

Journal Highlights

NEW FINDINGS FROM *OPHTHALMOLOGY*, *AJO* AND *ARCHIVES*

Ophthalmology

Dyslipidemia in Diabetic Macular Edema

April's *Ophthalmology*

Previously, the Early Treatment Diabetic Retinopathy Study clinically classified diabetic macular edema into two forms according to their prognostic value: clinically significant macular edema (CSME) and nonclinically significant macular edema (non-CSME). In this population-based study involving 1,414 participants, **Raman et al.** addressed the influence of dyslipidemia on CSME vs. non-CSME—discovering different metabolic profiles in the two groups.

Among those who showed evidence of diabetic retinopathy (255 out of 1,414 participants), the prevalence of overall diabetic macular edema was 31.76 percent, with 25.49 percent showing non-CSME and 6.27 percent showing CSME. Three variables were associated with CSME: high serum total cholesterol, glycosylated hemoglobin of greater than 8 and the presence of microalbuminuria. In contrast, high serum LDL cholesterol, high serum non-HDL cholesterol and high cholesterol ratio were associated with non-CSME.

The researchers call for further exploration of the role of different subclasses of lipoproteins in non-CSME and CSME, as this may help identify the appropriate time to start lipid-lowering drugs in diabetic macular edema.

Recovery With Boston Type I Keratoprosthesis

April's *Ophthalmology*

The Boston Type I keratoprosthesis device is an alternative for patients with corneal disease who have experienced multiple corneal graft failures due to immunologic rejection and other factors. In a retrospective, multicenter case series involving 122 patients (126 eyes) with corneal diseases who were not eligible to receive donor corneal transplants, **Dunlap et al.** found that the Boston keratoprosthesis provides rapid visual recovery with excellent uncorrected acuity following surgery.

Results showed that 104 eyes (82.5 percent) experienced improved vision within six months of surgery. About a quarter of the patients (31 eyes of 126) achieved BCVA within one week of surgery. The vast majority of the study patients achieved a plano refractive error within three months, and residual

astigmatism was almost nonexistent.

While penetrating keratoplasty remains the surgery of choice for patients undergoing their first corneal surgeries, the researchers call for studies comparing penetrating keratoplasty to Boston keratoprosthesis in eyes with a history of graft failure.

Floppy Eyelid Syndrome, Sleep Apnea and Keratoconus

April's *Ophthalmology*

First described in 1981, floppy eyelid syndrome (FES) is characterized by very elastic upper lids that become easily distorted with minimal lateral traction. In a case control study, **Ezra et al.** found that FES appears to be strongly associated with obstructive sleep apnea–hypopnea syndrome (OSAHS) and keratoconus.

The study involved 102 FES patients and a control group of patients from a diabetic retinopathy clinic who were matched 1 to 1 in terms of age, body mass index and sex. The authors found significant associations between FES and both OSAHS and keratoconus. They also found significant associations between FES and lash ptosis, dermatochalasis, upper lid medial canthal laxity, upper lid distraction, palpebral aperture and levator function. While FES was more common in obese males in their 60s, the condition affected patients of both sexes with a significant range of ages and body mass indexes.



The authors urge clinicians to keep in mind this strong association between FES and OSAHS and keratoconus when determining course of treatment.

American Journal of Ophthalmology

Aspheric Tecnis Multifocal IOL

April's *AJO*

Packer et al. evaluated the safety and effectiveness of the aspheric diffractive Tecnis multifocal ZM900 IOL (Abbott Medical Optics) in a clinical evaluation.

Subjects underwent bilateral implantation with the Tecnis IOL or the CeeOn 911A monofocal IOL (Abbott Medical Optics) according to subject preference. One-year results were available for 244 eyes of 125 Tecnis IOL subjects and for 245 eyes of 123 CeeOn IOL subjects.

Mean distance visual acuities were statistically and clinically equivalent between the two groups. Mean binocular and monocular uncorrected and distance-corrected near visual acuities were significantly better for the Tecnis IOL group. A greater proportion of Tecnis IOL subjects achieved binocular combined visual acuities of 20/25 distance and 20/32 near. The Tecnis IOL group had better depth of focus, maintaining a mean of 20/40 or better for far, intermediate and near distances. Mean contrast sensitivity scores were lower for the Tecnis IOL group, but the differences were not considered clinically significant. Halos and night glare were more common in the Tecnis IOL group. Both reading acuity and speed

were significantly better for the Tecnis IOL group, as were the proportions of patients who achieved spectacle independence.

Ciliary Body Tumors and Ultrasound Biomicroscopy

April's *AJO*

Weisbrod et al. monitored the growth behavior of small ciliary body tumors by ultrasound biomicroscopy in a relatively large cohort of patients over an extended period. Ciliary body tumors smaller than 4 mm (within the penetration power of ultrasound biomicroscopy) were included.

Tumor height was assessed by ultrasound biomicroscopy, and growth was defined as an increase in height of at least 20 percent from baseline—as measured on two consecutive ultrasound biomicroscopy readings.

Forty-two patients were included in the study with a median follow-up of nine years. The median age was 59 years. Median initial tumor height was 2.05 mm and the overall mean rate of growth was 0.0014 mm per year. By five years after diagnosis, five tumors demonstrated at least 20 percent growth from baseline. By 10 years, nine tumors grew significantly. Overall, growth in height occurred in 10 tumors. The average time to growth was 6.7 years.

The authors conclude that most small tumors of the ciliary body show little growth over an extended period. Although most of these lesions can be managed conservatively, larger initial tumor thickness is a significant risk factor for growth, and long-term follow-up is required.

Bimatoprost in Patients With Glaucoma or Ocular Hypertension

April's *AJO*

Katz et al. evaluated the IOP-lowering efficacy and safety of ophthalmic formulations of bimatoprost 0.01 percent and 0.0125 percent—compared with bimatoprost 0.03 percent—in a multicenter clinical trial.

Patients with glaucoma or ocular hypertension were randomized to receive once-daily bimatoprost 0.01 percent, bimatoprost 0.0125 percent or bimatoprost 0.03 percent for 12 months. The primary efficacy measure was IOP. Safety measures included adverse events and an objective assessment of conjunctival hyperemia.

Baseline mean IOPs were similar among treatment groups. Differences in mean IOP between the bimatoprost 0.01 percent or 0.0125 percent groups and the bimatoprost 0.03 percent group were less than 0.9 mmHg throughout follow-up. Bimatoprost 0.01 percent, but not bimatoprost 0.0125 percent, was equivalent in efficacy to bimatoprost 0.03 percent based on predetermined criteria. The overall incidence of treatment-related adverse events was significantly less in the bimatoprost 0.01 percent and bimatoprost 0.0125 percent groups than in the bimatoprost 0.03 percent group.

The percentage of patients with a moderate to severe increase from the baseline macroscopic hyperemia score was: bimatoprost 0.01 percent, 3.2 percent; bimatoprost 0.0125 percent, 9.0 percent; and bimatoprost 0.03 percent, 9.1 percent.

In this study, bimatoprost 0.01 percent was equivalent to bimatoprost 0.03 percent in lowering IOP throughout 12 months of treatment and demonstrated improved tolerability, including less frequent and severe conjunctival hyperemia. Bimatoprost 0.01 percent demonstrated a better benefit-to-risk ratio than bimatoprost 0.0125 percent.

Archives of Ophthalmology

Development of Choroidal Neovascularization

February's *Archives*

Albert et al. studied the progressive changes of intense cyclic-light-induced retinal degeneration and determined whether it results in choroidal neovascularization.

Albino rats were exposed to 12 hours of 3,000 lux cyclic light for one,

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three or six months. The light intensity is the same as that used to treat depression in humans.

Prior to euthanization, fundus examination, fundus photographs, fluorescein and indocyanine green angiography, and OCT evaluations were performed. Light-exposed animals were euthanized after one, three or six months for histopathological evaluation. Retinas were examined for the presence of 4-hydroxy-2-nonenal and nitrotyrosine modified proteins by immunofluorescence staining.

Chronic intense cyclic-light exposure resulted in retinal degeneration with loss of the outer segments of photoreceptors and development of subretinal pigment epithelium neovascularization after one month. Almost the entire outer nuclear layer was absent with the presence of CNV, which penetrated Bruch's membrane and extended into the outer retina after three months. All intense light-exposed animals showed an increased presence of 4-hydroxy-2-nonenal and nitrotyrosine staining. OCT and angiographic studies confirmed retinal thinning and leakiness of the newly formed blood vessels.

The authors conclude that albino rats develop progressive stages of retinal degeneration and CNV after chronic intense cyclic-light exposure,

allowing the detailed study of the pathogenesis and treatment of age-related macular degeneration.

Efficacy of Sustained Topical Dorzolamide Therapy

February's *Archives*

Genead et al. examined the efficacy of sustained topical therapy with dorzolamide hydrochloride 2 percent on visual acuity and cystic macular lesions in patients with juvenile onset X-linked retinoschisis.

Twenty-nine eyes of 15 patients received treatment with topical dorzolamide drops for four to 41 months. Among the 20 eyes that showed a degree of response to treatment, 15 eyes showed a sustained improvement throughout the follow-up period. In nine of the 29 eyes, there was no response to treatment. Twelve patients had improvement in BCVA by at least seven letters in at least one eye at the most recent follow-up visit. Ten patients showed a reduction in the central foveal zone thickness in at least one eye when compared with the pretreatment level.

The authors conclude that patients with juvenile onset X-linked retinoschisis have the potential to experience a beneficial effect from sustained treatment with dorzolamide 2 percent.

Rate of Endophthalmitis After Cataract Surgery

February's *Archives*

Freeman et al. examined the incidence rate of endophthalmitis after cataract surgery over a 10-year period in the province of Quebec. Deidentified data were obtained from an outpatient physician billing database and an inpatient hospital discharge database. Endophthalmitis after cataract surgery was assumed if it occurred within 90 days of the cataract surgery.

After exclusions, 490,690 cataract surgeries were performed between 1996 and 2005. Within 90 days of cataract surgery, 754 cases of endophthalmitis occurred for an overall incidence rate of 1.5 per 1,000 surgeries. Factors associated with endophthalmitis included age greater than or equal to 85 years, male sex and region of cataract surgery.

Further research should be done to understand why certain patients and regions have higher risks of endophthalmitis after cataract surgery.

Ophthalmology summaries are written by Lori Baker Schena and edited by John Kerrison, MD. American Journal of Ophthalmology summaries are edited by Thomas J. Liesegang, MD. Archives of Ophthalmology summaries are written by the lead authors.

ROUNDUP OF OTHER JOURNALS

Prevalence of Narrow Angles in Chinese-Americans

Journal of Glaucoma
2009;18:578-581

After conducting a retrospective chart review, Seider et al. found that Chinese-American patients with glaucoma or glaucoma suspicion are at high relative risk for having narrow anterior chamber angles.

For this study, the investigators looked at charts from all Chinese-American patients seen in a comprehensive ophthalmologic clinic in the Chinatown district of San Francisco

in 2002. They found that 60 percent of Chinese-American eyes with glaucoma or glaucoma suspicion had gonioscopically narrow angles (Shaffer grade of less than 2 in three or more quadrants). Compared with open-angle patients in the study, those with narrow angles were significantly older. But the two groups were similar in terms of sex, refraction, IOP and cup-to-disc ratio.

The authors call for a cross-sectional, population-based analysis to further explore the anterior chamber angle characteristics of this Chinese-American population.

Melanoma Incidence and Stage Presentation

Archives of Dermatology
2009;145:1369-1374

Hu et al. have found a rising melanoma incidence among white non-Hispanics (WNHs) and white Hispanics (WH), with a disparity in melanoma stage at diagnosis.

This study included melanoma cases with known stage and race/ethnicity reported from 1990 to 2004. The melanoma incidence rates increased by 3 percent per year among WNH men, 3.6 percent among WNH women, 3.4

Coming in the next EyeNet

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percent among WH women and 0.9 percent among WH men. The incidence rates remained relatively stable among African-American men and women. In addition, both WHs and African-Americans had significantly more advanced melanoma at presentation.

The authors conclude that these data demonstrate the need to expand melanoma awareness and screening efforts to minorities. The authors note that there is a dearth of studies concerning the Hispanic population and melanoma given the fact that most cancer registries—including the National Cancer Institute's Surveillance, Epidemiology and End Results program—did not start categorizing data for "Hispanic" until the late 1990s. On the other hand, the Florida Cancer Data System has longitudinal data on Hispanics dating back to 1981. In addition, Florida is second among states for melanoma incidence and has one of the largest Hispanic populations of any U.S. state.

Structured Resident Curriculum Lowers Complication Rates

Journal of Cataract and Refractive Surgery 2009;35:1956–1960

Rogers et al. found a quantitative benefit in implementing a structured curriculum for ophthalmic residents. The research stems from the Accreditation Council for Graduate Medical Education mandate for competency-based models of residency education that requires external outcome measures to show quantitative improvement. In this retrospective study from the University of Iowa, the investigators compared sentinel surgical complications of cataract surgery (posterior capsule tear or vitreous loss) by ophthalmology residents before and after the introduction of the structured surgical curriculum.

Of the 823 surgical cases before the curriculum change (during academic years 1998 to 2003), there were 59 sentinel complications—a complication rate of 7.17 percent. After the curriculum change, there were 1,009 cases

with 38 sentinel complications—a complication rate of 3.77 percent. This reduction in the complication rate is statistically significant.

The authors conclude that a structured surgical curriculum—including an ophthalmic wet lab program in the first year and focused practice of the capsulorhexis during the second year of residency—can improve resident performance and reduce surgical complication rates.

Refractive Surgery Practices in Patients With HIV/AIDS

Journal of Cataract and Refractive Surgery 2010;36:153–160

What are the current practices of refractive surgeons who perform elective refractive surgery in patients with HIV or AIDS? To answer this question, Aref et al. conducted an anonymous Web-based survey by e-mailing members of the International Society of Refractive Surgery.

The investigators received a 25.4 percent response rate (285 of 1,123 surgeons). Of those who responded, 143 (50.2 percent) said they consider patients with HIV acceptable candidates for elective refractive surgery, and 35 (12.5 percent) indicated that patients with AIDS were acceptable candidates. Most of those responding who considered HIV or AIDS to be relative or absolute contraindications were concerned about potential postoperative keratitis. Respondents who did perform refractive surgery on this patient population took precautions, including performing unilateral surgery, scheduling the patient as the last of the day, wearing a double layer of gloves and evacuating the laser plume right after surgery.

Given the lack of consensus regarding elective refractive surgery in individuals with HIV and AIDS, the investigators call for formal research efforts to determine the refractive surgical outcomes in these patients.

Roundup of Other Journals is written by Lori Baker Schena and edited by Deepak P. Edward, MD.