

# Journal Highlights



CONTENT  
AVAILABLE

## NEW FINDINGS FROM *OPHTHALMOLOGY*, *AJO*, AND *JAMA OPTHALMOLOGY*

### *Ophthalmology*

#### **Pazopanib Eyedrops for Choroidal Neovascularization**

*Ophthalmology*

Published online Nov. 25, 2014

**C**saky et al. evaluated whether daily-dosed pazopanib eyedrops could maintain or possibly improve vision while reducing the continued need for intravitreal ranibizumab in patients with active subfoveal choroidal neovascularization secondary to age-related macular degeneration. They found that the drops had no treatment benefit beyond that obtained from dosing with intravitreal ranibizumab alone.

For this study, 510 patients were randomized to one of four treatment groups: placebo eyedrops instilled four times per day; pazopanib 5 mg/mL drops instilled three or four times per day; pazopanib 10 mg/mL drops instilled two, three, or four times per day; or an intravitreal injection of ranibizumab given once every four weeks. In addition, open-label ranibizumab was administered to all groups as needed.

At the one-year mark, treatment with the pazopanib eyedrops was found to be safe and well tolerated. However, their use neither reduced the

number of as-needed ranibizumab injections nor provided added anatomic or visual acuity benefits compared with the ranibizumab-only group.

#### **Choroidal Melanoma Recurrence After Transpupillary Thermotherapy**

March *Ophthalmology*

**M**ashayeki et al. evaluated the long-term outcome of patients with small choroidal melanomas treated with transpupillary thermotherapy (TTT). They found a direct correlation between a larger number of high-risk tumor features and higher rates of tumor recurrence after TTT treatment. As a result, they recommended that small choroidal melanomas with multiple risk factors be treated with other measures.

For this retrospective review, the researchers evaluated 391 patients

treated between 1995 and 2012 at Wills Eye Hospital (mean follow-up, 82 months). Patients were analyzed by date of treatment, with 311 treated from 1995 to 2000 and 80 treated from 2001 to 2012. The two groups had similar demographic features, but the latter group had a lower rate of ocular symptoms (27 percent) than did the former (56 percent).

Tumor recurrence rates at three,

five, and 10 years were 19.1 percent, 28.7 percent, and 42.1 percent, respectively, for those treated from 1995 to 2000, while recurrence rates were 8.6 percent, 11.4 percent, and 14.9 percent, respectively, for those treated from 2001 to 2012. However, when recurrence rates were analyzed by tumor feature, a different pattern emerged. The 10-year recurrence rate was 18 percent in those with one or two risk factors, 35 percent in those with three to five risk factors, and 55 percent in those with six or seven risk factors.

On multivariate analysis, features predictive of tumor recurrence included presence of symptoms, shorter distance between the tumor and the optic disc, subretinal fluid, thickness of residual tumor scar, and elevation of residual tumor scar. The presence of orange pigment before TTT and extraocular tumor extension were predictive of tumor metastasis. The only factor predictive of extraocular tumor extension was intraocular tumor recurrence after additional TTT treatment.

The researchers concluded that primary TTT of high-risk small choroidal melanocytic lesions should be performed cautiously. Moreover, patients who receive TTT for high-risk lesions should be counseled regarding the risk of vision loss, the need for long-term observation, and the possible need for more treatment, ranging from additional TTT to enucleation.



## Overnight Orthokeratology for Myopic Children

March *Ophthalmology*

**S**warbrick et al. investigated the effect of overnight orthokeratology (OK) contact lens wear on axial length growth in East Asian children with progressive myopia. They found that the overnight use of the OK lens was more effective at inhibiting axial eye growth and myopia progression than daytime wear of a conventional rigid gas-permeable (GP) lens.

For this prospective study, the researchers employed a contralateral-eye crossover design. The 26 children in the study were fitted with an OK lens in one eye for overnight wear and a GP lens in the contralateral eye for daytime wear. This protocol was followed for six months. After a two-week wash-out period, the lens/eye combination was reversed, and the lenses were worn for an additional six months.

GP lens-wearing eyes showed progressive axial length growth throughout the study. After the first six months of lens wear, axial length had increased by  $0.04 \pm 0.06$  mm in the GP eyes but did not change in the OK eyes. In the second six-month period, OK eyes again showed no change in axial length, while axial length increased by  $0.09 \pm 0.08$  mm in the GP eyes.

*American Journal of Ophthalmology*

## Therapeutic Decisions in Intermediate and Posterior Uveitis

February *AJO*

**O**zzello and Palestine evaluated the physician decision-making process among uveitis and retina specialists in the treatment of intermediate and posterior uveitis. They found that cost, prior authorization from patients' insurance providers, subspecialty practice, and pregnancy concerns all had a significant impact on the choice of therapy.

A total of 934 uveitis and retina specialists were surveyed via e-mail regarding their choice in long-term therapy for three hypothetical patients

with uveitic conditions: Behçet disease, birdshot retinochoroiditis, and intermediate uveitis. Respondents were asked to select first- and second-choice therapies and then reselect first and second choices assuming 1) costs of all options were the same for the patient, and 2) there would be no issues with insurance prior to treatment authorization. They were also asked for their treatment preferences if the patient desired a pregnancy.

Out of the 106 respondents who completed the survey, 44 were uveitis specialists and 62 were retina specialists. Cost and prior authorization affected the therapy choices of uveitis specialists treating ocular Behçet disease. In addition, when cost and prior authorization were equalized, the two specialist groups differed in their first choice in therapy for Behçet disease and pars planitis, with uveitis and retina specialists choosing a biologic agent and immunomodulator, respectively, for Behçet disease and an immunomodulator and local implant, respectively, for pars planitis. When pregnancy was a consideration, both uveitis and retina specialists changed their therapeutic choices for intermediate uveitis.

## Circadian Macular Volume Changes in the Choroid

February *AJO*

**S**eidel et al. investigated the circadian fluctuation of the macular choroidal volume in healthy adults by means of spectral-domain optical coherence tomography (SD-OCT) and found higher values at night and lower values during the day.

In this prospective, observational case series, 30 eyes of 15 patients with a median age of 26 years underwent SD-OCT scans to measure macular choroidal volume every three hours over a 24-hour period. The mean ocular perfusion pressure was calculated for each eye at each of the eight time points. The circadian fluctuation of the choroidal volume and its association with axial length, mean ocular perfusion pressure, and intraocular

pressure were then assessed using a linear mixed model.

The researchers found that macular choroidal volume was lowest at midday and highest at 3 a.m. Of all factors tested, only mean ocular perfusion pressure showed a significant association with volume fluctuation.

## Predicting Uveitis in Children With Juvenile Idiopathic Arthritis

February *AJO*

**H**aasnoot et al. analyzed inflammatory parameters as possible predictors for the development of uveitis in children with juvenile idiopathic arthritis. They found that elevated erythrocyte sedimentation rates (ESRs) were a significant predictor for the occurrence of chronic anterior uveitis in these patients.

This retrospective cohort study included 358 children with oligoarthritis and rheumatoid factor–negative polyarthritis. The researchers assessed the following for their predictive value regarding onset of uveitis: ESRs, C-reactive protein, leukocyte count, the presence of antinuclear antibodies and HLA-B27, age of onset of juvenile idiopathic arthritis, and sex.

One hundred forty-seven patients (41 percent) were diagnosed with chronic anterior uveitis. According to univariate analyses, younger age at onset, the presence of antinuclear antibodies, and elevated ESR appeared to be predictive factors. According to multivariate analysis, younger age and elevated ESR appeared to be predictive.

## Use of Smartphone Ophthalmoscopy for Grading Diabetic Retinopathy

February *AJO*

**R**usso et al. compared the accuracy and reliability of smartphone ophthalmoscopy and slit-lamp biomicroscopy in grading diabetic retinopathy (DR) and found considerable agreement between the two methods.

This comparative clinical study included 120 patients (240 eyes) with type 1 or type 2 diabetes. After pupil dilation, all patients first underwent

smartphone ophthalmoscopy, followed by dilated retinal slit-lamp examination, to grade DR based on a five-step scale.

Overall exact agreement between the two methods was observed in 85 percent of patients. Agreement within one step was observed in 97 percent. Compared with biomicroscopy, the sensitivity and specificity of smartphone ophthalmoscopy for the detection of clinically significant macular edema were 81 percent and 98 percent, respectively. Smartphone ophthalmoscopy and biomicroscopy could not be used to grade DR and examine the fundus in 3 percent and 13 percent of patients, respectively, because of cataract and/or small pupil diameter.

The researchers concluded that the portability, affordability, and connectivity of a smartphone ophthalmoscope make it a promising device for community screening programs.

### **JAMA Ophthalmology**

#### **Amblyopia and Speech Perception**

January *JAMA Ophthalmology*

**B**urgmeier et al. investigated the association of amblyopia with abnormal visual–auditory speech integration and found that children with a history of amblyopia do indeed have impaired speech perception.

For this observational study, the researchers examined 33 children at least 3 years of age with no history of neurologic or hearing disorders. Mean follow-up was four years. Twenty-four children had a history of amblyopia in one eye, with a visual acuity of at least 20/20 in the nonamblyopic eye. Nine controls with a visual acuity of 20/20 in both eyes were also recruited. All participants were presented with a video demonstrating the McGurk effect. When an audio track playing the sound “pa” accompanies a simultaneous video track of a person articulating a “ka” sound, normal visual–auditory integration produces the perception of a fusion “ta” sound. Participants were asked to report which of the three sounds was perceived. The main out-

come measure was the prevalence of the fusion “ta” sound.

The McGurk effect was perceived by 11 of the 24 children with amblyopia (45.8 percent) and all nine controls. In addition, the effect was perceived by all children with amblyopia that was resolved by five years of age and by all children whose onset of amblyopia occurred at or after five years of age. Of the 16 children with amblyopia that was unresolved by five years of age, only three (18.8 percent) perceived the McGurk effect.

#### **Compounded Bevacizumab for Intravitreal Injection**

January *JAMA Ophthalmology*

**B**evacizumab acquired from compounding or repackaging pharmacies for intravitreal injection may cause infectious and noninfectious inflammation. In addition to safety issues, the drug itself may have variable efficacy associated with product aliquoting, handling, and distribution. In this study, Yannuzzi et al. investigated bevacizumab obtained from compounding pharmacies and found that despite variations in protein concentrations, these preparations were negative for microbial contaminants and endotoxin.

This study included 21 compounded samples of bevacizumab prepared from 11 locations in the United States. Main outcome measures were microbial culture growth, endotoxin levels, and quantity and binding affinity of protein in each sample. No microbial contamination or endotoxin was detected in any of the samples. However, 17 (81 percent) had lower protein concentrations compared with bevacizumab acquired directly from Genentech. In three of the 10 compounding pharmacies where more than one sample was available, there were also substantial differences in the protein concentration between samples from the same pharmacy.

The researchers noted that the clinical implications of this variability remain uncertain and should be the focus of future investigations.

#### **Injury Risk in Elderly Patients With Vision Disorders**

January *JAMA Ophthalmology*

**I**n this retrospective study, Pineles et al. looked at the association between disorders of binocular vision and musculoskeletal injuries, fractures, and falls in the elderly. They found that people 65 years and older with strabismus, amblyopia, diplopia, and nystagmus are indeed at a higher risk of sustaining such an injury.

The researchers analyzed a random sample of Medicare Part B fee-for-service claims for beneficiaries with binocular vision disorders who were 65 years or older with at least one year of Medicare Part B enrollment. The main outcome measure was the 10-year prevalence of musculoskeletal injury, fracture, or fall in individuals with and without a vision disorder. Analyses were adjusted for age, sex, race/ethnicity, region of residence, systemic and ocular comorbidities, and duration of follow-up.

In total, 2,196,881 Medicare beneficiaries were identified. Of these, 99,525 (4.5 percent) had at least one reported disorder of binocular vision, including strabismus (2.3 percent), diplopia (2.2 percent), amblyopia (0.9 percent), and nystagmus (0.2 percent). During the study period, 1,272,948 patients (57.9 percent) had documented musculoskeletal injuries, fractures, or falls. The unadjusted odds ratio for the association between the disorders and any of the three injury types was 2.23; the adjusted odds ratio was 1.27.

The researchers said the findings are a step toward developing strategies to prevent these injuries.

---

*Ophthalmology summaries are written by Jean Shaw and edited by Susan M. MacDonald, MD. American Journal of Ophthalmology summaries are edited by Thomas J. Liesegang, MD. JAMA Ophthalmology summaries are based on authors' abstracts as edited by senior editor(s).*



**MORE ONLINE.** For this month's Roundup of Other Journals, read this article at [www.eyenet.org](http://www.eyenet.org).