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73rd Annual Wills Eye Hospital Conference
Free Paper Session
Friday, March 12, 2021

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The Free Paper Presentations will be held in the Sara and Noel Simmonds Auditorium of Wills Eye Hospital. The best paper presented by a resident will receive the Shipman Award. The best paper presented by a fellow will receive the McDonald Award.

1:00 P.M. Opening remarks
             Sunir J. Garg, MD, Conference Chairman

1:08 P.M. Posterior Segment Findings at the Time of Combined Scleral Fixated IOL and Pars Plana Vitrectomy

Thomas Tien, MD (F), Brandon D. Ayres, MD [Cataract & IOL]

Purpose: To determine the incidence of retinal pathology at the time of combined scleral fixated IOL (SFIOL) with pars-plana vitrectomy (PPV).

Methods: A retrospective chart review was performed to identify patients who underwent SFIOL combined with PPV. Operative notes were evaluated for intraoperative findings and related interventions.

Results: The incidence of retinal breaks was approximately 15%. In half of cases, incidental retinal findings were found and treated with prophylactic laser. Posterior removal of lens material or elevation of a dislocated IOL from the posterior segment was required in a third of cases.

Conclusions: The incidence of retinal breaks at the time of combined SFIOL with PPV is low, but incidental findings are not uncommon.

1:15 P.M. Synchronous Telemedicine at Wills Eye Hospital During the COVID-19 Pandemic

Joseph Anaya, MD, MBA (R) Anna P. Murchison, MD, MPH, Leslie Hyman, PhD, Julia A. Haller, MD [Telemedicine]

Purpose: To describe the use of synchronous audio-visual telemedicine at Wills Eye Hospital (WEH) during the COVID-19 pandemic.

Methods: A retrospective chart review was performed on visits coded as synchronous, audio-visual telemedicine, covering March 15th to May 15th, 2020.

Results: During study period, WEH performed synchronous, audio-visual telemedicine for 495 patients. The Primary Eyecare Service performed the plurality of evaluations (40%), with the remainder performed by the departments of Ocular Oncology (20%), Cornea (12%), Neuro-Ophthalmology (11%), Pediatric Ophthalmology (6%), Glaucoma (5%), and Retina (1%). Median synchronous patient-physician time was 9 minutes. Patients, on average, answered 9.2 out of 10 as their likelihood of recommending the service to a friend.

Conclusion: During the initial phase of the COVID-19 pandemic, WEH widely employed synchronous audio-visual telemedicine with high patient satisfaction.

1:22 P.M. Outcomes and Patient Perception of a Simplified On-Label Cataract Surgery Postoperative Medication Regimen

Alina Yang, MD (R), Mark F. Pyfer, MD [Cataract & IOL]

Purpose: Postoperative cataract surgery medication regimens may be unnecessarily complex. We compare outcomes and patient perception of a simplified on-label brand name eyedrop regimen versus conventional generic equivalents.

Methods: A retrospective cohort of 60 consecutive cataract surgery patients was selected, immediately before and after conversion to a simplified postoperative eyedrop regimen. Patients with complex surgery

or history of glaucoma or uveitis were excluded. Postoperative outcome, complications, and patient complaints were assessed within 30 days postop. Patient satisfaction was measured using a 10-question Likert scale survey.

Results: This study is ongoing. Early indications are that patient satisfaction with the simplified regimen is higher, with no significant difference in visual acuity, corneal edema, inflammation, or subjective complaints.

Conclusions: Preliminary analysis suggests a simplified on-label medication regimen achieves similar results to off-label generics with greater patient satisfaction.

1:29 P.M. Surgical Technique for a Scleral-Fixated Toric Intraocular Lens
Adam J. Bennett, MD (F), Brandon D. Ayres, MD [Cataract & IOL]

Purpose: To describe the surgical technique and clinical outcomes of a patient who had a scleral-fixated toric intraocular lens.

Methods: Patient preoperative and postoperative visual acuity and astigmatism were obtained. Additionally, a model eye was used in a wet lab to provide guidance for the angle between scleral fixation and toric axis for astigmatism.

Results: Patient had an uncorrected 20/40 visual acuity at postoperative month one. Results from the wet lab procedure of optimum angle between scleral fixation axis and astigmatism axis are pending.

Conclusions: For the appropriately selected patients, scleral-fixation of toric lenses is a viable strategy to reduce postoperative astigmatism. An additional wet lab was used to confirm the ideal theoretical location of scleral fixation for these cases.

1:36 P.M. The Effect of Multimedia Use in Cataract Surgery Informed Consent on Patient Understanding and Satisfaction
Kyle McKey, MD (R), Michael Abendroth, MD, MBA, Christina McGowan, MD [Cataract & IOL]

Purpose: To assess whether multimedia patient education has an effect on patient satisfaction with their clinic visit, understanding of cataract surgery and rate of surgical cancellation at Wills Eye Hospital Cataract and Primary Eye Care Service, Philadelphia, PA

Design: Randomized prospective study

Methods: Patients participated in an informed consent procedure for cataract surgery that included the standard approach only (face-to-face discussion with the physician) or supplemented with a computer-animated video. Health literacy was assessed using the validated rapid estimate of adult literacy in medicine test. The main outcome was patient satisfaction assessed by a questionnaire. Further outcome measures included patient understanding of cataract surgery assessed by a questionnaire and surgery cancelation rate.

Results: Pending

1:43 P.M. Recombinant Human Nerve Growth Factor (rhNGF) in the Management of High-Risk Penetrating Keratoplasty
Ashley Kahlili, MD (F), Beeran B. Meghpara, MD, Christopher J. Rapuano, MD, Zeba A. Syed, MD [Cornea and External Disease]

Purpose: As the first drug approved for neurotrophic keratitis (NK) treatment, the recombinant human nerve growth factor (rhNGF) cenegermin has limited literature on its post-surgical use. This study aims to review utilization and clinical outcomes of cenegermin treatment after penetrating keratoplasty (PK.)

Methods: A retrospective case series was performed of patients treated with cenegermin within ten months after PK. Outcomes including NK stage, epithelial defect area and adverse events such as graft failure were

reviewed.

Results: Eight patients began treatment with cenegermin within ten months after PK. Majority of patients (88%) resulted in NK stage improvement. There were no episodes of graft failure.

Conclusion: Cenegermin is an effective adjunct therapy to be utilized with corneal transplantation for the treatment of NK and may improve outcomes after high risk PK.

1:50 P.M. Development of a Nomogram to Predict Graft Survival After Penetrating Keratoplasty
Kalla A. Gervasio, MD (R), Eric J. Shiuey, MS, Qiang Zhang, PhD, Zeba A. Syed, MD [Cornea and External Disease]

Purpose: To develop a nomogram to predict 3- and 5-year graft survival after penetrating keratoplasty (PK)

Methods: Retrospective cohort study on 1029 consecutive PKs. Thirty-six variables identified from pre-operative records were assessed for contribution to graft failure by multivariate Cox models. A nomogram predicting graft survival probability was created.

Results: Mean recipient age was 57.1 ± 22.0 years and mean follow-up was 4.22 ± 3.05 years. Overall, 37.4% of grafts failed. Multivariate analysis identified 11 variables significantly associated with graft failure, including active microbial infection at time of PK (HR=5.10) and intraocular silicone oil at conclusion of PK (HR=4.28). The nomogram developed for graft survival exhibited a concordance index of 0.76.

Conclusions: PK graft prognosis may be predicted with relatively high accuracy based on 11 variables. A nomogram would be valuable for data-driven patient counseling prior to PK.

1:59 P.M. Questions

2:06 P.M. The Effect of Phacoemulsification on the Functioning Tube Shunts in Open Angle Glaucoma
Allen J. Ganjei, BS (F), Wesam Shamseldin Shalaby, MD, Sophia S. Lam, BS,
Reza Razeghinejad, MD [Glaucoma]

Purpose: To evaluate intraocular pressure (IOP) following phacoemulsification in eyes with tube shunts.

Methods: Chart review of open angle glaucoma patients with a tube shunt and IOP $\leq$ 21 mmHg, who underwent phacoemulsification, and had $\geq$24 months of follow-up. The main outcome measure was cumulative surgical failure at postoperative month 24, defined as IOP >21 mmHg, progression to NLP vision, glaucoma reoperation, or removal of implant.

Results: 27 eyes of 27 patients aged 64.2 ± 10.8 years were included. At month 24, 4 (14.8%) eyes met failure criteria, and mean time to failure was 19.3 ± 3.8 months. Reasons for failure were high IOP and reoperation. The mean IOP and number of glaucoma medications remained stable compared to baseline (P=0.131 and P=0.302).

Conclusion: IOP remained controlled in most eyes with tube shunts 2 years following phacoemulsification.

2:13 P.M. Baerveldt Vs Clearpath Tube Shunt: 6-Month Outcomes
Daniel S. Petkovsek, MD (F), Wendy W. Liu, MD, PhD, Rahul Raghu, MD, MBA, Michael J. Pro, MD [Glaucoma]

Purpose: Compare six-month outcomes of Baerveldt vs ClearPath tube shunt surgery.

Methods: Retrospective, nonrandomized cohort study of patients receiving either Baerveldt or ClearPath tube shunt. Primary outcome was failure rate defined by the ABC study.

Results: Forty-two eyes of 42 patients. Twenty eyes received Baerveldt and 22 received ClearPath. Failure rate for Baerveldt was 16% (2/12) and 25% (4/16) for ClearPath. Mean final IOP was 14.8 ± 5.2 mmHg for Baerveldt and 10.3 ± 4.2 mmHg for Clearpath (p = 0.12). Mean final number of medications was 2.4 for Baerveldt and 1.8 for ClearPath (p = 0.10). There was a significant decrease from baseline in IOP and

number of medications for both device types at 6 months (p < 0.001).

Conclusion: Early results do not suggest a significant difference in efficacy between shunt devices.

2:20 P.M. Stereoacuity and Central Visual Field Defects in Glaucoma
Wendy W. Liu, MD, PhD (F), Aakriti G. Shukla, MD, Wesam Shalaby, MD [Glaucoma]

Purpose: To determine an association between stereoacuity and glaucomatous central visual field defects (CVFD).

Methods: This cross-sectional study compared near stereoacuity between glaucoma patients with and without CVFDs. CVFDs were defined as a defect at p<0.05 in 1 or more central 4 points in the 24-2 total deviation map in one or both eyes. The main outcome measure was the difference in stereoacuity between subjects with and without CVFDs.

Results: 65 patients were included; 42 (65%) patients had CVFDs, and 23 (35%) patients did not. As compared to those without CVFDs, those with CVFDs had worse median stereoacuity (40 (40-80) arc sec vs. 60 (50-140) arc sec; p=0.004) (Figure 1) and less commonly had normal stereopsis (21% vs. 61%, p=0.004).

Discussion: CVFDs were associated with worse stereoacuity in patients with glaucomatous visual field loss.

2:27 P.M. Vector Analysis of Surgically Induced Astigmatism with Xen45 Gel Stent Implantation
Rahul Raghu, MD, MBA (F), Daniel Lee, MD, Wendy W. Liu, MD, PhD, Daniel S. Petcovsek, MD [Glaucoma]

Purpose: To determine the surgically induced corneal astigmatism (SICA) after XEN45 stent implantation

Methods: Prospective evaluation of corneal astigmatism following XEN45 implantation was measured. The primary outcome in this study is the SICA three months following XEN45 utilizing the Alpins method of vector analysis.

Results: 10 eyes of 10 patients completed the 3-month post-operative follow up period and were included. Baseline IOP was 19.2±5.6mmHg on 3.4±1.1 medications and 13.1±3.5mmHg (p=0.016) on 1.5±1.6 medications at 3 months (p=0.005). The arithmetic mean induced astigmatism was 0.42 diopters (D), with a vector mean of 0.09 D axis 69° with standard deviation (SD) of 0.28 D and 0.41 D for x and y axis respectively.

Conclusion: XEN45 stent implantation yielded a small degree of SICA compared to traditional glaucoma surgeries. Enrollment continues and data will be updated accordingly.

2:36 P.M. Questions

2:41 P.M. Vismodegib for Treatment of Basal Cell Carcinoma: A Case Series
Siwei Zhou, MD (F), Jacqueline R. Carrasco, MD, FACS, Sara E. Lally, MD, Mary A. Stefanyszyn, MD, FACS [Oculoplastics]

Purpose: To explore the use of hedgehog inhibitor vismodegib as an alternative or adjunct to surgery for treatment of advanced periorbital basal cell carcinoma (BCC).

Methods: Three patients with advanced periorbital BCC treated with vismodegib were reviewed.

Results: An 83-year-old female with an ulcerated lateral canthal BCC was treated with vismodegib, followed by radiation and topical imiquimod, with resolution. A 58-year-old female with multiple BCC lesions on her face was treated with vismodegib and needed less surgical resection. A 65-year-old man with multiple past BCC excisions presenting with orbital recurrence was pre-treated with vismodegib in hopes of avoiding exenteration.

Conclusions: Vismodegib should be considered in patients with extensive BCC. It can be used in conjunction with other medical therapy or as an adjuvant to surgical resection and can prevent exenteration.

2:48 P.M. Outcomes of The Cancer Genome Atlas (TCGA) Classification in Uveal Melanoma by Patient Age in 1001 Eyes
Zaynab Sajjadi, BS (F), Zeynep Bas, MD, Carol L. Shields, MD [Tumor]

Purpose: To determine whether age at presentation influences The Cancer Genome Atlas (TCGA) classification and outcomes for uveal melanoma.

Methods: Retrospective analysis of 1001 patients with uveal melanoma.

Results: A comparison by age at presentation (<21 years vs. 21-40 years vs. 41-60 years vs. >60 years) revealed that older age had higher frequency of class D tumor (0% vs. 4% vs. 10% vs. 14%, p<0.001) and greater tumor basal diameter (11.6 vs. 12.0 vs. 11.7 vs. 12.6, p=0.02) and younger age had higher frequency of 20/400-NLP vision (56% vs. 8% vs. 8% vs. 11%, p<0.001). Kaplan-Meier analysis showed older age had higher 10-year cumulative risk of metastasis (p=0.033).

Conclusions: Uveal melanoma diagnosis at older age is associated with more advanced TCGA classification, larger tumor size and higher metastasis rate.

2:55 P.M. Likelihood of Germline Mutation with Solitary Retinoblastoma Based on Tumor Location at Presentation
Philip W. Dockery, MD, MPH (F), Megan Ruben, BA, Antonio Yaghy, MD, Carol L. Shields, MD [Tumor]

Purpose: To evaluate the likelihood of germline mutation in patients presenting with solitary retinoblastoma based on tumor location at presentation.

Methods: Retrospective analysis of 482 consecutive patients with solitary retinoblastoma.

Results: Macular tumors were more likely to be smaller (p<0.001) and thinner (p<0.001) than extramacular tumors. Patients with macular tumors were more likely to have a family history of retinoblastoma (13% vs. 2%,OR=4.89,p<0.001) and develop new tumors (10% vs. 4%,OR=3.17,p=0.014) compared to patients with extramacular tumors. There was no statistical difference in genetic testing for Rb1 mutation (p=0.078) or likelihood of germline mutation (p=0.066).

Conclusions: Patients with solitary macular retinoblastoma are more likely to express phenotypic outcomes of germline retinoblastoma, such as development of new tumors and family history of retinoblastoma, while trending toward increased risk of possessing germline Rb1 mutation.

3:02 P.M. Validation of the WHO Classification System for Conjunctival Melanocytic Intraepithelial Lesions
Maya Eiger-Moscovich, MD (F), Tatyana Milman, MD, Ralph C. Eagle Jr. MD, Carol L. Shields, MD [Tumor]

Purpose: To compare the 3 classification systems for conjunctival melanocytic intraepithelial lesions (CMIL) including primary acquired melanosis (PAM), conjunctival melanocytic intraepithelial neoplasia (C-MIN) and the World Health Organization (WHO) classifications.

Methods: A series of biopsy-proven cases of CMIL from WEH was analyzed retrospectively. An international panel of twelve ophthalmic pathologists analyzed scanned microscopic slides using PAM, C-MIN, and WHO classifications.

Results: There were 64 patients who underwent 83 primary CMIL excisions between 1974-2002 with adequate tissue for analysis. The interobserver agreement distinguishing low-grade and high-grade CMIL was 76%, 67% and 81% for PAM, C-MIN and WHO classifications respectively. All classification systems

identified 81%-83% lesions with potential for recurrence.

Conclusions: This study highlights the comparable strengths and limitations of 3 classification systems. The WHO classification is appropriate for evaluation of CMIL.

3:09 P.M. Orbital Involvement in Conjunctival Melanoma: Analysis of 430 Eyes
Zeynep Bas, MD (F), Philip W. Dockery, MD, MPH, Antonio Yaghy, MD, Carol L. Shields, MD [Tumor]

Purpose: To compare the clinical features and outcomes of conjunctival melanoma by presence of orbital involvement

Methods: A retrospective analysis of 430 patients with conjunctival melanoma

Results: A comparison between the two groups (orbital involvement (n=21) vs. no orbital involvement (n=409)) revealed the orbital involvement group had higher frequency of prior eyelid surgery (24% vs. 5%, p=0.006), greater tumor basal diameter (17.3 vs. 12.2, p=0.009), tumor thickness (7.0 vs. 2.4, p<0.001), and greater number of affected quadrants (2.5 vs. 1.8, p=0.002). Multivariate relative risk regression analysis revealed that variables predictive of orbital involvement were tumor thickness (p<0.001), involvement of the fornix (p=0.031) and tarsus (p=0.033).

Conclusions: Patients with conjunctival melanoma with orbital involvement are more likely to present with thicker tumors, in the fornix and tarsus.

3:16 P.M. Practice Patterns of Pediatric Ophthalmologists during the COVID-19 Pandemic
Nicholas R. Bello, BS (F), Leonard B. Nelson, MD, MBA, Kammi B. Gunton, MD [Pediatric Ophthalmology]

Purpose: To determine practice patterns of pediatric ophthalmologists during COVID-19.

Methods: A 12-question survey was e-mailed to members of AAPOS in December 2020.

Results: Seventy-seven physicians completed the survey. Fifty-seven (74%) were from private practice, while 20 (26%) were from an academic setting. Forty-eight (62.3%) routinely use N95 respirators, 43 (55.8%) wear medical scrubs, 26 (33.8%) wear disposable gloves, 23 (29.9%) use goggles, and 8 (10.4%) use face shields. 74 (96.1%) have slit lamps with plastic shields, and 33 (42.9%) have phoropters with plastic shields. Sixty (77.9%) would see a patient over 2 who refused to wear a mask for a nonemergency visit, and 76 (98.7%) allow a parent of a child above 5 in the room during the examination.

Conclusions: Practice patterns of pediatric ophthalmologists have varied during COVID-19.

3:23 P.M. Virtual Vision Screening Program for Give Kids Sight Day
Connie M. Wu, MD (R), Rujuta Gore, MD, Barry N. Wasserman, MD [Pediatric Ophthalmology]

Purpose: To describe the outcomes of a pandemic-driven novel virtual vision screening program as part of Give Kids Sight Day (GKSD), an annual outreach program which aims to provide vision screening to underserved children in Philadelphia, Pennsylvania.

Methods: Retrospective case series study of children attending GKSD 2020.

Results: Results from 151 children (mean age 10.7 years, 43% female) were reviewed. There was a moderate correlation between screening and in person visual acuity and without refractive correction (R = 0.66 OD, 0.58 OS) and a strong correlation between screening and in person visual acuity with refractive correction (R = 0.76 OD, 0.91 OS).

Conclusions: The GKSD virtual visual acuity testing demonstrated good correlation with in-person visual acuity testing, supporting the virtual screening approach as a useful tool for future applications in vision outreach programs.

3:32 P.M. Questions

3:37 P.M. Break

3:52 P.M. Stopper Position and Volume Injected in Prefilled Syringes
John W. Hinkle, MD (F), Jason Hsu, MD [Retina & Vitreous]

Purpose: To determine the stopper positions for prefilled syringes (PFS) to inject double the on-label dose.

Methods: The stopper was positioned at specific distances behind the preprinted mark in ranibizumab and aflibercept PFS. The volume injected from each position was recorded. The double-volume position was tested in 10 PFS and mean (standard deviation) volume was calculated.

Results: In ranibizumab PFS, positioning the stopper 4.0, 3.0, and 2.0 mm behind the mark injected 0.13, 0.1, and 0.08 mL, respectively. The mean volume for 3.0 mm was 1.103 (0.005) mL. In the aflibercept PFS, positioning the stopper 2.5, 2.0, and 1.0 mm behind the mark injected 0.16, 0.14, and 0.11 mL, respectively. The mean volume for 1.0 mm was 0.107 (0.005) mL.

Conclusions: Small changes in stopper position have significant impacts on volume and dose injected.

3:59 P.M. Effect of Follow-Up Phone Call System on Non-Adherence Rates in Patients Receiving Intravitreal Injections
Meera D. Sivalingam, MD (R), Anthony Obeid, MD, MPH, Michael J. Ammar, MD, Jason Hsu, MD [Retina & Vitreous]

Purpose: To evaluate the effect of a follow-up phone call system (FUPCS) on nonadherence rates in patients with vascular retinopathies receiving intravitreal injections (IVI).

Methods: Patients with a history of vascular retinopathy receiving IVI of anti-vascular endothelial growth factor between 1/16 and 9/19 were identified. Visits were categorized as either pre-FUPCS (pre - 9/18/18) or post-FUPCS for evaluative comparison of nonadherence rates in these two periods

Results: There was a total of 4,517 (5.3%) nonadherent visits in the study period. There was a significantly lower number of nonadherence visits [1872 (5.1%)] post introduction of the FUPCS when compared to pre-FUPCS [2,645 (5.5%)] (p=0.02).

Conclusion: The introduction of the FUPCS may help reduce nonadherence to follow-up in patients receiving IVI for vascular retinopathies.

4:06 P.M. Severity of Diabetic Retinopathy at Baseline Presentation
Anthony Obeid, MD, MPH (R), David Xu, MD, Allen C. Ho, MD [Retina & Vitreous]

Purpose: To evaluate severity of diabetic retinopathy (DR) at first presentation.

Methods: Patients with mild, moderate, and severe non-proliferative diabetic retinopathy (NPDR) and proliferative retinopathy (PDR) were identified. Baseline DR severity was then recorded for each patient. Demographic characteristics were also collected and included age, reported race, sex, and regional adjusted gross income (rAGI).

Results: 8442 patients which were included in the analysis. There were 3450 (40.9%) patients that presented with mild NPDR, 1939 (23.0%) that presented with moderate NPDR, 547 (6.5%) patients that presented with severe NPDR, and 2506 (29.7%) patient that presented with PDR. Age, race, gender, and rAGI were significant predictors of DR severity at first presentation.

Conclusion: There was a significant disparity in severity of DR at first presentation by sociodemographic factors.

Author affiliation key: R-resident, F-fellow

4:13 P.M. Influence of COVID-19 Universal Face Masking on Endophthalmitis Risk After Intravitreal Anti-VEGF Injections
Samir N. Patel, MD (F), Yoshihiro Yonekawa, MD, Sunir J. Garg, MD [Retina & Vitreous]

Purpose: To evaluate the impact of COVID-19 universal face masking on the rates of post-injection endophthalmitis.

Methods: This retrospective, comparative cohort study involving 12 centers assessed eyes receiving intravitreal injections from 10/1/2019 to 7/31/2020. Injections were divided into "no face mask" or "universal face mask" groups. The primary outcome was rate of endophthalmitis.

Results: Of 505,968 intravitreal injections, 27 of 294,514 (0.009%; 1 in 10,908 injections) culture-positive endophthalmitis cases occurred in the "no face mask" group compared to 9 of 211,454 (0.004%; 1 in 23,494 injections) in the "universal face mask" group (OR[95%CI], 0.46[0.22–0.99]; p=0.041). At presentation, mean visual acuity was ~20/2200 for the "no face mask" group compared to ~20/900 for the "universal face mask" group (p=0.022).

Conclusion: Universal face masking during intravitreal injections may reduce the risk of culture-positive endophthalmitis.

4:20 P.M. Clinical Presentation of Rhegmatogenous Retinal Detachment during the COVID-19 Pandemic
Luv G. Patel, MD (F), Michael J. Ammar, MD, Matthew R. Starr, MD, Duo Xu, MD [Retina & Vitreous]

Purpose: To investigate the effect of the coronavirus disease 2019 (COVID-19) pandemic on the presentation of acute, primary rhegmatogenous retinal detachment (RRD).

Methods: Consecutive case series with historical control cohort. The cohorts were compared to assess demographic variables and clinical presentations.

Results: Significantly fewer patients demonstrated macula-on RRD in the 2020 cohort. Patients in the 2020 cohort showed worse median VA at presentation; fewer patients sought treatment within 1 day of symptoms and a greater proportion demonstrated primary PVR in this cohort. In multivariate analysis, younger age and established patient status were independent predictors of macula-on status in the 2020 cohort.

Conclusions: Patients with primary RRD during the 2020 COVID-19 pandemic were less likely to have macula-on disease and more likely to delay seeking treatment and to show worse vision and PVR.

4:29 P.M Questions

4:34 P.M. Agreement of Area Measurement Between Manual and Semiautomatic Heidelberg and Imagej in Geographic Atrophy
Raziyeh Mahmoudzadeh, MD (F), Mirataollah O. Salabati, MD, M. Ali Khan, MD, Jason Hsu, MD [Retina & Vitreous]

Purpose: To investigate the agreement of manual and semiautomatic area measurement of geographic atrophy (GA) using Heidelberg Eye Explorer and ImageJ software.

Methods: Fundus autofluorescence (FAF) images of eyes with GA were identified. Two graders measured the atrophic area using manual and semiautomatic Heidelberg and ImageJ tools.

Results: Fifty-four FAF images were analyzed. The mean (±SD) area was 10.55±11.4 mm2 and 9.6±9.8 mm2 using the Heidelberg manual and semiautomatic tools, respectively. Using ImageJ manual and semiautomatic tools the mean (±SD) area was 11.04±12.25 mm2 and 9.75±10.3 mm2, respectively. Bland-Altman plots showed a (0.96, 1.4, 0.16) mm2 mean difference when comparing the Heidelberg region finder (gold standard) to manual Heidelberg, manual and semiautomatic ImageJ, respectively.

Conclusions: Image J may be a reliable tool for area measurements when proprietary OCT software is unavailable.

4:41 P.M. Geographic Access Disparities to Clinical Trials in Diabetic Eye Disease in the United States
Rebecca R. Soares, MD (F), Yoshihiro Yonekawa, MD, [Retina & Vitreous]

Purpose: To identify geographic and socioeconomic variables predictive of residential proximity to diabetic eye disease clinical trial locations.

Methods: We identified interventional clinical trials and sites in diabetic eye disease beginning in 2017 in ClinicalTrials.gov. Calculating the driving distance and time from United States census tract centroid to the nearest clinical trial site, we identified socioeconomic predictors of proximity.

Results: In a multivariable model, driving distance >60 miles were associated with rural vs. urban location [5.22 (3.75-7.26), adjusted odds ratio (aOR) (95% confidence interval), p<0.001], percentage of population <200% of federal poverty level compared to fourth quartile [first quartile 0.40 (0.29-0.55) , p<0.001], and Midwest [2.15 (1.13-4.07), p=0.02], South [2.71 (1.23-5.99), p=0.01], and West [3.01 (1.21-7.54), p=0.02] region, compared to Northeast.

Conclusions: There are geographic maldistributions of clinical trials for diabetic eye disease.

4:48 P.M. Outcomes of Eyes with nAMD Switched from Aflibercept to Ranibizumab Compared to Eyes Maintained on Aflibercept
M.Ata O. Salabati, MD (F), Anthony Obeid MD, MPH, Raziyeh Mahmoudzadeh MD, Jason Hsu MD [Retina & Vitreous]

Purpose: To describe outcomes of nAMD eyes switched from aflibercept to ranibizumab compared to eyes maintained on aflibercept.

Methods: Eyes switched from aflibercept to ranibizumab were identified. Seven timepoints were gathered: 3 visits pre-switch, switch visit and three visits post switch. Outcome measures included VA and CFT

Results: In the switch group, mean CFT increased from 180µm at Sw to 197µm at P1 (p=0.006), 189.1 µm at P2 (p=0.028) and 194.2 µm at P3 (p=0.011). VA changed from logMAR 0.44 (20/55) at Sw to 0.49 (20/61) at P1 (p=0.08), 0.55 (20/70) at P2 (p=0.04), and 0.53 (20/67) at P3 (p=0.1). In the aflibercept group, no significant change in CFT was found.

Conclusions: CFT significantly increased in nAMD eyes that switched while remaining stable in a comparable group maintained on aflibercept.

4:55 P.M. Google Image Search as a Tool to Learn Retinal Diseases
Lucy V. Cobbs, MD (R), David Xu, MD [Medical Education, Retina]

Purpose: Google Image Search (GIS) offers a fast, commonly-used resource for ophthalmologists-in-training to learn retinal pathology, which requires pattern recognition. We aim to evaluate GIS as an educational tool for ophthalmologists.

Methods: GIS was performed for 30 retinal diseases (15 common and 15 rare diseases) selected from the Basic and Clinical Science Course. For each search, Google preferences were disabled, and the first 10 clinical images were evaluated.

Results: Twelve (4%) out of the 300 GIS results were incorrect. Most images (229/300) were not from peer-reviewed sources or labeled to identify pathologic features, and many of their webpages were aimed at patient education.

Conclusions: GIS is an accessible tool for ophthalmologists seeking exposure to retinal disease with acceptable accuracy; however, it has limitations as a primary learning source.

Author affiliation key: R-resident, F-fellow

5:02 P.M. Fluctuations in CST Associated with Worse Visual Outcomes in Patients with DME
Matthew R. Starr, MD (F), M.Ata O. Salabati, MD, Raziyeh Mahmoudzadeh, MD, Ajay E. Kuriyan, MD
[Retina & Vitreous]

Purpose: To examine the relationship between fluctuations in CST and visual acuity in patients with DME.

Methods: Post-hoc analysis of the DRCR Protocols T and V. The primary outcomes were visual acuity at 1 and 2 years stratified based on standard deviation quartile.

Results: At week 52 in Protocol T, the difference between the first and fourth quartiles was -1.61 letters (95% CI, -3.52 to 0.30). At week 104: this difference was -3.59 letters (95% CI, -6.17 to -1.00). In Protocol V at week 52 the difference between the first and fourth quartiles was -3.04 letters (95% CI, -4.18 to -1.91). At week 104: this difference was -2.35 letters (95% CI, -3.58 to -1.13).

Conclusion: Large fluctuations in CST may portend worse visual acuity outcomes at the 2 year endpoint in patients with DME.

5:11 P.M. Questions

5:16 P.M Closing Remarks

5:20 P. M. Adjourn