

NEWS FROM THE AMERICAN SOCIETY OF RETINA SPECIALISTS (ASRS) 25TH ANNUAL MEETING

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AMD

ANCHOR: Ranibizumab Treatment Improved Lesion Characteristics at 2 Years

On average, lesion characteristics assessed by fluorescein angiography (FA) and optical coherence tomography (OCT) were improved with ranibizumab (Lucentis; Genentech, South San Francisco, California) treatment at 12- and 24-month follow-up.

The pivotal ANCHOR trial (Anti-VEGF Antibody for the Treatment of Predominantly Classic Choroidal Neovascularization in AMD) compared ranibizumab and photodynamic therapy (PDT) in patients with predominantly classic subfoveal choroidal neovascularization (CNV) secondary to age-related macular degeneration (AMD), according to Srinivas Reddy Sadda, MD, Associate Professor of Ophthalmology and Director of the Doheny Imaging Unit at the Doheny Retina Institute, Los Angeles.

ANCHOR was a phase 3, double-masked, multicenter trial in which 423 patients were randomized 1:1:1 to ranibizumab 0.3 mg plus sham PDT, ranibizumab 0.5 mg plus sham PDT, or PDT plus sham intravitreal injection.

Dr. Sadda said that key FA evaluations at 12 and 24 months were mean changes from baseline in area of classic CNV, total lesion area, total area of CNV, and total area of CNV leakage. Key OCT evaluations included mean changes from baseline in central foveal retinal thickness and total retinal volume over time up to 12 months. At 12- and 24-month follow-up, all of the key anatomic outcomes favored ranibizumab over PDT.

Sadda SR, Shapiro H, Lanchulev T. ANCHOR—Ranibizumab (Lucentis) vs photodynamic therapy in predominantly classic neovascular age-related macular degeneration: 2-year anatomic outcomes.

RPE Tears Following Intravitreal Bevacizumab

Retinal pigment epithelial (RPE) tears after treatment with intravitreal bevacizumab (Avastin; Genentech) for exudative AMD occur in about 1.6% of eyes, according to Sunir J. Garg, MD, from the Retina Service of Wills Eye Hospital, Philadelphia. RPE tears can result in severe vision loss; in selected cases, continued antivas-

cular endothelial growth factor (anti-VEGF) treatment may facilitate visual recovery following tear onset.

The retrospective, multicenter, consecutive interventional case series included patients treated between August 2005 and April 2007. A total of 920 eyes with exudative AMD were treated; 15 eyes in 15 patients developed an RPE tear following intravitreal bevacizumab treatment.

Patient age averaged 80 years. Fourteen of the 15 eyes had occult subfoveal choroidal neovascular membranes, and no eye had a classic membrane. Seven of 15 (47%) of the RPE tears occurred within the first 6 weeks of injection. The mean preoperative vision was 20/100 with a mean posttear visual acuity of 20/200. In all 10 eyes in which the tear involved the fovea, the final visual acuity was poor, Dr. Garg said. Six of the 15 eyes continued with anti-VEGF injections, and four of the six continued to show visual improvement.

Garg SJ, Brod RD, Kim D, et al. Retina pigment epithelial tears after intravitreal bevacizumab injection for exudative age-related macular degeneration.

HS-ICGA May Assist in PDT Treatment for Anti-VEGF Failures in AMD

High-speed indocyanine green angiography (HS-ICGA) demonstrates that some cases of CNV are perfused by large vessels, indicating a hemodynamic contribution to leakage, according to Scott W. Cousins, MD, Director, Center for Macular Diseases at Duke University Eye Center, Durham, North Carolina. In many of these eyes, he said, PDT with verteporfin (Visudyne; Novartis, East Hanover, New Jersey) can achieve anatomic resolution of leakage and pigment epithelium detachments (PEDs).

Dr. Cousins and colleagues conducted a retrospective review of 25 cases of neovascular AMD in which intravitreal anti-VEGF therapy failed to induce anatomic improvement. The investigators hypothesized that HS-ICGA with the Heidelberg Retinal Angiograph (Heidelberg, Germany) could identify morphologic features of CNV, especially a large feeder artery with many branching arterioles suggesting hemodynamic flow contributing to leakage.

Despite previous anti-VEGF treatment, the 25 eyes

demonstrated an evident feeder vessel perfusing numerous smaller distal vessels in the CNV. Within 3 months of PDT directed toward the major vessels identified by HS-ICGA, 22 of 25 eyes demonstrated resolution of leakage on OCT, Dr. Cousins said. Repeat HS-ICGA usually showed closure of the large vessels.

In many eyes, PDT can achieve anatomic resolution of leakage and PED, he concluded.

Cousins SW, Nelson M, Schuman S. ICG-directed PDT for anti-VEGF therapy failures in neovascular AMD.

RETINAL VASCULAR DISEASE

RAD Useful for Visual Recovery in CRVO, BRVO

Prompt revascularization by anastomotic decompression (RAD) is associated with significant and lasting long-term visual recovery in patients with ischemic central and branch retinal vein occlusions (CRVO and BRVO), according to Calvin A. Grant, MD, Oak Lawn, Illinois.

Dr. Grant and colleagues evaluated stability and improvement in parameters including visual acuity, visual field, afferent pupillary defect reversal, FA, OCT, and satisfaction in patients who underwent RAD 20 months previously.

In this retrospective consecutive case series, 15 patients had CRVO and five had BRVO. The patients underwent vitrectomy with the induction of chorioretinal venous anastomoses by tangential puncture of retina veins and choroid, placement of semiconfluent laser at the treatment site, panretinal photocoagulation, and 100% air-fluid exchange—the RAD procedure.

All patients had “profound” visual recovery that was notable by week 3, according to Dr. Grant, and visual acuities improved from hand motion–20/400 to 20/30–20/60 by week 6. These results were sustained for the duration of the study period. Areas of capillary nonperfusion were significantly reduced.

Grant CA. Stable and long-term visual recovery in central and branch retinal vein occlusion after revascularization by anastomotic decompression (RAD).

DIABETIC RETINOPATHY

Selective Retinal Laser Attractive Option for DME

Selective retinal treatment (SRT) may be an attractive therapeutic option for diabetic macular edema (DME) patients, resulting in little or no retinal damage, according to Umit Ubeyt Inan, MD, from Afyonkarashisar, Turkey. Treatment with short-pulse laser selective to pig-

mented cells did not cause significant microscotomas, possibly due to sparing of the sensorineural retina with stimulation of only the RPE.

Stimulation of RPE is an important factor in the resolution of DME following laser photocoagulation, according to Dr. Inan. In his investigation, 48 eyes of 43 patients with DME were treated with SRT, using short pulses of the 532-nm frequency-doubled Nd:YAG laser with 400- μ m spot size, 0.3-mJ energy output, 3-ns pulse duration, and 600-mJ/cm² of fluence. Among 38 patients, 46 eyes with DME were treated with grid laser. Patients were evaluated with ophthalmoscopy, FA, BCVA on ETDRS (Early Treatment of Diabetic Retinopathy Study) chart, macular edema index by Heidelberg Retina Tomography (HRTII; Heidelberg Engineering GmbH), fixation stability, and main retinal sensitivity within central 12° by microperimetry (MP-1) at pretreatment and weeks 1, 6, 12, and 24.

None of the laser lesions was visible during treatment with SRT, and there was a statistically significant improvement in central visual acuity. Edema index was also reduced significantly, and FA showed complete or partial resolution in 22 and 19 eyes in the SRT group and 27 and 12 eyes in the grid laser group, respectively, at week 24.

Inan UU, Kusbeci T, Yaman S, et al. Selective retinal laser for the treatment of diabetic macular edema.

Bevacizumab Useful Adjunct in Vitrectomy for PDR

In patients with proliferative diabetic retinopathy (DR), bevacizumab may be a useful adjunct to vitrectomy. According to Robert L. Avery, MD, preoperative traction retinal detachments can occur as a result of intravitreal bevacizumab-associated membrane contraction. He concluded that further study is warranted.

Dr. Avery, of California Retina Consultants and Research Foundation, Santa Barbara, California, and colleagues conducted a retrospective chart review of patients undergoing pars plana vitrectomy (PPV) for complications of DR who received intravitreal bevacizumab. Dr. Avery is Associate Medical Editor of *Retina Today*.

Among the included 75 eyes, reasons for PPV were vitreous hemorrhage, traction retinal detachment, and neovascular glaucoma. The investigators felt that intravitreal bevacizumab facilitated PPV, Dr. Avery said.

Three patients developed postoperative retinal detachments that were successfully repaired; 28 eyes developed some level of postoperative vitreous hemorrhage. Repeat PPV was required in three patients, and two developed contraction of neovascularization following injection,

which progressed to preoperative tractional retinal detachment.

Avery RL, Pieramaci DJ, Rabena MD, et al. Intravitreal bevacizumab in the surgical treatment of proliferative diabetic retinopathy.

IMAGING

Ultra-wide-field Angiography Can Improve Detection of Retinal Pathology

The use of ultra-wide-field angiography may result in improved detection of peripheral retinal pathology when compared to clinical exam and traditional fundus angiography, according to Scott C.N. Oliver, MD, of Los Angeles.

Dr. Oliver and colleagues conducted a retrospective review of more than 446 consecutive ultra-wide-angle patient files obtained with the Optomap FA Dynamic Ultra-widefield Angiography System (Optos plc, Dunfermline, Scotland). Patients were indexed by disease, clinically detected pathology, and ultra-wide-angle FA-detected pathology.

Dr. Scott said that by using ultra-wide-field angiography, undetected peripheral retinal pathology was readily identified, including neovascularization in PDR and sickle retinopathy, capillary nonperfusion in PDR and vascular occlusion, vessel telangiectasia and hyperpermeability in Coats' disease and associated conditions, retinal pigmentary changes in inflammatory and degenerative conditions, and retinal vasculitis in posterior uveitides.

Oliver SCN, Gonzales CR, Gupta A, et al. Ultra-widefield fluorescein angiography for detections of peripheral retinal pathology.

FD-OCT-Detected Maculopathy in Eyes with Unexplained Visual Loss

Improved resolution associated with Fourier-domain (FD) OCT allowed detection of maculopathy in some eyes with visual loss that was unexplained with routine clinical diagnostic tests such as funduscopy, FA, and Stratus OCT (Carl Zeiss Meditec, Dublin, California). Susanna A. Park, MD, PhD, of Sacramento, California, said that FD-OCT is a useful tool in the diagnostic work-up of patients with unexplained visual loss.

Dr. Park and colleagues conducted a prospective, observational case series of eyes with unexplained visual loss, based on funduscopy, FA, and Stratus OCT, imaged with FD-OCT instrumentation developed at the University of California-Davis. She said this FD-OCT provides axial resolu-

tion of 3 to 4 μm and transverse resolution of 10 μm .

Nine eyes of six patients who were diagnosed with unexplained visual loss were imaged with FD-OCT, and all patients had an area of paracentral scotoma on Amsler grid or microperimetry in the imaged eye. Visual acuity ranged from 20/20 to 20/80; FD-OCT showed maculopathy in the fovea in six eyes of four patients.

Microcystoid changes with focal loss of photoreceptors were noted in two eyes of one patient. Dr. Park added that focal discontinuity or a disruption of the photoreceptor layer was noted in three eyes of two patients and focal elevation of photoreceptor layer was seen in one eye.

Park SS, Zawadzki R, Choi SS, Werner JS. Maculopathy diagnosed with high-resolution Fourier-domain optical coherence tomography among subjects with previously unexplained visual loss.

INSTRUMENTATION

Pneumatically Driven Small Probe Allows Duty Cycle Control During PPV

A pneumatically driven small probe has been designed to control duty cycles without lowering cut rates, allowing a high degree of safety. Kirk H. Packo, MD, said that duty cycle settings can be customized to the surgery, adding another level of accuracy and safety during vitreous surgery. Dr. Packo is with Illinois Retina Associates and Rush University Medical Center in Chicago and is also a member of the *Retina Today* Editorial Board.

A prototype guillotine-style vitrectomy probe (Alcon Surgical, Inc., Fort Worth, Texas) has been designed to be pneumatically driven both for closure as well as opening, Dr. Packo said. The cutter position is computer-controlled, allowing the cutting blade to be positioned anywhere over the port at any cut speed. In Dr. Packo's evaluation, the probe was photographed during operation at high magnification both in balanced salt solution and triamcinolone suspended vitreous, using a Phantom V6.1 video camera (Vision Research, Inc., Wayne, New Jersey) at 4,800 frames per second. The cutter was driven at a constant 2,500 cuts per minute with three duty cycle formats: priority open, 50-50, and priority closed. Flow rates were measured for each duty cycle setting, and the same three duty cycle priorities were photographed at slower and higher cut rates.

The slow-motion observation of the fluids moving into the port confirmed that turbulence at the probe tip is primarily a function of the cutting rate and not the duty cycle, he said. This allows a safer and more

controlled removal of tissue at higher cut rates.

Packo KH, Buboltz D, Hulculak JC. Duty cycle control during pars plana vitrectomy: An evaluation of a new vitrectomy system with slow motion videography.

SOCIOECONOMICS

ASRS Strategic Planning: Practice Management Project

Retina specialists face increasing challenges as they seek to deliver optimum patient access and care, said Julia A. Haller, MD, the president of the ASRS. As physicians are not, in general, trained in practice economics and efficiency, the ASRS and other organizations may assist in meeting key education and practice delivery needs of their membership by targeting specific trends and uncertainties and developing strategies to deal with them, she said.

A steering committee of the ASRS worked with an independent strategy-consulting firm to learn the impact of trends such as population growth, population aging, increase in diabetes, downward pressures on financial reimbursement, and new technology. The study included a broad review of the trends and uncertainties, as well as a focused analysis of practice economics.

Eight key trends were identified, and strategies for dealing with these were planned, said Dr. Haller, the new ophthalmologist-in-chief at Wills Eye Hospital in Philadelphia. A "Practice Economics Primer" was developed to educate retina specialists and practice managers on practice economics and efficiency. An Excel-based (Microsoft Corp., Redmond, Washington) practice management tool was developed to help evaluate and manage individual practices. Dr. Haller is a member of the *Retina Today* editorial board.

Haller JA, Capone A, Huang S, et al. The ASRS strategic planning: The Practice Management Project.

TECHNIQUES

Autologous Blood Visualization Alternative During ILM Peeling

Autologous blood represents an alternative to enhance visualization during internal limiting membrane (ILM) peeling that is not associated with the potential toxicity of ICG or trypan blue, and it is readily available. According to Colin A. McCannel, assistant professor of ophthalmology at the Mayo Clinic, Rochester, Minnesota, further studies of macular hole closure and reopening rates are warranted for this seemingly safe and inexpensive technique.

After prepping a venipuncture site on the patient's

arm, blood is aspirated into a sterile sodium-heparin-coated venipuncture tube. Dr. McCannel said that a standard vitrectomy is then performed, with peeling of the posterior hyaloid. The surgeon then uses an intraocular cannula or needle to cover the macula with a small amount of the heparinized blood. After the thick layer of blood settles, he said, most is aspirated with the vitrectomy instrument or an extrusion needle; the finely blood-covered ILM is then peeled.

Dr. McCannel reported that the blood coating provides excellent visualization of the ILM during peeling, and pathologic evaluation demonstrated that the ILM is in fact removed.

McCannel CA. Autologous blood for visualization during ILM peeling.

PEDIATRIC

SUNDROP Telemedicine Screening Initiative Safe, Effective

Telemedicine screening for retinopathy of prematurity (ROP) provides photographic documentation for longitudinal review, according to Darius M. Moshfeghi, MD, of Menlo Park, California. He said the sensitivity and specificity for referral-warranted disease are 100% and 98.8%, respectively.

In the 18-month experience of the Stanford University Network for Diagnosis of Retinopathy of Prematurity (SUNDROP) telemedicine program, investigators found that all ROP cases needing treatment were identified and there were no adverse anatomic or functional outcomes. With an experienced reader, Dr. Moshfeghi reported, telemedicine offers a safe and effective alternative to indirect ophthalmoscopy for ROP screening.

SUNDROP was designed to provide outreach services to underserved neonatal intensive care units in the San Francisco Bay Area. The goal, he said, is to provide high-level ROP screening with photographic documentation that is read in a central reading center by an experienced ROP physician.

The investigators performed a retrospective analysis of the SUNDROP archival data from Dec. 1, 2005, through May 29, 2007, at four hospitals. All patients screened at least one time using the RetCam II and evaluated by the SUNDROP reading center at Stanford University were included.

A total of 92 infants have been imaged, resulting in 422 unique examinations. ■

Moshfeghi DM. 18-month experience with telemedicine screening for ROP.