

# AMERICAN JOURNAL OF OPHTHALMOLOGY®

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### ORIGINAL ARTICLES

- **1 Fluctuations of the intraocular pressure in medically versus surgically treated glaucoma patients by a contact lens sensor.** *M<sup>a</sup> Jesús Muniesa, Juan Ezpeleta, and Iván Benítez*

Intraocular pressure–related measurements were taken for 24 hours using a contact lens sensor in 91 eyes; 59 eyes were receiving ocular hypotensive medication and 32 eyes had glaucoma surgery. Intraocular pressure–related fluctuations were larger in eyes with medically treated glaucoma than in surgically treated glaucoma. A significantly larger fraction of the surgical group exhibited an absence of nocturnal acrophase compared to the medically treated group. This effect could represent an additional benefit of surgery in controlling the intraocular pressure.

- **26 In vivo confocal microscopy demonstrates increased immune cell densities in corneal graft rejection correlating with signs and symptoms.** *Chareenun Chirapapaisan, Alessandro Abbouda, Arsia Jamali, Rodrigo T. Müller, Bernardo M. Cavalcanti, Clara Colon, Deborah Witkin, Afsun Sahin, Reza Dana, Andrea Cruzat, and Pedram Hamrah*

This study demonstrates a significant increase in immune cell density in corneal sublayers in patients with graft rejection compared to that in patients with nonrejected grafts and normal corneas, using in vivo confocal microscopy. The increase in immune cells density was associated with increased clinical signs and symptoms of graft rejection, particularly in those with light sensitivity. In vivo confocal microscopy may be used to support the diagnosis of corneal graft rejection.

- **37 A deep learning system for automated angle-closure detection in anterior segment optical coherence tomography images.** *Huazhu Fu, Mani Baskaran, Yanwu Xu, Stephen Lin, Damon Wing Kee Wong, Jiang Liu, Tin A. Tun, Meenakshi Mahesh, Shamira A. Perera, and Tin Aung*

A Deep learning method achieved an area under the receiver operating characteristic curve of 0.96, which is higher than a quantitative feature-based system (0.90) in comparison to clinician's grading of images. The results demonstrate that deep learning presents high potential for angle-closure detection in AS-OCT images with high sensitivity and specificity in a large dataset.

- **46 Prospective study of the diagnostic accuracy of the in vivo laser scanning confocal microscopy for ocular demodicosis.** *Yu-Jing Wang, Min Ke, and Xiao-Min Chen*

This prospective study showed that in vivo confocal microscopy demonstrates good sensitivity, specificity and reproducibility in the diagnosis of ocular demodicosis than light microscopy. and it is both highly sensitive and specific when performed by an experienced operator.

- **69 Multistep grading system for evaluation of chronic ocular sequelae in patients with Stevens-Johnson syndrome.** *Namrata Sharma, Renu Venugopal, Prafulla K. Maharana, Manthan Chaniyara, Tushar Agarwal, Neelam Pushker, Ravinder Mohan Pandey, Sushil Sangwan, Seema Sen, Seema Kashyap, Arundhati Sharma, Neena Khanna, and Rasik B. Vajpayee*

Severe manifestations in chronic ocular sequelae in Stevens-Johnson syndrome eyes require a modified grading system. This study provides a multistep scoring system to

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grade all levels of severity. This may help to evaluate the efficacy of surgical interventions by comparing preoperative with postoperative ocular grades.

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• **78 Effect of graft attachment status and intraocular pressure on descemet stripping automated endothelial keratoplasty outcomes in the cornea preservation time study.** Anthony J. Aldave, Mark A. Terry, Loretta B. Szczołka-Flynn, Wendi Liang, Allison R. Ayala, Maureen G. Maguire, Robert C. O'Brien, Beth Ann Benetz, John E. Bokosky, Steven P. Dunn, Thomas E. Gillette, Kristin M. Hammersmith, David R. Hardten, Bennie H. Jeng, Marc F. Jones, Richard L. Lindstrom, Kenneth J. Maverick, Verinder S. Nirankari, Matthew S. Oliva, Irving M. Raber, Christopher J. Rapuano, George O.D. Rosenwasser, Kevin W. Ross, John W. Seedor, Neda Shamie, Christopher G. Stoeger, Shachar Tauber, Woodford S. Van Meter, David D. Verdier, and Jonathan H. Lass, on behalf of the Cornea Preservation Time Study Group

Pre- and postoperative factors associated with graft dislocation after Descemet stripping automated endothelial keratoplasty (DSAEK) and impact of dislocation and intraocular pressure on DSAEK success are not well characterized. In a clinical trial of 1330 DSAEK surgeries, donor, recipient, operative, and postoperative factors were assessed. Donor diabetes, increased donor corneal thickness, and operative complications were associated with an increased risk of graft dislocation. Early postoperative elevated intraocular pressure and graft dislocation significantly increased the risk for graft failure.

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• **89 Border tissue morphology is spatially associated with focal lamina cribrosa defect and deep-layer microvasculature dropout in open-angle glaucoma.** Jong Chul Han, Jae Hwan Choi, Do Young Park, Eun Jung Lee, and Changwon Kee

The border tissue morphology was topographically associated with focal lamina cribrosa (LC) defect and

microvasculature dropout (MvD) in open angle glaucoma (OAG) eyes. The MvD circumferential width was associated with glaucoma severity, while the MvD height ratio and the focal LC defect size were associated with axial length and the maximum border length.

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### AOS THESIS

• **12 Intraocular oxygen and antioxidant status: new insights on the effect of vitrectomy and glaucoma pathogenesis.** Carla J. Siegfried and Ying-Bo Shui

Several clinical studies have detected increased risk of developing open angle glaucoma following pars plana vitrectomy surgery. Increased oxygen levels in the anterior segment and decreased levels of antioxidants in post-vitrectomy patients compared to the reference group (cataract surgery) were identified in the present study. Increased intraocular oxygen, a potential source of pro-oxidants for generation of reactive oxygen species, may contribute to alterations of oxidant-antioxidant balance leading to increased oxidative stress and damage of the trabecular meshwork and increased glaucoma risk in select patients.

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• **53 Regenerative surgery of the corneal stroma for advanced keratoconus: 1-year outcomes.** Jorge L. Alió, Jorge L. Alió Del Barrio, Mona El Zarif, Albert Azaar, Nehman Makdissy, Charbel Khalil, Walid Harb, Ibrahim El Achkar, Ziad Abdul Jawad, and María P. De Miguel

We evaluate the one year outcomes of the cellular therapy of the corneal stroma for patients with advanced Keratoconus. No complications were recorded and no patient lost lines of visual acuity. Implantation of autologous ADASC alone (n:5) showed a modest improvement of visual parameters with stable keratometry and deposition of new collagen at the surgical plane. Implantation of decellularized or ADASC recellularized human corneal stroma laminae (n:9) demonstrated a statistically significant

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improvement of visual and keratometric parameters. Decellularized stroma becomes recellularized after 6 months.

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• **103 Earliest evidence of preclinical diabetic retinopathy revealed using optical coherence tomography angiography perfused capillary density.** Richard B. Rosen, Jorge S. Andrade Romo, Brian D. Krawitz, Shelley Mo, Amani A. Fawzi, Rachel E. Linderman, Joseph Carroll, Alexander Pinhas, and Toco Y.P. Chui

OCT Angiography Perfused Capillary Density can reveal the onset of an increase in blood perfusion to the macula in diabetic patients prior to any of the classically recognized features of diabetic retinopathy. This upswing signals the beginning of changes which proceed into progressive capillary reduction as worsening stages of non-proliferative and proliferative retinopathy ensue.

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### CORRESPONDENCE

• **116 In pseudotumor cerebri, hormonal contraception is not associated, and the diagnosis remains idiopathic**

**intracranial hypertension.** Brendon W.H. Lee, Fiona S. Lau, and Ian C. Francis • **117 Response to correspondence “in pseudotumor cerebri, hormonal contraception is not associated, and the diagnosis remains as ‘idiopathic intracranial hypertension’”.** Khin P. Kilgore, Michael S. Lee, Jacqueline A. Leavitt, Ryan D. Frank, Collin M. McClelland, and John J. Chen • **117 Are risk factors for growth of choroidal nevi associated with malignant transformation? assessment with a validated genomic biomarker.** Hans E. Grossniklaus and Erwin G. Van Meir • **118 Risk of stroke after nonarteritic anterior ischemic optic neuropathy.** Yueh-Chang Lee and Rong-Kung Tsai • **119 Reply.** Sang Jun Park, Hee Kyung Yang, Seong Jun Byun, Kyu Hyung Park, and Jeong-Min Hwang • **120 Reply.** Elodie Bousquet, Myriam Dhundass, Raphaël Lejoyeux, Ari Shinojima, Valérie Krivosic, Sarah Mrejen, Alain Gaudric, and Ramin Tadayoni • **121 Predictive factors of response to mineralocorticoid receptor antagonists in nonresolving central serous chorioretinopathy.** Upma Awasthi, Rohini Grover, Abhishek Varshney, and Chetan Videkar

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