CI: 0.29 to 0.52, $p \leq 0.001$). Additionally, current smokers had a statistically significant lower odds of having an abnormal ocular staining score (OR = 0.60, 95% CI: 0.46 to 0.78, $p < 0.001$), abnormal Schirmer 1 score (OR = 0.68, 95% CI: 0.51 to 0.91, $p = 0.01$), and abnormal tear-break-up time (OR = 0.38, 95% CI: 0.29 to 0.52, $p < 0.001$).

Conclusions: Compared to never smokers, current smokers exhibited a reduced odds of being classified with Sjögren's syndrome as well as exhibiting features of KCS. This "protective" effect may be due dry mouth in Sjögren's syndrome making current smoking uncomfortable. Alternatively, smoking has been shown in other autoimmune conditions to be protective by immunomodulatory mechanisms.

Disclosures: None.

Full-field Electroretinographic changes among uveitis patients with persistent fluorescein angiographic retinal vascular leakage

Chaon, B.C.; Thompson, I.A.; Gangaputra, S.; Kodati, S.; Okeagu C.; Sen N.H

Institution: National Eye Institute – National Institutes of Health, Bethesda, Maryland

Purpose: The functional consequences of long-term, persistent vascular leakage in patients with uveitis remain unclear. To understand the effects of this leakage on photoreceptor and retinal function we evaluated scotopic and photopic full-field ERG (ffERG) responses in uveitis patients with persistent angiographic vascular leakage.

Methods: Participants in the NIH Uveitis/Intraocular Inflammatory Disease Biobank Study (NCT02656381) were recruited in accordance with an IRB approved protocol. 10 patients were selected for inclusion in this study. Subjects met the following inclusion criteria: (1) Diagnosis of intermediate, posterior, or panuveitis (2) Three or more quadrants of retinal vascular leakage on ultra-wide field fluorescein angiography in at least one eye (3) No history of prior retinal laser photocoagulation (4) Persistent angiographic leakage on at least two subsequent angiograms. Participants underwent ffERG according to ISCEV standard protocol. Scotopic and photopic a-wave and b-wave amplitudes, oscillatory potentials, and implicit times were measured in all patients.

Results: 20 eyes of 10 patients with persistent angiographic vascular leakage were included. Participants ranged in age from 17-74 with a median age of 38 years. Median visual acuity measured 0.00 logMAR (20/20 Snellen equivalent). Median duration of angiographic leakage was 14.5 months (range 3 – 71 mo.). 18 of 20 eyes displayed at least 1 abnormality on ffERG. A prolonged photopic 30-hertz flicker implicit time was observed in 11 of 20 eyes. A prolonged photopic cone b-wave (0 dB flash) implicit time was also observed in 10 of 20 eyes. Scotopic a- and b-wave amplitudes (0 dB flash) were abnormal in 11 and 10 of the 20 eyes respectively.

Conclusions: Uveitis patients with persistent angiographic vascular leakage show evidence of photoreceptor dysfunction on ffERG testing. ffERG may be a useful tool in monitoring for subclinical compromise of retinal function and may aid in treatment decisions.

Disclosures: None.

Development of an automated methodology for quantitative analysis of OCT angiography studies of choriocapillaris

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Purpose: Optical coherence tomography angiography (OCTA) is a non-invasive modality that provides high-resolution images of the retinal vasculature. 3 issues complicate its use in studying retinal and choroidal diseases: 1) image quality varies; 2) large superficial retinal vessels project shadow artifacts onto the choriocapillaris; and 3) quantitative measures are absent from current OCTA software. Thus, we developed a technique using ImageJ to standardize OCTA images. We also removed artifacts and created a quantitative algorithm to analyze OCTA images.

Methods: 6x6 mm² OCTA images were acquired from patients using Zeiss Cirrus-HD OCT AngioPlex Angiography. The software generated images of the superficial retinal plexus (SCP), avascular layer, and choriocapillaris

Results: A customized ImageJ macro standardized each image by contrast stretching based on the central 50% region. For choriocapillaris, projection artifacts were removed by overlaying a binarized image of the major superficial vessels obtained by subtracting the SCP and choriocapillaris layers. Each patient's images across different visits were aligned in ImageJ and cropped to compare the same region. Quantitative analysis of non-perfusion was performed by thresholding to the average pixel intensity value of the avascular OCTA layer that represented no flow, resulting in an area measurement in mm². 8 eyes with active disease and with longitudinal follow up were included. The mean flow void area pre-treatment was 0.61mm² and post-treatment treatment 0.16mm² (p=0.017).

Conclusions: Our methods generated standardized images with diminished projection artifacts, and provided quantitative measures that enable inter-visit comparison studies using OCTA. Publicly available software was used to implement these repeatable methods. These methods facilitate further analysis, improve the utility of OCTA in understanding choroidal diseases, and quantitatively monitoring the response to therapy.

Disclosures: None

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22nd Annual American Uveitis Society Winter Symposium

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Sincerely,

Albert T. Vitale, MD
Alan Palestine, MD
AUS Winter Symposium Program Co-chairs