

RETINA®

THE JOURNAL OF RETINAL AND VITREOUS DISEASES

JANUARY 2008

VOL. 28, NO. 1

EDITORIAL

- Illumination and Phototoxicity Issues in Vitreoretinal Surgery** 1

Steve Charles

REVIEW ARTICLE

- Autofluorescence From the Outer Retina and Subretinal Space: Hypothesis and Review** 5

Autofluorescence photography provides spatial and physiologic information about the retina. Integrated with imaging information from other sources, the autofluorescence findings for diseases causing increased autofluorescence from the outer retina and subretinal space help in understanding a diverse spectrum of diseases and allow for a classification system to be created.

Richard Spaide

ORIGINAL ARTICLES

- Agreement Between Clinician and Reading Center Gratings of Diabetic Retinopathy Severity Level at Baseline in a Phase 2 Study of Intravitreal Bevacizumab for Diabetic Macular Edema** 36

Comparison of clinician and reading center assessments of diabetic retinopathy severity demonstrated moderate agreement on a four-step scale that pooled a majority of cases in a single broad step of the scale.

Ingrid U. Scott, Neil M. Bressler, Susan B. Bressler, David J. Browning, Clement K. Chan, Ronald P. Danis, Matthew D. Davis, Craig Kollman, Haijing Qin, and the Diabetic Retinopathy Clinical Research Network Study Group

- Intravitreal Bevacizumab (Avastin) as a Treatment for Refractory Macular Edema in Patients with Uveitis: A Pilot Study** 41

In this case series of 10 patients a positive effect of intravitreal bevacizumab on uveitic macular edema is shown. This might be a treatment alternative for a small patient cohort in whom all other treatments have been unsuccessful.

Friederike Mackensen, Carsten Heinz, Matthias D. Becker, Arnd Heiligenhaus

- Bevacizumab (Avastin) Does Not Harm Retinal Function After Intravitreal Injection as Shown by Electroretinography in Adult Mice** 46

Based on electroretinographic findings, bevacizumab does not have any toxic effects on the mouse retina and its function. The bevacizumab molecule penetrates the retina quickly, and therefore can act safely and very quickly, as well as in deeper retinal layers after its injection.

Peter Heiduschka, Sylvie Julien, Sabine Hofmeister, Karl Ulrich Bartz-Schmidt, Ulrich Schraermeyer

A 40° Gaze Down Position for Pneumatic Displacement of Submacular Hemorrhage: Clinical Application and Results 56

Nine consecutive patients with macula hemorrhages were treated with a 40% intraocular gas bubble and gaze down 40° below the horizontal. All of the subretinal hemorrhages were rapidly displaced inferiorly confirming that gravity, unopposed by buoyancy in the gas-filled eye, is the primary force that moves a subretinal hemorrhage.

Harvey Lincoff, Ingrid Kreissig, Marcin Stopa, Dominik Uram

To Posture or Not to Posture After Macular Hole Surgery 60

Phacovitrectomy for macular hole surgery without postoperative face down posture is a reasonable approach, as long as the eye has more than 70% gas fill (beyond the inferior retinal vascular arcade) on the first postoperative day.

Felipe Eduardo Dhawahir-Scala, Anna Maino, Konal Saha, Aashish A. Mokashi, Rita McLauchlan, Steven Charles

Short-Term Complications of Intravitreal Triamcinolone Acetonide 66

Intravitreal injection of triamcinolone acetonide for the treatment of steroid-responsive disorders of the posterior segment, when administered under sterile conditions, is associated with a low incidence of serious vision-threatening adverse events within the first 3 months after injection. Elevated intraocular pressure and intraocular inflammation were the most commonly encountered complications.

Daniel B. Roth, Tony Realini, William J. Feuer, Ravi Radhakrishnan, Jonathan Gloth, Mark R. Heimmell, Robert D. Fechtner, David L. Yarian, Stuart N. Green

Combined Photodynamic Therapy and Intravitreal Triamcinolone for Choroidal Neovascularization Secondary to Punctate Inner Choroidopathy or of Idiopathic Origin: One-Year Results of a Prospective Series 71

Combined photodynamic therapy with intravitreal triamcinolone seems to be a promising treatment strategy in the treatment of idiopathic choroidal neovascularization (CNV) and CNV secondary to punctate inner choroidopathy as it resulted in fewer treatment sessions and superior visual improvement. Further study to assess its long-term safety and efficacy as the first line treatment is warranted.

Wai-Man Chan, Timothy Y. Y. Lai, Teresa T. Y. Lau, Vincent Y. W. Lee, David T. L. Liu, Dennis S. C. Lam

Verteporfin Photodynamic Therapy Involving the Optic Nerve for Peripapillary Choroidal Neovascularization 81

Peripapillary choroidal neovascular membranes secondary to age-related macular degeneration can be successfully and safely treated with standard-dose photodynamic therapy, often with resolution of the neovascular membrane after one treatment. In this case series, there was no evidence of optic nerve damage from the intervention.

Paul S. Bernstein, Rachael Sue Horn

Safety Enhanced Photodynamic Therapy for Chronic Central Serous Chorioretinopathy: One-Year Results of a Prospective Study 85

In this 1-year prospective series of 48 eyes with chronic central serous chorioretinopathy, safety enhanced photodynamic therapy with half-dose verteporfin resulted in visual gain of 1.6 lines, and serous macular detachment resolution in 43 (89.6%) eyes.

Wai-Man Chan, Timothy Y. Y. Lai, Ricky Y. K. Lai, Emily W. H. Tang, David T. L. Liu, Dennis S. C. Lam

Central Serous Chorioretinopathy in Patients With Keratoconus 94

The authors observed central serous chorioretinopathy in three individuals with keratoconus and discuss the possible connection between these two conditions.

Chiara M. Eandi, Lucian V. Del Priore, Enrico Bertelli, Michael D. Ober, Lawrence A. Yannuzzi

Grid Laser Treatment for Exudative Retinal Detachment Secondary to Ischemic Branch Retinal Vein Occlusion 97

A prospective, randomized clinical trial designed to evaluate the effectiveness of macular grid laser photocoagulation in obtaining the reabsorption of exudative retinal detachment in patients with ischemic branch retinal vein occlusion shows that laser treatment is able to prevent visual acuity deterioration through a 24-month follow-up.

Maurizio Battaglia Parodi, Giuseppe Di Stefano, Giuseppe Ravalico

Prevalence of Cystoid Macular Edema and Stability in OCT Retinal Thickness in Eyes With Retinitis Pigmentosa During a 48-Week Lutein Trial 103

The authors describe the prevalence of cystoid macular edema (CME), the variation in foveal thickness over a 48-week period, the correlation of visual acuity with retinal thickness, and the lack of response of CME to lutein administration in patients with moderately advanced retinitis pigmentosa (RP) participating in a randomized clinical trial of lutein supplementation.

Cheryl A. Adackapara, Janet S. Sunness, Cathy W. Dibernardo, B. Michele Melia, Gislin Dagnelie

Retinal Detachment and Proliferative Vitreoretinopathy: Ophthalmic Artery Blood Velocities, Intraocular Pressure, and Endothelin-1 111

Eyes with retinal detachment with or without proliferative vitreoretinopathy had reduced ophthalmic artery (OA) blood flow ($P < 0.0001$), which was related to reduced intraocular pressure (IOP) ($P < 0.0001$), compared with normal eyes. Increased immunoreactive endothelin-1 levels in plasma and subretinal fluid correlated ($P < 0.0001$) with both reduced OA blood flow and reduced IOP.

Manuela Roldán-Pallarés, Abdalla-Sadiq Musa, Julian Hernandez-Montero, Raquel Rollin, Carmen Bravo-Llatas, Raquel Fernández-Durango

Fixation Characteristics of Patients With Macular Degeneration Recorded With the MP-1 Microperimeter 125

This study examines the fixation stability of patients with macular degeneration recorded with the MP-1 microperimeter. A method to bypass the calibration artifacts of this instrument is described. Most of the fixation parameters obtained with the MP-1 agree with those described in the literature, if proper calibration is used.

Luminita Tarita-Nistor, Esther G. González, Samuel N. Markowitz, Martin J. Steinbach

Use of COX-2 Inhibitors in Patients With Retinal Venous Occlusive Disease 134

In this retrospective, case-control study, the prevalence of COX-2 inhibitor usage was not significantly higher among patients with retinal venous occlusion than among matched controls.

Franco M. Recchia, Eric Chen, Chun Li, Srilakshmi Maguluri

Endophthalmitis After 25-Gauge and 20-Gauge Pars Plana Vitrectomy: Incidence and Outcomes 138

The rates of endophthalmitis after 20-gauge pars plana vitrectomy (PPV) and 25-gauge PPV were compared. The rate of endophthalmitis after 25-gauge PPV was significantly higher than that after 20-gauge PPV. Endophthalmitis after 25-gauge PPV occurred within 15 days of PPV, was usually due to coagulase-negative staphylococci sensitive to vancomycin, and was associated with variable visual outcomes.

Ingrid U. Scott, Harry W. Flynn Jr, Sundeep Dev, Saad Shaikh, Robert A. Mitra, J. Fernando Arevalo, Andres Kychenthal, Nur Acar

Histologic Findings After Surgical Excision of Optic Nerve Head Drusen 143

A patient with bilateral massive optic nerve head drusen and decreased vision had removal of part of one druse with loss of vision. Analysis of the disk druse showed the presence of calcium phosphate and the presence of metal particles from the instruments.

Rashmi Kapur, Jose S. Pulido, Jerrold L. Abraham, Mithlesh Sharma, Bruce Buerk, Deepak P. Edward

Absence of Histologic Retinal Toxicity of Intravitreal Nanogold in a Rabbit Model ... 147

Intravitreal nanogold, an antiangiogenic agent, showed no signs of toxicity in the rabbit retina at a maximum dose of 670 $\mu\text{mol}/0.1\text{ mL}$ at 1 month.

Sophie J. Bakri, Jose S. Pulido, Priyabata Mukherjee, Ronald J. Marler, Debabrata Mukhopadhyay

Buffering Capacity of Bovine Vitreous 150

Vitreous has a greater buffering capacity than physiologic saline, indicating a greater capacity to maintain stable pH when acidic or alkaline pharmaceuticals are injected in microliter amounts. This finding is relevant to intravitreal delivery of pharmaceuticals, a technique becoming more widely used as treatment for ocular diseases.

Mandi D. Conway, Christopher M. Jermak, Gholam A. Peyman, Harvey T. Swanson, Diane A. Blake

Feasibility Study of Intraocular Robotic Surgery With the da Vinci Surgical System 154

The feasibility of performing intraocular robotic surgery with the da Vinci Surgical System (Intuitive Surgical, Sunnyvale, CA) was assessed. Using modified robotic instruments, 25-gauge pars plana vitrectomy, intraocular foreign body removal, and anterior capsulorhexis were performed. We found that the da Vinci robot has adequate dexterity to perform delicate intraocular manipulations.

Dan H. Bourla, Jean Pierre Hubschman, Martin Culjat, Angelo Tsirbas, Anurag Gupta, Steven D. Schwartz

SURGICAL TECHNIQUES

Applications of Endoscopy in Vitreoretinal Surgery 159

Khalid Al Sabti, Seemant Raizada, Jamal Al Kandari, Vivek Wani, Iskender Gayed, Niranjan Kumar

Subretinal Perfluorocarbon Removal: Perfluorocarbon Volume Estimation and Cannula Choice 167

Craig A. Lemley, Judy E. Kim

Novel Mercury Vapor Illuminator Combined With a 27/29-Gauge Chandelier Light Fiber for Vitreous Surgery 171

Yusuke Oshima, David R. Chow, Carl C. Awh, Hirokazu Sakaguchi, Yasuo Tano

DIAGNOSTIC AND THERAPEUTIC CHALLENGES 174

Submitted by Drs. Diego Sanchez-Chicharro, Jose C. Pastor, Maria I. Lopez Galvez, Rosa M. Coco Martin, and Ruben Cuadrado Asensio; Commented by Drs. Mark Spirn and Peter S. Kaiser, and Dr. Arthur D. Fu; Edited by H. Richard McDonald

PHOTO ESSAY 180

CORRESPONDENCE 182

ERRATUM 190

INSTRUCTIONS TO AUTHORS 191

Permission to Photocopy Articles

This publication is protected by copyright. Permission to photocopy must be secured in writing from:

- Permissions Department, Lippincott Williams & Wilkins, 351 W. Camden Street, Baltimore, MD 21201; telephone 410-528-4050; email: journalpermissions@lww.com; URL: www.lww.com/resources/permissions/journals.html or
- Copyright Clearance Center (CCC), 222 Rosewood Dr., Danvers, MA 01923; 978-750-8400; FAX: 978-750-4470; Internet: www.copyright.com; or
- UMI, Box 49, 300 North Zeeb Road, Ann Arbor, MI 48106-1346; FAX: 313-761-1203.