EDUCATION

International AMD Awareness Week 2016 Congressional Briefing: Sustained NIH Funding Has Resulted in Successful AMD Diagnostics and Therapies

Featured speaker Amir H. Kashani, M.D., Ph.D. (USC Gayle and Edward Roski Eye Institute)

On September 14, in recognition of both *Healthy Aging Month* and *International Age-related Macular Degeneration (AMD) Awareness Week* and to begin the Second Annual *Emerging Vision Scientists (EVS)* Day on Capitol Hill, AEVR's *Decade of Vision 2010-2020 Initiative* and co-sponsors (see box right) held a Congressional Briefing entitled *Advances in the Diagnosis and Treatment of AMD and Retinal Diseases.*

Clinician-scientist speaker Amir H. Kashani, M.D., Ph.D., an Assistant Professor of Ophthalmology at the USC Gayle and Edward Roski Eye Institute within the Keck School of Medicine at the University of Southern California, spoke about his clinical practice and research activities as they relate to AMD and other retinal diseases. AEVR invited Dr. Kashani—who participated in the first-ever *EVS Day* in October 2015— to be the featured speaker, where he addressed a packed room that included the 22 early-stage investigators who observed how their colleague described his emerging vision research to a public policy-oriented audience.

Dr. Kashani discussed research activities to diagnose and treat AMD, both the "wet" or neovascular form of the disease—where new blood vessels disrupt the retina and which accounts for

about 10 percent of AMD cases—as well as for "dry" or atrophic AMD, where the photoreceptors (the light-sensitive cells in the retina) gradually die away and which accounts for 90 percent of AMD cases.

He described the dramatic improvements in wet AMD treatment from "anti-VEGF" therapy. These therapies, which were developed in part through NIH-funded research, include Food and Drug Administration (FDA)-approved drugs that are injected into the eye, inhibiting abnormal blood vessel growth due to Vascular Endothelial Growth Factor (VEGF) and stabilizing vision loss—and, in many cases, improving lost vision. The diagnosis of wet AMD and the efficacy of drug treatments is determined in large part through the use of non-invasive imaging technology Optical Coherence Tomography (OCT) that can show microscopic changes in the eye caused by AMD. Since OCT was also developed through NIH-funded research, he emphasized that sustained funding has resulted in both the imaging technology to diagnose and monitor wet AMD disease progression as well as the drug therapies to treat it.

Dr. Kashani acknowledged that, although dry AMD is more prevalent, no current treatments exist. However, thanks to the NEI-funded *Age-Related Eye Disease Study (AREDS)* trials, an anti-oxidant

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regimen is available and can significantly decrease the rate of progression of dry AMD. He reported that there are also several promising therapies on the horizon for dry AMD. He specifically described a novel stem cell-based experimental therapy that is being funded by the California Institute for Regenerative Medicine (CIRM) and for which he serves as Principal Investigator. He showed how a single layer of Retinal Pigment Epithelium (RPE) cells is grown on an artificial substrate which is then injected into the eye in sheets to "patch" degenerated RPE in dry AMD. He concluded by noting that this U.S.-based trial reflects the intersection of basic science, clinical research, and biomedical engineering—the latter necessary for both the development of the substrate to support growth of the single cell RPE layer and for the technology to introduce those sheets of cells into the eye in the exact area of the retina that requires repair.

AMD is the leading cause of blindness and low vision in the United States—especially in the age 60-plus population—and is increasingly prevalent due to the aging population, with greatest growth in the age 90-plus segment. NEI estimates that 200,000 Americans each year go on to develop advanced AMD. Since AMD affects central vision−specifically the macula, which is the central part of the light-sensitive retina in the back of the eye−it impacts an individual's ability to read and drive, significantly affecting quality of life. One-third of AMD patients experience clinical depression. Numerous risk factors are associated with AMD. Non-modifiable factors include aging, genetics, gender, and race, while modifiable factors include smoking, diet, obesity, high blood pressure, high cholesterol, cardiovascular disease, and light exposure.

AEVR wishes to thank its co-sponsors for this event:

Research to Prevent Blindness
Alliance for Aging Research
Association for Research in Vision and Ophthalmology
European Vision Institute
Lighthouse International
Macular Degeneration Research Foundation

AEVR also thanks Regeneron for a grant to support event management.

On September 13, Monochrome Man—a non-profit patient advocacy organization that raises awareness about Blue Cone Monochromacy (BCM)—held its first Congressional Briefing about this rare genetic disease that affects males. Featured speaker Joseph Carroll, Ph.D., Co-Director of the Advanced Ocular Imaging Program at the Medical College of Wisconsin, spoke about his research into the mechanism of the disease, which is part of a consortium of investigators funded through the NEI's *Audacious Goals Initiative.*

Joseph Carroll, Ph.D., right, was joined by Anna Olexa, mother of an eight-year old boy with BCM, who addressed the burden of the disease and unmet needs

Ruth Burns of Regeneron with Dr. Kashani

AEVR Executive Director James Jorkasky with Dawn Prall George, Executive Director of the Macula Vision Research Foundation—an event co-sponsor—and Michael Oscar, MVRF Legislative Counsel

Prior to the Briefing and under the auspices of NAEVR, Dr. Kashani met with Congresswoman Judy Chu (D-CA), with whom he had met in October 2015 during the first *EVS Day*