

AMERICAN JOURNAL OF OPHTHALMOLOGY®

ISSN 0002-9394 • VOL. 197 JANUARY 2019

CONTENTS

PERSPECTIVE

- **98 Magrabi ICO Cameroon Eye Institute, Yaoundé, Cameroon: Ophthalmology subspecialty patient care and training center in Central Africa.** *Akef El-Maghraby, Amin elMaghraby, Mutasim Alireza, Daniel E. Etya'ale, William C. Felch Jr, Tamer Makary, Henry E. Nkumbe, David E.I. Pyott, Serge Resnikoff, Alfred Sommer, Bruce E. Spivey, Bradley R. Straatsma, and Hugh R. Taylor*

In a global region with world-high prevalence of functional vision impairment and blindness, the Magrabi ICO Cameroon Eye Institute, Yaoundé, Cameroon, was established as an ophthalmology subspecialty patient care center for all in need and as a training center for ophthalmologists and allied personnel.

ORIGINAL ARTICLES

- **1 Avoiding hyperopic surprises after Descemet membrane endothelial keratoplasty in Fuchs dystrophy eyes by assessing corneal shape.** *Marianne Fritz, Viviane Grewing, Daniel Böhlinger, Thabo Lapp, Philip Maier, Thomas Reinhard, and Katrin Wacker*

“Hyperopic surprises” after combined Descemet membrane endothelial keratoplasty and cataract surgery are common. This study demonstrates that specifically eyes with an oblate cornea (positive Q value on Scheimpflug imaging) have a 3 times increased risk of hyperopia. To improve refractive outcomes, these corneas should be considered for additional power at the intraocular lens level.

- **7 Enhanced ectasia detection using corneal tomography and biomechanics.** *José Ferreira-Mendes, Bernardo T. Lopes, Fernando Faria-Correira, Marcella Q. Salomão, Sandra Rodrigues-Barros, and Renato Ambrósio Jr*

This study provides external validation of the Tomographic and Biomechanical Index (TBI), a novel parameter that combines Scheimpflug-based corneal tomography and biomechanics, for enhancing ectasia detection.

- **17 Moraxella keratitis: Analysis of risk factors, clinical characteristics, management, and treatment outcomes.** *Asad F. Durrani, Samuel C. Faith, Regis P. Kowalski, Marco Yu, Eric Romanowski, Robert Shanks, Deepinder Dhaliwal, and Vishal Jhanji*

The occurrence of *Moraxella* keratitis in this study was associated with poor ocular surface and a history of previous ocular surgery. *Moraxella* isolates were susceptible to fluoroquinolones and aminoglycosides.

- **23 Influence of age, sex, and generation on physician payments and clinical activity in Ontario, Canada: An age-period-cohort analysis.** *Yvonne M. Buys, Mayilee Canizares, Tina Felfeli, and Yaping Jin*

Physician billings may be a poor surrogate for work productivity, as illustrated by more recent generational cohorts having higher payments despite fewer numbers of patient visits and, for ophthalmology, fewer distinct patients. Throughout the study period, male physicians had higher payments than female physicians; after adjusting for number of visits and distinct patients, this difference no longer existed for family physicians; however, it still remained significant, albeit reduced, for all physicians and ophthalmologists.

- **36 Adaptation to brightness perception in patients implanted with a small aperture.** *Silvestre Manzanera, Kyle Webb, and Pablo Artal*

Patients implanted with the small-aperture corneal inlay exhibited an enhanced brightness perception with the eye

AJO®

AMERICAN JOURNAL OF OPHTHALMOLOGY®

ISSN 0002-9394 • VOL. 197 JANUARY 2019

CONTENTS

Continued from page iii

implanted in comparison with their untreated fellow eye. This is probably owing to a neural adaptation process and could explain a reported equalization of brightness between eyes in patients implanted with unilateral inlays.

• **45 What is the amount of visual field loss associated with disability in glaucoma?** *Alessandro A. Jammal, Nara G. Ogata, Fábio B. Daga, Ricardo Y. Abe, Vital P. Costa, and Felipe A. Medeiros*

This cross-sectional study applied a latent class analysis approach to categorize patient-reported outcomes in glaucoma to investigate the amount of visual field loss associated with disability in the disease. The results showed that even relatively mild visual field damage, if occurring in the better eye, may already be associated with significant patient-reported disability.

• **53 Diagnosis, clinical presentations, and outcomes of *Nocardia* endophthalmitis.** *Vivek Pravin Dave, Avinash Pathengay, Savitri Sharma, N. Naveen, Soumyava Basu, Rajeev R. Pappuru, and Taraprasad Das*

The present study describes the clinical presentations and management outcomes of endophthalmitis attributable to an uncommon bacteria, *Nocardia*. The observations in the article will help the reader to suspect *Nocardia* as the etiology when the presentation shows fluffy nodular exudates in the anterior chamber with endophthalmitis. The role of amikacin as a possible antibiotic of choice is discussed.

• **59 Dual-augmented transposition of vertical recti in chronic abducens palsy.** *Mohamed F. Farid*

This article describes the results of a new modification of augmenting vertical recti transposition in treatment of chronic abducens palsy. In this dual augmentation, a vertical rectus and lateral rectus myopexy suture was

coupled with a posterior scleral fixation suture. This dual technique has resulted in significant correction of esotropia and head turn and limited abduction. Combined medial rectus recession was associated with a risk of induced limitation of adduction.

• **65 Choroideremia gene therapy phase 2 clinical trial: 24-month results.** *Byron L. Lam, Janet L. Davis, Ninel Z. Gregori, Robert E. MacLaren, Aniz Girach, Jennifer D. Verriotto, Belen Rodriguez, Potyra R. Rosa, Xiaojun Zhang, and William J. Feuer*

This paper reports the final 24-month data from the first U.S. phase 2 high-dose gene therapy clinical trial in choroideremia. In contrast to previous choroideremia trials, automated injection system with intraoperative real-time microscope-integrated optical coherence tomography was used to accurately deliver the AAV-REP1 vector subretinally and to avoid complications. No serious adverse event occurred. Sustained improvement or maintenance of best-corrected visual acuity (BCVA) was demonstrated, indicating that BCVA is a viable outcome measure for future trials in advanced choroideremia.

• **74 A population-based, case-control evaluation of the association between hormonal contraceptives and idiopathic intracranial hypertension.** *Khin P. Kilgore, Michael S. Lee, Jacqueline A. Leavitt, Ryan D. Frank, Collin M. McClelland, and John J. Chen*

Hormonal contraceptives have been anecdotally associated with idiopathic intracranial hypertension (IIH) for many years. This population-based, case-control retrospective study found no association between hormonal contraceptives and IIH, suggesting providers may not have to stop such medications in their IIH patients.

AMERICAN JOURNAL OF OPHTHALMOLOGY®

ISSN 0002-9394 • VOL. 197 JANUARY 2019

CONTENTS

Continued from page iv

• **80 Causes of visual impairment and blindness in the 2006 and 2014 Nine-Province surveys in rural China.**

Jialiang Zhao, Xiao Xu, Leon B. Ellwein, Huaijin Guan, Mingguang He, Ping Liu, Jianhua Lv, Xunlun Sheng, Peizeng Yang, Jinglin Yi, Ning Cai, Mei Yang, Miaomiao Chen, LiangLiang Deng, Xiaohu Ding, Liping Du, Fengrong Li, Xian Liu, Hong Lu, Changliang Shao, Junwei Wang, Wenjuan Zhuang, and Lei An

Population-based surveys of adults 50 years of age or older were conducted in 9 rural counties/districts in 9 provinces in China in 2006 and 2014. Visual impairment was caused primarily by uncorrected refractive error and unoperated cataract, whereas unoperated cataract and retinal diseases were the primary causes of blindness.

• **88 Repeatability and reproducibility of corneal epithelial thickness mapping with spectral-domain optical coherence tomography in normal and diseased cornea eyes.** *Ruti Sella, Linda M. Zangwill, Robert N. Weinreb, and Natalie A. Afshari*

This manuscript evaluates the performance of the epithelial thickness mapping of the iVue spectral-domain optical coherence tomography device (Optovue Inc, Fremont, California, USA) in normal and diseased cornea eyes, and shows good corneal epithelial thickness mapping repeatability and reproducibility across the different groups in all map zones. The data from this article were the basis for the iVue epithelial thickness mapping U.S. Food and Drug Administration submission and its recent approval.

• **105 Clinical and ophthalmic factors associated with the severity of sickle cell retinopathy.** *Xiangyun J. Duan, Sophie Lanzkron, Marguerite O. Linz, Caroline Ewing, Jiangxia Wang, and Adrienne W. Scott*

Factors influencing the incidence and progression of sickle cell retinopathy are poorly understood. This retrospective chart review evaluates associations between retinopathy

and treatments for, and systemic manifestations, of sickle cell disease. The results confirm that male sex and older age are associated with development of retinopathy. Further, results suggest that chronic transfusion therapy may reduce rates of surgical intervention for sickle cell retinopathy and that visually symptomatic patients should be referred for urgent retinal evaluation.

• **114 Auckland Cataract Study III: Refining preoperative assessment with cataract risk stratification to reduce intraoperative complications.** *Jina V. Han, Dipika V. Patel, Henry B. Wallace, Bia Z. Kim, Trevor Sherwin, and Charles N.J. McGhee*

This prospective cohort study of 500 eyes assesses the intraoperative complications of phacoemulsification surgery in a public teaching hospital setting using a modified preoperative risk stratification system (New Zealand Cataract Risk Stratification). The scoring system aids in identification of higher-risk cataract cases, provides objective guidance for appropriate case-to-surgeon allocation, and may increase surgeon awareness of risk factors. Following implementation of risk stratification, a 40% reduction of intraoperative complications was observed.

• **121 Long-term outcome of Nd:YAG laser posterior capsulotomy in children: Procedural strategies and visual outcome.** *Se Hyun Choi, Yong Dae Kim, Young Suk Yu, Mee Kum Kim, and Hyuk Jin Choi*

A high success rate of Nd:YAG laser posterior capsulotomy can be achieved in pediatric patients with posterior capsular opacity by choosing compliant patients and training the patients prior to the laser treatment (83.9% with the single attempt and 93.5% with the second attempt). Best-corrected visual acuity significantly improved after the laser treatment and was maintained for 5 years.

AMERICAN JOURNAL OF OPHTHALMOLOGY®

ISSN 0002-9394 • VOL. 197 JANUARY 2019

CONTENTS

Continued from page v

- **128 Trends in and predictors of depression among participants in the Collaborative Initial Glaucoma Treatment Study (CIGTS).** *David C. Musch, Leslie M. Niziol, Nancy K. Janz, and Brenda W. Gillespie*

This cohort study of the 607 Collaborative Initial Glaucoma Treatment Study participants evaluated their self-reported depressive symptoms from the time of their glaucoma diagnosis through up to 9 years of treatment. Depressive symptoms present after being informed of their diagnosis decreased substantially after 1 year of treatment, and modestly thereafter. Participants who were younger, female, and less educated and those with worse vision-related quality of life were more likely to report depressive symptoms.

- **136 A randomized controlled double-masked study of transdermal androgen in dry eye patients associated with androgen deficiency.** *Sumet Supalaset, Napaporn Tananuwat, Saipin Pongsatha, Winai Chaidaroon, and Somsanguan Ausayakhun*

This randomized controlled trial investigated the efficacy, safety, and quality of life (QOL) of transdermal androgen in the treatment of dry eye associated with androgen deficiency. During a 4-week treatment, transdermal androgen was effective in relieving symptoms and signs of dry eye as well as improving QOL. There were no serious adverse events.

- **145 Fluorometholone 0.1% as ancillary therapy for trachomatous trichiasis surgery: Randomized clinical trial.** *John H. Kempen, Redda Tekle-Haimanot, Lelisa Hunduma, Menilik Alemayehu, Maxwell Pistilli, Aida Abashawl, Scott D. Lawrence, and Wondu Alemayehu*

This randomized, placebo-controlled, double-masked parallel dose-ranging clinical trial assessed 3 doses of fluorometholone 0.1% vs placebo as adjunctive therapy with trachomatous trichiasis (TT) surgery. Adverse effects of therapy were minimal, with 1 instance of intraocular

pressure ≥ 30 mm Hg (no sequelae) and no increase in cataract gradings. Postoperative TT occurred about one-third less often in the fluorometholone groups than the placebo group. Fluorometholone 0.1% is potentially safe and effective; these results should be confirmed in a full-scale trial.

- **156 Conbercept for treatment of neovascular age-related macular degeneration: Results of the randomized phase 3 PHOENIX study.** *Kun Liu, Yanping Song, Gezhi Xu, Jian Ye, Zhifeng Wu, Xiaoling Liu, Xiaoguang Dong, Mingzhi Zhang, Yiqiao Xing, Shaoping Zhu, Xia Chen, Yinchun Shen, Hengye Huang, Liyun Yu, Zunhong Ke, Philip J. Rosenfeld, Peter K. Kaiser, Guishuang Ying, Xiaodong Sun, and Xun Xu, for the PHOENIX Study Group*
- Conbercept is a novel anti-VEGF drug with China's own independent intellectual property rights and was recently given permission to begin phase III clinical trials in the United States by the FDA without repeating the phase II trials. With distinctive molecular design, it was developed to target neovascular ocular diseases with potentially less-frequent treatment. The PHOENIX study was the first randomized controlled trial demonstrating conbercept as an effective novel anti-VEGF drug with decreased injection frequency.

AOS THESIS

- **168 Are risk factors for growth of choroidal nevi associated with malignant transformation? Assessment with a validated genomic biomarker.** *J. William Harbour, Manuel Paez-Escamilla, Louis Cai, Scott D. Walter, James J. Augsburger, and Zelia M. Correa*

None of the widely used choroidal nevus risk factors for tumor growth, nor documented growth itself, is pathognomonic of malignant transformation as defined by class 2 gene expression profile. Patient age and tumor thickness may be helpful for identifying small choroidal melanocytic

AMERICAN JOURNAL OF OPHTHALMOLOGY®

ISSN 0002-9394 • VOL. 197 JANUARY 2019

CONTENTS

Continued from page vi

tumors that are more likely to have the class 2 profile. Observation for growth prior to treatment continues to be reasonable for most patients with suspicious choroidal nevi.

CORRESPONDENCE

• 180 **Characteristics of neovascularization in early stages of proliferative diabetic retinopathy by optical coherence tomography angiography.** *Neha Chowdhary, Ankita Shrivastav, Vikram Vinayak Koundanya, Rahul Mayor, Shalini Singh, and Manisha Agarwal* • 180 **Reply.** *Jiandong Pan, Ding Chen, Xiaoling Yang, Ruitao Zou, Kuo Zhao, Dan Cheng, Shenghai Huang, Tingye Zhou, Ye Yang, and Feng Chen* • 181 **Elastin content and distribution in**

endothelial keratoplasty tissue determines direction of scrolling. *Philip N. Lewis, Tomas L. White, Eleanor M. Feneck, Robert D. Young, and Keith M. Meek* • 182 **Reply.** *Imran Mohammed, Andrew Ross, John O. Britton, Dalia G. Said, and Harminder S. Dua* • 183 **Ellipsoid zone change according to glaucoma-stage advancement.** *Omar A. Mahroo, Anthony P. Khawaja, and Pearse A. Keane* • 183 **Reply.** *Ahnul Ha, Young Kook Kim, Jin Wook Jeoung, and Ki Ho Park* • 184 **Randomized, controlled, phase 2 trial of povidone-iodine/dexamethasone ophthalmic suspension for treatment of adenoviral conjunctivitis.** *Adnan Cinal* • 184 **Reply.** *Jay S. Pepose, Arjun Ahuja, Wenlei Liu, Abhijit Narvekar, and Reza Haque*

CLASSIFIEDS _____ I

EDITORIAL OFFICE

SARAH L. DUNCAN POWERS, *Managing Editor*

Full text articles and new content alerts can be found online at <https://www.ajo.com> and <https://www.sciencedirect.com/journal/american-journal-of-ophthalmology>.



0002-9394(201901)197:C;1-J