

# AMERICAN JOURNAL OF OPHTHALMOLOGY®

ISSN 0002-9394 • VOL. 204 AUGUST 2019

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### ORIGINAL ARTICLES

- **1 Cost-effectiveness of limited vitrectomy for vision-degrading myodesopsia.** *Benjamin Rostami, Jeannie Nguyen-Cuu, Gary Brown, Melissa Brown, Alfredo A. Sadun, and J. Sebag*

Patients suffering from vision-degrading myodesopsia had improved quality of life, visual acuity, and contrast sensitivity function after limited vitrectomy. Cost-effectiveness was superior to cataract surgery, amblyopia therapy, and retinal detachment repair.

- **7 Demodex mite infestation and its associations with tear film and ocular surface parameters in patients with ocular discomfort.** *Dieter Franz Rabensteiner, Haleh Aminfar, Ingrid Boldin, Marianne Nitsche-Resch, Bujar Berisha, Gerold Schwantzer, and Jutta Horwath-Winter*

The prevalence of Demodex mites in patients with ocular discomfort is high. The infestation of the eyelids with Demodex species is associated with changes of the anterior and posterior lid margin, suggesting a pathogenic role in blepharitis and meibomian gland dysfunction as well. The examination of the eyelashes for signs of Demodex, like the presence of sleeves, is recommended.

- **13 Anti-vascular endothelial growth factor therapy for diabetic retinopathy: consequences of inadvertent treatment interruptions.** *Thomas J. Wubben and Mark W. Johnson, for the Anti-VEGF Treatment Interruption Study Group*

This case series shows the potentially devastating visual consequences that may occur in a real-world setting when patients with diabetic retinopathy are treated exclusively with anti-vascular endothelial growth factor therapy and

have an unanticipated interruption in treatment. These severe consequences should serve as a significant caveat for clinicians who are making initial treatment decisions.

- **19 Characterization and management of late post-operative capsular block syndrome following phacoemulsification or phacovitrectomy.** *Yuchen Lin, Jijian Lin, Zhitao Su, Zhiqing Chen, and Ke Yao*

This retrospective study compared the clinical characteristics of 28 patients with late postoperative capsular block syndrome (CBS) after phacoemulsification or phacovitrectomy, and demonstrated the outcomes of neodymium-doped yttrium-aluminum-garnet (Nd:YAG) capsulotomy and posterior continuous curvilinear capsulorrhexis (PCCC) in the treatment of CBS. Late postoperative CBS developed after phacoemulsification or phacovitrectomy had similar characteristics. Nd:YAG capsulotomy and the PCCC technique are efficient approaches to mild and moderate posterior capsular opacification (PCO) and severe PCO with CBS, respectively.

- **26 Lessons learned from Avastin and OCT—The great, the good, the bad, and the ugly: The LXXV Edward Jackson Memorial Lecture.** *Philip J. Rosenfeld*

The convergence of optical coherence tomography (OCT) imaging and the use of vascular endothelial growth factor inhibitors for the treatment of exudative and neovascular eye diseases revolutionized the care of patients, prevented blindness worldwide, and saved healthcare providers and patients over \$40 billion in the United States alone; and all this was achieved through the heroic actions of ophthalmologists and concerned citizens, despite attempts by industry and anonymous sources to prevent its use.

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- **46 Ocular exposures reported to poison control centers from 2011 to 2015.** *Craig William Heise and Sumit Agarwal*

Ocular exposures reported to poison control centers over a 5-year period were analyzed. Most occurred unintentionally, at home, and predominantly in children under 5 years of age. Many serious adult exposures occurred at work owing to alkali exposures. There was an increasing incidence of ocular injury in those over 64 years old over these 5 years. The most common treatment provided was irrigation and wash for the affected eye. Children under 5 are most susceptible, and may have permanent disability owing to laundry detergent exposure; concerted intervention is needed in this age group.

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- **51 Association of macular and circumpapillary microvasculature with visual field sensitivity in advanced glaucoma.** *Elham Ghahari, Christopher Bowd, Linda M. Zangwill, James Proudfoot, Kyle A. Hasenstab, Huiyuan Hou, Rafaella C. Pentead, Patricia Isabel C. Manalastas, Sasan Moghimi, Takuhei Shoji, Mark Christopher, Adeleh Yarmohammadi, and Robert N. Weinreb*

This article investigates whether macula and circumpapillary optical coherence tomography angiography vascular density measurements have sufficient dynamic range to potentially detect disease-related change in advanced primary open angle glaucoma. Macula and circumpapillary vessel densities were significantly associated with severity of visual field loss in advanced primary open angle glaucoma eyes, suggesting that circumpapillary and macula vascular measures may be useful parameters for monitoring progression in advanced glaucoma, particularly if confirmed by longitudinal studies.

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- **62 Predictors of neovascular glaucoma in central retinal vein occlusion.** *Andrew J. Rong, Swarup S. Swaminathan, Elizabeth A. Vanner, and Richard K. Parrish, II*
- Patients with acute central retinal vein occlusion who present with a relative afferent pupillary defect, history of systemic hypertension, or decreased visual acuity have a greater risk of conversion to neovascular glaucoma and should be followed at closer intervals. Intravitreal anti-vascular endothelial growth factor therapy was found to delay, but did not prevent, neovascular glaucoma.

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- **70 Projection-resolved optical coherence tomographic angiography of retinal plexuses in retinitis pigmentosa.** *Ahmed M. Hagag, Jie Wang, Kevin Lu, Gareth Harman, Richard G. Weleber, David Huang, Paul Yang, Mark E. Pennesi, and Yali Jia*

This study uses projection-resolved optical coherence tomography (OCT) angiography to characterize the microvascular alterations in the 3 distinct retinal plexuses at the parafoveal and perifoveal regions of retinitis pigmentosa patients. The results showed decreased vessel density in the perifovea of deep and intermediate plexuses, with relative sparing of the superficial plexus. Vessel density correlated strongly with outer retinal thickness. OCT angiography might provide better understanding of the pathophysiology of the disease, as well as monitoring progression and response to experimental treatments.

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- **80 Efficacy and safety of intravitreal aflibercept for polypoidal choroidal vasculopathy: two-year results of the aflibercept in polypoidal choroidal vasculopathy study.** *Tien Yin Wong, Yuichiro Ogura, Won Ki Lee, Tomohiro Iida, Shih-Jen Chen, Paul Mitchell, Chui Ming*

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Gemmy Cheung, Zhongqi Zhang, Sérgio Leal, and Tatsuro Ishibashi, on behalf of the PLANET Investigators

PLANET, a Phase 3b/4 randomized clinical trial, compared intravitreal aflibercept monotherapy with intravitreal aflibercept plus rescue photodynamic therapy in patients with polypoidal choroidal vasculopathy. Monotherapy was noninferior to intravitreal aflibercept plus rescue in terms of mean change in BCVA at 52 weeks (primary endpoint). Functional and anatomical improvements were maintained at 96 weeks, with a low mean number of injections in the second year. Few patients required rescue treatment over the follow-up period.

• **90 Motivations and decision making processes of men with X-linked retinoschisis considering participation in an ocular gene therapy trial.** Amy Turriff, Delphine Blain, Morgan Similuk, Barbara Biesecker, Henry Wiley, Catherine Cukras, and Paul A. Sieving

Men with X-linked retinoschisis (XLRS) who were considering participation in a phase I/IIa ocular gene therapy clinical trial described their decision making factors as risk-benefit assessments, personal intuition, trust in the study team, and religious faith. Although most men hoped for direct benefit, no one expected to benefit. Discussing prospective research participants' motivations, hopes, and expectations may provide a more complete understanding of patient decision making and may help support informed choices to participate in clinical trials for XLRS.

• **97 Once-daily netarsudil versus twice-daily timolol in patients with elevated intraocular pressure: the randomized phase 3 ROCKET-4 study.** Albert S. Khouri, Janet B. Serle, Jason Bacharach, Dale W. Usner, Richard A. Lewis, Puiwah Braswell, Casey C. Kopczynski, and Theresa Heah, on behalf of the Rocket-4 Study Group

In the phase 3 ROCKET-4 study, once-daily (PM) netarsudil met the criteria for noninferiority to twice-daily

timolol in lowering intraocular pressure over 3 months; these effects were sustained over 6 months. As a first-in-class agent with a novel mechanism of action, netarsudil has the potential to be used as a single agent and as an adjunct to other medications.

• **105 Five-year real-world outcomes of occult and classic choroidal neovascularization: Data from the Fight Retinal Blindness! project.** Alessandro Invernizzi, Vuong Nguyen, Kelvin Teo, Daniel Barthelmes, Adrian Fung, Andrea Vincent, and Mark Gillies

Five-year outcomes of eyes with classic and occult choroidal neovascularization (CNV) treated with anti-vascular endothelial growth factor injections in a real-world setting were compared and analyzed. Eyes with occult CNVs had overall a better visual acuity (VA) than other CNVs. The difference in final VA was not significant after adjusting for baseline VA. Five-year outcomes were only affected by the subject age, lesion size, and baseline VA, not by the lesion type.

• **113 Three-year follow-up of phase 1 and 2a raav.sflt-1 subretinal gene therapy trials for exudative age-related macular degeneration.** Elizabeth P. Rakoczy, Aaron L. Magno, Chooi-May Lai, Cora M. Pierce, Mariapia A. Degli-Esposti, Mark S. Blumenkranz, and Ian J. Constable

This phase 1/2a long term (3 years) clinical trial of rAAV.sFLT-1 showed that gene therapy for wet age-related macular degeneration was well tolerated among the elderly and that the presence of anti-AAV2 neutralizing antibodies at baseline did not seem to interfere with the outcome.

• **124 Visual impairment in fungal versus bacterial corneal ulcers 4 years after successful antimicrobial treatment.** Namperumalsamy V. Prajna, Muthiah Srinivasan, Jeena Mascarenhas, Prajna Lalitha, Revathi Rajaraman, Scott M. McClintic, Kieran S. O'Brien,

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*Kathryn J. Ray, Nisha R. Acharya, Thomas M. Lietman, and Jeremy D. Keenan*

A prospective cohort study in South India found that, on average, bacterial and fungal corneal ulcers had similar best corrected visual acuity 4 years after the infection. However, visual acuity after fungal corneal ulcers that was not correctable with eyeglasses or hard contact lenses was significantly more likely to result in blindness.

• **130 Intraocular pressure and its associations in a Russian population: the Ural Eye and Medical Study.**

*Mukharram M. Bikbov, Gyulli M. Kazakbaeva, Rinat M. Zainullin, Venera F. Salavatova, Timur R. Gilmanshin, Dilya F. Yakupova, Yulia V. Uzianbaeva, Inga I. Arslangareeva, Songhomitra Panda-Jonas, Svetlana R. Mukhamadieva, Renat I. Khikmatullin, Said K. Aminev, Ildar F. Nuriev, Artur F. Zaynetdinov, and Jost B. Jonas*

In the population-based Ural Eye and Medical Study, intraocular pressure was associated with a multitude of systemic and ocular parameters, such as sex, body mass index, physical activity score, prevalence of diabetes mellitus, systolic blood pressure, fruit intake, central

corneal thickness, anterior corneal refractive power, anterior chamber depth or prevalence of cataract surgery, axial length and pseudoexfoliation. These associations may be considered in defining the normal range of intraocular pressure.

## CORRESPONDENCE

• **140 Randomized, controlled, phase 2 trial of povidone-iodine/dexamethasone ophthalmic suspension for the treatment of adenoviral conjunctivitis.**

*Seema Ramakrishnan, Jyothi Vempati, and Prabu Baskaran*

• **140 Cataract surgery and rate of visual field progression in primary open-angle glaucoma.**

*Alessandro Rabiolo and Joseph Caprioli*

• **141 Effects of crocin on diabetic maculopathy: a placebo-controlled randomized clinical trial.**

*Mücella Arıkan Yorgun*

• **142 Reply.**

*Samaneh Sepahi, Seyed Ahmad Mohajeri, Seyedeh Maryam Hosseini, Elham Khodaverdi, Nasser Shoeibi, Maral Namdari, and Sayyed Abolghasem Sajadi Tabassi*

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0002-9394(201908)204:C;1-4