UPDATE ON SYSTEMIC DISEASE
PRACTICAL APPLICATION OF CLINICAL TRIALS

APRIL 15, 2016
Back Bay Event Center
180 Berkeley Street
Boston, MA 02116
The 759TH Meeting of
New England Ophthalmological Society
A Public Foundation for Education in Ophthalmology

APRIL 15, 2016

UPDATE ON SYSTEMIC DISEASE
William Tsiaras, MD, Moderator
Linda Dagi, MD, Program Committee Coordinator

PRACTICAL APPLICATION OF CLINICAL TRIALS
including the
INAUGURAL JOAN W. MILLER LECTURE
Chirag Shah, MD, MPH, Moderator

Accreditation:
The New England Ophthalmological Society designates this live activity for a maximum of 7 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

The New England Ophthalmological Society is accredited by the Massachusetts Medical Society to provide continuing medical education for physicians.

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MESSAGE FROM THE PRESIDENT

I came across an article, written in the 1970’s, about the origins of the New England Ophthalmological Society. It was formed in 1884 at the instigation of a small group of Boston ophthalmologists. Due to the failure of prior medical groups, which had limited themselves both by geography and content, it was decided to extend the membership to all of New England and include non-physician members. Before more stringent regulation, there were multiple types of practitioners. In those days, before easier travel, it is surprising that the original 14 members came from four New England states, suggesting need, even then for timely education. The membership rapidly grew and within ten years had increased to 40 members. Now at over 700 members, the growth has been limited for a while, which appears to be due to a flattening of the number of practicing regional ophthalmologists rather than a lack or relevance.

In order to maintain a healthy organization, the aim now is to attract more regional ophthalmologists who are not members. For example, even though the first female member joined in 1889, by the mid 1970’s there had only been 10 women members, none of whom had served in leadership. By now this category has grown remarkably, better reflecting the ophthalmic workforce in general: we have many women who have served, and continue to serve, in our society’s leadership. We can still do better. At one time, NEOS was truly led by an old boy’s network; with the senior ophthalmologists, who determined the content and speakers, sitting around the table in the comfortable seats and the younger members standing or sitting behind. We now aim to be much more inclusive, trying to balance regional, organizational and specialty diversity as much as possible in our board and committees. To continue to improve will take imagination and understanding. There are new and unexpected pressures on our profession and the demography of medicine is rapidly changing. We, the NEOS leadership, will try to adapt to this constant transition. At the same time, we will continue to provide the high quality educational and professional content that your evaluations seem to appreciate.

David Lawlor, MD
President
David Brown MD, FACS

David M. Brown, MD, is Clinical Professor of Ophthalmology, Cullen Eye Institute, Baylor College of Medicine and vice-chair for research at the Blanton Eye Institute, Houston Methodist Hospital. He is the Director of Clinical Research at the Greater Houston Retina Research Center and in private practice at Retina Consultants of Houston. Dr. Brown graduated from Baylor College of Medicine with highest honors and completed ophthalmology and retina training at the University of Iowa where he was a Thomas Heed Fellow, a Hermann Knapp Fellow, and was awarded the Ron Michels Fellowship award presented to the top retinal surgery fellow in the US.

Dr. Brown’s research and clinical interests are focused on macular surgery, AMD, retinal vascular disease, and diabetic retinopathy. Dr. Brown is an elected member of the Macula Society and the Retina Society and he directs one of the largest clinical trial centers for retinal disease in the US.

Dr. Brown’s honors include the American Academy of Ophthalmology Honor Award in 2000, the AAO Senior Honor Award in 2014, and continuous election as one of the “Best Doctors in America” 2007 -2015. He has published and written over 300 national meeting presentations, abstracts, and scientific papers including many of the primary papers establishing the use of anti-VEGF agents for AMD, retinal vein occlusions, and diabetic retinopathy.
Joan W. Miller, MD, FARVO

Joan W. Miller, MD, FARVO, is Henry Willard Williams Professor of Ophthalmology and Chair of the Department of Ophthalmology at Harvard Medical School (HMS). She also serves as Chief of Ophthalmology at both. A Massachusetts Eye and Ear and Massachusetts General Hospital (MGH graduate of Massachusetts Institute of Technology, Dr. Miller received her MD and ophthalmology residency training at HMS. She completed a clinical and research fellowship in vitreoretinal disease at Mass. Eye and Ear. An internationally recognized expert on retinal disorders, Dr. Miller is credited with co-developing photodynamic therapy (PDT) with verteporfin (Visudyne®), the first pharmacologic treatment for age-related macular degeneration (AMD). She also co-discovered the role of vascular endothelial growth factor (VEGF) in eye disease, and demonstrated the therapeutic potential of VEGF inhibitors, forming the scientific basis of anti-VEGF therapy for neovascular AMD, diabetic retinopathy, and related conditions. Ongoing investigations include the genetics and metabolomics of AMD, strategies for early intervention in AMD, and neuroprotective therapies for retinal disease. Her clinical and scientific innovations have resulted in 11 U.S. patents and 10 international patents to date. Dr. Miller is the first female physician to achieve the rank of Professor of Ophthalmology at HMS, the first woman to chair the HMS Department of Ophthalmology, and the first woman to serve as Chief of Ophthalmology at Mass. Eye and Ear and MGH. Her scholarly contributions include more than 150 original research articles, 20 clinical trial reports (as a member of the investigative team), 40 reviews, and 30 book chapters. Dr. Miller is an editor of the journal Ophthalmology and several textbooks, including the 3rd edition of Albert and Jakobiec’s Principles and Practice of Ophthalmology (Saunders), Retinal Disorders: Genetic Approaches to Diagnosis and Treatment (Cold Spring Harbor Laboratory Press), and Endophthalmitis (Springer, forthcoming). Among Dr. Miller’s numerous honors, she is a laureate of the 2014 António Champalimaud Vision Award, the highest distinction in ophthalmology and visual science. In 2015, Dr. Miller became the first woman to receive the Mildred Weisenfeld Award for Excellence in Ophthalmology from the Association for Research in Vision and Ophthalmology (ARVO), and was inducted into the prestigious National Academy of Medicine (formerly the Institute of Medicine).

Since 2006, Dr. Miller has served in several leadership capacities for the New England Ophthalmological Society, including: Program Committee member, Admissions Committee member, Vice President, and President (2013-2014).
Dr. Anne L. Peters, MD, is a professor at the Keck School of Medicine of the University of Southern California and the Director of the USC Clinical Diabetes Programs. She runs diabetes centers in Beverly Hills and in underserved East Los Angeles and works with the LA County Department of Health Services on a county-wide diabetes program.

Dr. Peters earned her undergraduate degree from Wesleyan University located in Middletown, Connecticut and her medical degree from the Pritzker School of Medicine at the University of Chicago. She performed her internal medicine residency at Stanford University and Harbor UCLA Medical Center (final year) and a fellowship in endocrinology at Cedars-Sinai Medical Center. She was in charge of the clinical diabetes programs at Cedars and then at UCLA before moving to USC.

Dr. Peters has been a principal investigator on multiple clinical trials focusing on diabetes and diabetes prevention. She established the Community Diabetes Initiatives Research Center (CDI) in collaboration with Children’s Hospital Los Angeles with funding from the Keck Foundation, JDRF, ADA, NIH, Rose Hills Foundation, California Nutrition Network, TrialNet and Helmsley Trust. Dr. Peters is a Principal Investigator on three NIH grants: the NIH Look AHEAD Study, the UCLA/USC NIH P50 program project, “Family and Neighborhood Interventions to Reduce Heart Disease Risk in East L.A.” and the NIH Vitamin D and Type 2 Diabetes (D2d) Study.

She has been an invited speaker at hundreds of local, national and international medical conferences. Dr. Peters has authored three books on diabetes and over 200 articles, reviews and abstracts appearing in peer-reviewed medical journals including JAMA, the New England Journal of Medicine, Annals of Internal Medicine and Diabetes Care. She serves on the ABIM Endocrine Board, various ADA and Endocrine Society committees and the EASD/ADA Diabetes Technology Committee. Dr. Peters received the ADA Outstanding Physician Clinician Award in 2008 and the 2010 Bernardo Houssay Award from the National Minority Quality Forum for her work with the underserved. She is an author of the “ADA/EASD Position Statement on the Management of Hyperglycemia in Type 2 Diabetes” and the ADA Position Statement on the “Treatment of Type 1 Diabetes Across the Lifespan.”
Morning Session

UPDATE ON SYSTEMIC DISEASE
William Tsiaras, MD, Moderator
Linda Dagi, MD, Program Committee Coordinator

Using feedback from NEOS members and discussion by the Program Committee, updated knowledge on identification and management of medical disorders common in our patient population was identified as a significant professional practice gap in our membership.

Program Objectives: The content and format of this educational activity has been specifically designed to fill the identified practice gap in our membership's current and potential scope of professional activities in a way that focuses on education, while managing commercial support and maintaining independence from promotional activities and commercial proprietary interests. This program seeks to:

1. Increase the knowledge of the audience in the areas of: type II diabetes, osteoporosis, gene therapy, atrial fibrillation, dementia, cancer survivorship, and allergic disorders.
2. Improve the performance of clinical practice and risk management by updating common knowledge in the field of internal medicine.
3. Improve outcomes in the area of patient care by fostering a more complete appreciation of medical co-morbidities common in our patient base.

8:30 am  Introduction and Welcome ........................................... William Tsiaras, MD
8:32  Osteoporosis Update: Advances in Fracture Risk Assessment and Treatment ................. Linda Jaffe, MD
8:47  Cytokines in Skin.............................................................. Abrar Qureshi, MD
9:02  Introduction of Guest of Honor, Anne Peters, MD ... William Tsiaras, MD
9:07  Technology Innovations in the Treatment of Diabetes .... Anne Peters, MD
9:30  Business Meeting
9:45  Refreshment Break and Exhibits
10:15  Atrial Fibrillation in 2016 ....................................................... Sarah Tsiaras, MD
10:30  Infectious Diseases Today, Tomorrow, On Earth and Beyond ............... Leonard Mermel, MD
10:45  Childhood Cancer Survivorship ........................................ Lisa Diller, MD
11:00  Alzheimer’s Disease: Charting A Path To 2025 ...... Stephen Salloway, MD
11:15  An Introduction to Gene Therapy ................................. Philip Reilly, MD, JD
11:30  New Paradigms for the Treatment of T2DM - Parts I and 2 ...................... Anne Peters, MD
11:45  Luncheon Break

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LUNCHEON SEMINARS:

I. Using Technology in the Management of Diabetes
   Dr. Anne Peters–Patriot Room

II. OCT for the General Ophthalmologist
    Dr. David Brown–Freedom Room

BE SURE TO SCAN IN FOR LUNCH BEFORE GOING TO ROOM TO RECEIVE CREDIT
BE SURE TO RETURN YOUR AUDIENCE RESPONSE UNIT BEFORE LEAVING THE BUILDING!
Afternoon Session

PRACTICAL APPLICATION OF CLINICAL TRIALS
Chirag Shah MD, MPH, Moderator

Using feedback from NEOS members and discussion by the Program Committee, new treatments for wet and dry AMD was identified as a significant professional practice gap in our membership.

*Program Objectives:* The content and format of this educational activity has been specifically designed to fill the identified practice gaps in our membership’s current and potential scope of professional activities in a way that focuses on education, while managing commercial support and maintaining independence from promotional activities and commercial proprietary interests. This program seeks to:

1. Increase the competence of the audience in the areas of medical retina.
2. Improve the performance of the audience in clinical practice.
3. Improve outcomes in the area of patient care.

1:00 pm Introduction ........................................................ Chirag Shah, MD, MPH

1:02 Safety of Anti-VEGF Injections .................................. Andrew Lam, MD

1:12 Innovative Approaches to Dry AMD:
Past, Present & Future ................................................... Jeffrey Heier, MD

1:22 Introduction of Guest of Honor and
Joan W. Miller Lecturer, David Brown, MD .................... Chirag Shah, MD

1:27 Miller Lecture: Pathophysiology of Retinal Vein
Occlusion-Revelations of the Anti-VEGF Trials............ David Brown, MD

1:47 Advances in Retinal Imaging ................................. Nadia Waheed, MD

1:57 The Eye Can Handle Injections: Can the Patient? .......... Brad Baker, MD

2:07 Refreshment Break/Exhibits

2:37 Management of Vitreomacular Traction Syndrome..... Andre Witkin, MD

2:47 Advances in the Treatment of Neovascular
Age-related Macular Degeneration ............................... Fina Barouch, MD

2:57 New Insights from Diabetic
Macular Edema Clinical Trials ................................. David Brown, MD

3:17 Treatment of Symptomatic Vitreous Floaters........ Nauman Chaudhry, MD

3:27 Intracameral Antibiotics Use In Cataract Surgery
for Postoperative Endophthalmitis Prophylaxis .............. Katie Luo, MD

(Continued on page 10)
3:37 Panel Discussion and Questions ........ *Chirag Shah, MD, MPH, Moderator*

- Brad Baker, MD
- Fina Barouch, MD
- David Brown, MD
- Nauman Chaudhry, MD
- Jeffrey Heier, MD
- Andrew Lam, MD
- Katie Luo, MD
- Nadia Waheed, MD
- Andre Witkin, MD

4:00 Adjourn

*Views expressed at NEOS meetings are not necessarily those of NEOS but represent the view of the individual speaker, without implied endorsement by NEOS.*
Objective: To review tools available for fracture risk assessment and provide an overview of drug therapies available for the treatment of osteoporosis.

Osteoporosis is a common disorder affecting nearly 10 million Americans. An additional 43 million have low bone mass (osteopenia.) It is estimated that a 50-year-old white woman has a 15 to 20% lifetime risk of hip fracture and a 50% risk of any osteoporotic fracture. Bone density as measured by DXA is the standard technology used to diagnosis osteoporosis. In recent years, advances have been made in the assessment of fracture risk with tools such as FRAX®, vertebral fracture assessment (VFA) and trabecular bone score (TBS.) Non-pharmacological interventions, including adequate calcium and vitamin D intake, weight bearing exercises and fall prevention remain an integral component of osteoporosis prevention and treatment. In addition, progress has been made in the understanding of the pathophysiology of osteoporosis, leading to novel drug therapies.

References:

Objective: To be able to link skin disease pathophysiology with emerging targeted biological therapies.

This is an exciting time to manage patients with complex medical dermatology problems. With targeted biologic and disease modifying therapies available for both on- and off-label use, we are able to treat conditions successfully that would otherwise have been treated inadequately with conventional immunosuppression. We will discuss the known genetic and biologic pathways that are relevant to inflammatory skin conditions and approved therapeutic options targeting these pathways.

References:


Off Label Use: Anti TNF, Anti-IL-12/23-IL-17, JAKPDE4 Methotrexate Cyclosporine Acitretin
TECHNOLOGY INNOVATIONS
IN THE TREATMENT OF DIABETES

Anne Peters, MD
University of Southern California
Los Angeles, CA

Objective: The objective of this talk is to provide an overview of the evolving world of technology for the management of diabetes and provide guidance as to how these tools might be best used to improve outcomes.

Diabetes is the leading disease target for manufacturers of mHealth apps. It is a numerical disease and it is appealing to think that providing access to monitors and apps will improve care. However, much like simply measuring a pulse, applications need to do more than count. Concepts of gamification and principles of cognitive behavior modification will need to be employed. This talk will present a broad overview of the newest and greatest technologies available for the treatment of diabetes, from glucose meters to the artificial pancreas. These evolving tools will be analyzed from the perspective of their clinical utility and likelihood of improving outcomes for people with diabetes.

References:


Objective: The goal of this talk is to review the prevalence of atrial fibrillation, risk factors for AF and stroke, indications for anticoagulation, new anticoagulants and implications of anticoagulation in ophthalmologic surgery.

Atrial fibrillation (AF) is a highly prevalent disease which increases with age, affecting approximately 1 in 6 people over the age of 80. Many of the risk factors for atrial fibrillation, including obesity, hypertension, diabetes, sleep apnea, and alcohol use are modifiable. Stroke is the most devastating consequence of atrial fibrillation, with an annual risk ranging from 10% with increasing stroke risk factors. Anticoagulation with warfarin or a novel oral anticoagulant (NOAC) is the cornerstone of treatment and stroke prevention. Recent studies suggest that the perioperative stroke risk with interruption of warfarin is low (0.4%) and is not mitigated by bridging with low molecular weight heparin.

References:
Douketis J NEJM 2015; 373 (9): 823-831
Lane D Circulation 2012; 126: 860-865
**Objective:** To better understand emerging infectious diseases, antimicrobial resistance and challenges to space travel.

Emerging infectious diseases and antimicrobial resistance are ever increasing in the risk they pose to human health in the US and abroad. This is in part due to: Population growth & migration; Economic development; Human behavior; Ease of long distance travel; Adaptation of vectors and microbes; Limited public health infrastructure; Increasing antibiotic pressure due to excess antibiotic use in humans and agriculture. Yet, development of novel antibiotics to treat resistant pathogens and vaccines to mitigate risk of emerging infections are underfunded, with limited interest from drug companies and governments. Could humans travel to and successfully colonize another planet before a major pandemic due to a lethal novel pathogen? What are the challenges to surviving in microgravity? What changes occur in the human immune response and microbial virulence that could limit such an adventure. This will be discussed and give the attendees food for thought regarding such future exploration.

**References:**


10:40 AM

CHILDHOOD CANCER SURVIVORSHIP

Lisa Diller, MD
Dana Farber Institute
Boston, MA

Objective: To familiarize ophthalmologists with the medical problems faced by childhood cancer survivors and current research in the field.

Over the last 40 years, we have witnessed a remarkable improvement in survival of childhood cancer, with over 80% of children diagnosed with cancer today expected to become five-year survivors of their disease. In this talk, we will briefly review the epidemiology of childhood cancer and childhood cancer survivorship. I will present an overview of the significant morbidity and increased mortality in observed in survivors. We will discuss the known risks of chronic disease, including cardiopulmonary and endocrine disease, as well as the risks of secondary tumors observed in survivors, including in those with a history of retinoblastoma. I will present the current sources of guidelines for risk-based care of survivors of childhood cancer. The Childhood Cancer Survivor Study, a large national cohort study of survivors of childhood cancer treated between 1970 and 1999 will be discussed.

References:


Objective: Participants will become familiar with advances in detection of risk for Alzheimer’s disease and intervention strategies to delay cognitive decline.

Alzheimer’s disease (AD) afflicts over 5 million people in the United States, with an expected increase to 13.8 million by the year 2050. The costs for care of patients with AD and other dementias in 2015 was $226 billion, which is predicted to increase beyond a trillion dollar annual cost by 2050. The US Congress and the G8 have made developing treatments that delay or prevent the disability of AD by 2025 a top priority. Advances in molecular brain imaging and genetics demonstrate that AD pathological changes begin in the brain 10-20 years before cognitive decline. These new tools can detect AD risk in the preclinical state, opening the door to testing targeted immunotherapies and other treatment strategies to modify or remove protein aggregates and prevent neurodegeneration. This presentation will review the emerging science and drugs in development for AD. As with other complex chronic diseases, the goal is to identify a combination of treatments, including lifestyle and risk factor modification, that when started early will slow the course of AD.

Reference:
AN INTRODUCTION TO GENE THERAPY

Philip Reilly, MD, JD
Third Rock Ventures
Boston, MA

Objective: To provide the audience with a general understanding of how gene therapy is being used to treat severe monogenic eye disorders.

Over the last decade gene therapy (the use of viral capsids or other vehicles to deliver normal copies of genes to relevant cells) has developed rapidly. Efforts to ameliorate genetic blinding disorders (especially RPE65) began with canine models. Today, Phase III clinical trials for this disorder are underway. There is also interest in gene therapy for other eye disorders such as choroidemia and Stargardt disease. The major clinical challenges in gene therapy are: manufacturing the viral vector, the limiting carrying capacity of current vectors, constraints imposed by neutralizing antibodies to the commonly used adeno-associated viral vectors. Potential duration of therapy remains unknown, which poses both clinical and commercial issues. Still, it seems high likely that gene therapy will soon be a reality. Treatment of RPE 65 could be the first FDA approved gene therapy drug.

Reference:
NEW PARADIGMS FOR THE TREATMENT OF T2DM - PARTS 1 AND 2

Anne Peters, MD
University of Southern California
Los Angeles, CA

Objective: The objective of this talk is to review the newly re-written treatment algorithms for the management of type 2 diabetes with an emphasis on hypoglycemia and CVD risk reduction.

The treatment of type 2 diabetes has undergone a transformational change. We realize that hypoglycemia can be deadly and treatments that avoid hypoglycemia are preferred in the management of hyperglycemia. Additionally, we now have at least three antihyperglycemic agents that also reduce cardiovascular disease risk, which is vital when treating high risk individuals with type 2 diabetes. This presentation will discussed the updated ADA/EASD treatment guidelines and how they pertain to the management of diabetes in 2016. In particular, a case will be made of the trade-off between diabetes control that is best for preventing microvascular complications, particularly retinopathy, versus higher A1C levels that may be best in terms of risk of sudden death and cardiovascular events.

References:


SAFETY OF ANTI-VEGF INJECTIONS

Andrew Lam, MD
Longmeadow, MA

Objective: To review the safety of anti-VEGF injections with particular focus on the risks of endophthalmitis and systemic adverse events.

Intravitreal injections of Avastin, Lucentis, and Eylea are commonly used to treat wet macular degeneration and macular edema related to diabetic retinopathy or retinal vein occlusion. The safety of injections has been a primary concern of physicians and has been studied extensively. Special attention has been focused on the risks of endophthalmitis and systemic adverse events. The results of numerous studies indicate the rate of endophthalmitis probably falls somewhere between 1 in 1100 and 1 in 5200 injections. The most important factor in reducing risk of endophthalmitis is the use of povidone-Iodine (Betadine) drops pre-injection. There is no evidence that the endophthalmitis risk is any different among the three medications (Avastin, Lucentis or Eylea). Although some studies have lacked sufficient power to detect small differences in systemic risk associated with these drugs, the preponderance of current evidence does not indicate a significantly increased risk of serious adverse events. If any future, larger studies do someday show a significant difference in systemic risk, such a difference is likely to be very small.

References:


Objective: The objective of this presentation is to describe innovative approaches to dry AMD, highlighting their potential benefit in the treatment of this devastating disease.

Dry AMD is a progressive, degenerative disease of the retina that can range from no symptoms to severe vision loss. Although by far the most common form of macular degeneration, there is no approved therapy for dry AMD; there is especially no effective treatment for the most severe form of dry AMD—Geographic Atrophy (GA). Past approaches to impacting progression of dry AMD included laser to drusen, plasmapheresis, and various pharmacologic approaches. Current approaches include vitamin supplementation per the AREDS 1 and 2 trials, restraint from tobacco use, and promotion of a well-balanced diet with green-leafy vegetables. The excitement lies with innovative approaches being studied for future use. These include, but are not limited to, visual cycle modulators, complement-inhibitors, integrin inhibitors, and neuroprotectants. Perhaps equally exciting, several clinical trials using cell-based therapies have begun. Obviously impossible to predict, the future looks promising, and treatments for dry AMD will hopefully achieve the success and level of efficacy that treatments for wet AMD have enjoyed over the last decade.

References:
PATHOPHYSIOLOGY OF RETINAL VEIN OCCLUSION (RVO):
REVELATIONS OF THE ANTI-VEGF TRIALS

David Brown, MD
Cullen Eye Institute
Houston, TX

Objective: The pathophysiology of retinal vein occlusion will be reviewed in light of new clinical information obtained from the RVO clinical trials and the paradigm of anti-VEGF therapy in clinical practice. Particular attention will be given to the importance of identifying pre-proliferative CRVO.

Basic science, pathology studies, and animal models led to the basic understanding of the pathophysiology of retinal vein occlusion. Increased venous pressure from the venous thrombosis was thought to lead to “venous stasis” and mild vein occlusions were classified as “non-ischemic”. Ischemia was predominantly defined by a CVOS concept which utilized central fundus fluorescein angiography. Eyes with severe “ischemia” were thought to be unlikely to improve VA as the closed loop of the retinal circulation implies arterial insufficiency in cases with more severe thrombosis. The anti-VEGF trials and subsequent standard of care management of RVO demonstrated that many of these historical concepts are probably incorrect. First as edema is reduced in virtually all RVO patients and anti-VEGF injections do nothing to correct the underlying thrombosis, then the etiology of edema is secondary to VEGF and not related to intravenous pressure nor osmotic gradients. As VEGF is produced in response to ischemic retina- then in fact all retinal vein occlusions that have edema are “ischemic” to some degree. Wide field angiography studies reveal that most patients with RVO have extensive peripheral non-perfusion and those that develop neovascular complications often have over 100 DA of non-perfusion. While the improvements in vision from anti-VEGF therapy occur in most patients with macular edema, the amount of total non-perfusion is still important as patients with large non-perfused areas are at risk of neovascular complications unless anti-VEGF therapy is continued indefinitely. Fortunately, most patients with unilateral CRVO that are at risk of neovascularization can be identified by the “Hayreh” sign of a large relative afferent pupil defect.

References:


ADVANCES IN RETINAL IMAGING

Nadia Waheed, MD, MPH
New England Eye Center
Boston, MA

Objective: To provide an update on the advances in the various retinal imaging modalities including OCT, OCT angiography, and fundus autofluorescence and how these relate to clinical practice.

Numerous advances in ocular imaging over the last decade have revolutionized our understanding and management of retinal diseases. The introduction of spectral domain OCT, OCT angiography and newer ways of visualizing OCT images such as the en face visualization have revolutionized the way we practice in our clinics. Newer advances such as wide field fluorescein angiography, quantitative autofluorescence and pseudo color imaging provide better visualization of the changes that we see in the various retinal pathological conditions. We will discuss these imaging modalities and their utility in 2016 in a clinical practice.

References:


Off Label Use: Avastin/bevacizumab
THE EYE CAN HANDLE INJECTIONS: CAN THE PATIENT?

Brad Baker, MD
Worcester, MA

**Objective:** The objective is to educate the audience on the patient perspective of receiving intravitreal injections from the physical, social, mental, and financial aspects.

Intravitreal injections have greatly changed how we treat multiple ocular conditions. It has been a breakthrough in treatment from the physician standpoint, but there are multiple concerns for both the patient and family members. The psychologic thought of having a needle placed in the eye can draw multiple reactions from patients. Transportation and taking time away from employment can also be challenging, especially with many patients being elderly. Concurrent systemic illness can be a concern with the agents that are also injected. In addition to all other factors, third party payor restrictions on patient coverage can influence the out of pocket expense to patients for treatments that can help maintain or improve their vision. We will review many of these concerns in our hopes of treating the entire patient and not just the eye.

**References:**
MANAGEMENT OF VITREOMACULAR TRACTION SYNDROME

Andre Witkin, MD
Tufts Medical Center
Boston, MA

Objective: The purpose of this talk is to describe current options in the clinical management of vitreomacular traction (VMT).

VMT has been defined as "a detectable change in macular morphology due to an incomplete separation of the vitreous from the macula". Options for management of VMT include observation, intravitreal ocriplasmin, intravitreal expansile gas injection, and pars plana vitrectomy (PPV). Observation may be an appropriate initial recommendation for patients with VMT. When treatment is necessary, pharmacologic vitreolysis with ocriplasmin is an effective nonsurgical therapeutic option in some patients. Subgroup analysis has identified features associated with successful pharmacologic release of VMT with ocriplasmin, increasing success rates to ~50%. However, side effects of ocriplasmin have been reported, including photopsias, visual acuity loss, dyschromatopsia, ERG changes, retinal tear and detachment, and lens subluxation. More recently, successful vitreolysis in VMT has been achieved with intravitreal injection of expansile gas. Success rates with intravitreal gas may be higher than with ocriplasmin, however further studies are necessary. Currently, PPV still has the highest rate of successful vitreolysis, but is associated with longer recovery times, high cost, and cataract formation. Therefore, further study and development of non-surgical options for management of VMT is of great interest.

References:

ADVANCES IN THE TREATMENT OF NEOVASCULAR
AGE-RELATED MACULAR DEGENERATION

Fina Barouch, MD
Lahey Clinic
Peabody, MA

Objective: To review current dosing strategies and new treatments in the pipeline for neovascular age-related macular degeneration (AMD).

The treatment of neovascular age-related macular degeneration (AMD) was revolutionized by the introduction of antivasculat growth endothelial growth factor (anti-VEGF) agents. Patients with neovascular AMD can now enjoy stabilization of vision and in some cases improvement in vision. Current treatment strategies using anti-VEGF agents require repeated intravitreal injections to maintain stability and visual gains. The current strategies for the optimal delivery of anti-VEGF treatment such as monthly, treat and extend, and PRN dosing will be reviewed. Potential complications of repeated use of these agents including the progression of atrophy will also be discussed. Finally, an overview of new treatments in the pipeline for neovascular AMD including anti-platelet derived growth factor (anti-PDGF) therapy/E10030, intravitreal ziv-aflibercept, conbercept, oral X-82, gene therapy, sustained drug delivery strategies, and other treatments will be presented.

References:


NEW INSIGHTS FROM DIABETIC MACULAR EDEMA CLINICAL TRIALS

David Brown, MD
Cullen Eye Institute
Houston, TX

Objective: Participants will review the pathophysiology of diabetic retinopathy, the current recommendations for management, and future directions of diabetic retinopathy research.

Prior to 2013, the ophthalmic complications of diabetes mellitus were predominantly treated with laser photocoagulation. Pan retinal photocoagulation was effective at mitigating the blinding effects of proliferative disease (PDR) and focal laser for diabetic macular edema (DME) decreased vision loss compared to standard of care. Neither treatment, however, resulted in sustained improvements in visual acuity but merely reduced vision loss. In diabetic retinopathy retinal ischemia leads to cytokine production (vaso-endothelial growth factor (VEGF), hypoxia inducible factor (HIF), erythropoietin, placental growth factor and others). These cytokines lead to the production of new blood vessels (PDR) and leakage from capillary beds (DME). The development and ophthalmic preparations of pharmacologic blockers of VEGF has led to life-changing and vision saving treatments that are now the primary and often the only treatments utilized in the treatment of diabetic retinopathy. The pathophysiology, background of clinical trials leading to this paradigm shift, and future directions of research and clinical care for diabetic retinopathy will be reviewed.

References:


TREATMENT OF SYMPTOMATIC VITREOUS FLOATERS

Nauman Chaudhry, MD
New London, CT

Objective: To discuss and evaluate different treatment options for symptomatic vitreous floaters.

Persistent symptomatic floaters are relatively common and in many cases, can adversely affect quality of life to a degree comparable with diseases considered highly debilitating such as AMD, diabetic retinopathy, hypertension, mild angina, mild stroke, colon cancer, and asymptomatic HIV. Treatment of symptomatic vitreous floaters remains controversial. Treatment options may include observation (most common), Yag-laser vitreolysis and pars plana vitrectomy for more severe cases. The small but potential risks of pars plana vitrectomy limit the use of this modality for symptomatic vitreous floaters. YAG-laser vitreolysis has been reported to be useful in managing some of these cases but published literature consists of small studies. The two largest studies of over 500 cases (combined) report over 90% success with very good safety profile. Weiss rings responded best to the treatment but other smaller less well-defined floaters were also treated successfully with YAG vitreolysis. However, these two studies have not been published in peer-reviewed medical literature. The use of YAG vitreolysis remains controversial. Currently, there are two large prospective clinical trials underway in North America evaluating YAG vitreolysis for symptomatic vitreous floaters, which may help in further studying this potential mode of treatment with better understanding of the safety profile.

References:


Objective: To promote the awareness of intracameral antibiotics use in cataract surgery for more effective prophylaxis of postoperative endophthalmitis. Since the landmark ESCRS study published in 2006 showed intracameral cefuroxime administration significantly reduced the risk for postoperative endophthalmitis after cataract surgery, ophthalmology practices in many nations have adopted this practice and published a large number of studies with similar conclusion. However, this practice is not widely adopted, especially in the United States. Various practice patterns will be discussed focusing on the obstacles of adopting intracameral antibiotics use. Practical experiences will also be discussed.

References:


FINANCIAL DISCLOSURE INFORMATION

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**Contracted Research:** Lowy Medical Research, Ltd., A natural history observation and registry study for macular telangiectasia type 2: The Mactel Study

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June 3, 2016

Residents, fellows, and trainees from all the New England ophthalmologic teaching programs are invited and encouraged to submit abstracts for a scientific poster presentation contest to be conducted at the June 3, 2016, NEOS meeting. Posters will be judged on originality and scientific merit. Awards will be made for the first prize $500.00, second prize $300.00, third prize $200.00 and three honorable mentions of $50.00 each. Funding for the awards is derived from a gift to the NEOS Education Endowment Fund honoring the late Sanford Hecht, MD. Poster presentations exhibited at ARVO in 2016 and at the AAO meeting in 2015 may be submitted.

*We encourage all trainees to participate in this event.*

To submit posters, go to: neos-eyes.org – future meetings/June 3/abstract submission form

**DEADLINE** for abstract to appear in printed program is May 15, 2016.

For questions, please contact Judy Cerone Keenan at (617) 227-6484 or neosjudy@aol.com.
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