

Journal Highlights

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

Ophthalmology

Characteristics of Medically Reversible Limbal Stem Cell Disease

October *Ophthalmology*

Kim et al. assessed the clinical features of—and management strategies used in—patients who had limbal stem cell (LSC) disease that was reversed with medical therapy. They also described a stepwise approach to treatment.

For this retrospective case series, the researchers reviewed the records of 15 patients (22 eyes) seen at three tertiary referral centers between 2007 and 2011. At presentation, the patients' mean age was 39 years (range, 22-57 years). Symptoms included ocular irritation, contact lens intolerance, and blurred or decreased vision. One clinical sign seen in all patients was progressive epitheliopathy with hazy, translucent epithelium extending centrally from the limbus. In addition, all patients had mild to moderate tear film dysfunction, reduced tear film break-up time, or both. The extent of limbal involvement varied from 60 to 360 degrees, and the superior quadrant of the limbus was the most common site of involvement.

Presumed causes for LSC disease in these patients included contact lens wear (13 eyes), contact lens wear in the setting of ocular rosacea (three eyes), and surface toxicity resulting from use

of glaucoma medications (two eyes). No causes were identified in the remaining four eyes.

Conservative management alone was enough to resolve the disease in four eyes. (This involved discontinuing contact lens wear and using preservative-free artificial tears.) Additional treatment was needed in the remaining 18 eyes, ranging from topical vitamin A, topical corticosteroids, topical cyclosporine, and punctal occlusion to oral doxycycline. All eyes achieved a stable ocular surface over a mean follow-up of 15 months (range, 4-60 months).

Rituximab Effective for Refractory Scleritis

October *Ophthalmology*

In a prospective phase 1/2 clinical trial, Suhler et al. evaluated the use of rituximab in the treatment of refractory noninfectious scleritis. They found that the drug was moderately effective and well tolerated.

The trial enrolled 12 patients who had noninfectious scleritis that did not respond to treatment with systemic corticosteroids and one or more additional systemic immunosuppressants. The patients were randomly assigned to receive 500 or 1,000 mg of ritux-

imab on the first and 15th day of the study. Those who initially responded but had breakthrough inflammation after study week 24 were offered two additional infusions of 1,000 mg rituximab.

Primary outcomes were reduction of inflammation and reduction in corticosteroid dose by 50 percent or more. Secondary outcomes included improvement in visual acuity and reduction in pain.

Of the 12 patients, nine met the inflammation endpoint before week 24, and four were able to reduce their corticosteroid dose. However, seven of the nine initial responders required a second cycle of infusions. Seven of the 12 patients noted a significant reduction in pain and/or analgesic use.

Overall, treatment was well tolerated, with minimal side effects. However, three patients were classified as study failures; one of the three withdrew after the first infusion due to a severe uveitis flare.

This is the first prospective interventional study of rituximab in the treatment of scleritis, the researchers noted. They added that although conclusions are limited by the study's small size, there were no notable differences in efficacy, duration of effect, B-cell depletion, or toxicity between treatment groups.



Topical NSAIDs for Macular Edema Prophylaxis

October *Ophthalmology*

In a meta-analysis of 15 randomized trials, Kessel et al. compared the effectiveness of topical steroids and topical nonsteroidal anti-inflammatory drugs (NSAIDs) in preventing cystoid macular edema (CME) after uncomplicated cataract surgery. They found that topical NSAIDs were more effective than even potent topical steroids for CME prophylaxis.

When patients were evaluated by fluorescein angiography or optical coherence tomography at four to five weeks after cataract surgery, CME was six to seven times more prevalent in patients randomized to topical steroids, the researchers found. There was no statistically significant difference in the number of adverse events and no significant difference in visual acuity between the steroid and NSAID groups at the end of treatment.

Five different NSAIDs were used in the included studies (diclofenac, ketorolac, bromfenac, nepafenac, and indomethacin); this meta-analysis was not designed to determine which NSAID was most effective. In addition, although this study did not evaluate the timing of treatment, it appeared that the risk of CME was lower if NSAIDs were administered before cataract surgery. Thus, it seems advisable to start NSAIDs one to three days before surgery, the researchers concluded.

American Journal of Ophthalmology

Anti-VEGF Treatment Patterns Among Medicare Beneficiaries

September *AJO*

Rad et al. examined the use of anti-vascular endothelial growth factor (VEGF) therapy in clinical practice among patients with neovascular age-related macular degeneration (AMD) in a retrospective cohort study. The authors found that, among Medicare fee-for-service beneficiaries initiating treatment between 2006 and 2010, real-world U.S. practice patterns

in anti-VEGF therapy for patients with neovascular AMD do not reflect optimal treatment strategies suggested by recent clinical trial evidence.

From the records of 459,237 Medicare beneficiaries, the authors identified anti-VEGF treatment using claims for intravitreal injections of anti-VEGF medications with a supporting diagnosis of neovascular AMD. They used the cumulative incidence function to calculate the frequency of anti-VEGF treatments and treatment visits for neovascular AMD per treated eye in the first and second year after the initial anti-VEGF injection. The mean number of injections was 4.3 in the first year, with 58 percent of patients receiving 1 to 4 injections, 20 percent receiving 5 to 6 injections, and 22 percent receiving 7 or more injections. Of patients who received 1 to 4 injections during the first year, 70 percent received no injections, and 24 percent received 1 to 4 injections, during the second year. Among patients who received 7 or more injections during the first year, 31 percent received a comparable number during the second year, and 12 percent received no injections. Rates of anti-VEGF discontinuation were 57 percent within 12 months and 71 percent within 24 months.

Bleb Revision for Hypotony Maculopathy Following Trabeculectomy

September *AJO*

In a noncomparative retrospective case series, Bitrian et al. examined a surgical method of bleb revision for hypotony maculopathy following trabeculectomy. The aims of the study were to evaluate the long-term efficacy of this method and to define the relationship between the duration of hypotony maculopathy and visual acuity (VA) outcomes.

Medical records of 33 patients with hypotony maculopathy who underwent primary bleb revision between June 1999 and September 2012 by a single surgeon were reviewed. Hypotony maculopathy was characterized by reduced VA and the presence of retinal striae and macular edema

in the setting of decreased IOP after glaucoma filtering surgery. Thirty-three eyes of 33 patients were followed for 4.68 ± 3.56 years. Mean duration of hypotony maculopathy was 4.98 ± 8.93 months. LogMAR VA improved from 0.78 ± 0.40 at baseline to 0.34 ± 0.34 six months after bleb revision, and was 0.45 ± 0.55 12 months after bleb revision. Mean IOP increased from 3.51 ± 2.27 mmHg to 12.06 ± 4.06 mmHg at 12 months. Fifty-two percent of patients were not using any antiglaucoma medications at last follow-up. Five eyes (15 percent) required a second bleb revision to correct persistent hypotony maculopathy.

Surgical repair for hypotony maculopathy provided a significant improvement in VA at six and 12 months. Surgical bleb revision was associated with good long-term control of IOP and improved VA in eyes with hypotony maculopathy after previous glaucoma filtering surgery.

Evaluation of 3 Presbyopia-Correcting IOLs After Cataract Extraction

September *AJO*

PePOSE et al. conducted a prospective randomized multicenter clinical trial to compare contrast sensitivity, visual acuity (VA), and halos in subjects bilaterally implanted with one of three FDA-approved presbyopia-correcting intraocular lenses (IOLs). The results demonstrated that each IOL has attributes that should be considered when selecting lenses for implantation.

Seventy-eight patients were randomized sequentially for bilateral implantation with the Crystalens AO (Bausch + Lomb Surgical), AcrySof IQ ReSTOR + 3.0 D (Alcon), or Tecnis Multifocal (Abbott Medical Optics) lenses. Subjects were evaluated at four postoperative visits, the last occurring four to six months after surgery. At each visit, the following monocular and binocular assessments were performed: high- and low-contrast VA; contrast sensitivity without glare; halos or starbursts; defocus curves; optical scatter; retinal point spread function; and safety.

The Crystalens and ReSTOR demonstrated better monocular and binocular contrast sensitivity without glare at low- to mid-spatial frequencies compared with the Tecnis lens. The Crystalens had significantly better binocular low-contrast distance-corrected VA than the ReSTOR and better mean monocular low-contrast distance-corrected VA than the Tecnis lens. The Crystalens demonstrated significantly better monocular and binocular uncorrected and distance-corrected intermediate VA than the ReSTOR or Tecnis lens. The Crystalens caused significantly fewer halos than the Tecnis lens and less optical scatter than the ReSTOR or Tecnis. The ReSTOR lens had significantly better monocular and binocular uncorrected and distance-corrected near VA tested at 40 cm compared with Crystalens and Tecnis. Binocular uncorrected distance VA was not significantly different among the three lenses.

In summary, the Crystalens had statistically better uncorrected intermediate VA and distance-corrected intermediate VA than the ReSTOR or Tecnis Multifocal lens, and fewer photic phenomena than the Tecnis. Both multifocals had better distance-corrected near VA and uncorrected near VA than the Crystalens. The authors suggest that the findings may guide IOL selection for individual patients depending on their visual needs.

JAMA Ophthalmology

Combined Intravitreal Melphalan and Topotecan for Vitreous Seeding From Retinoblastoma

August *JAMA Ophthalmology*

Ghassemi et al. conducted a retrospective study to evaluate the efficacy and safety of combined intravitreal chemotherapy (melphalan hydrochloride and topotecan hydrochloride) for viable vitreous seeding from retinoblastoma. In this study, trans-pars plana intravitreal injection of melphalan hydrochloride (40 µg in 0.04 mL of diluent) combined with topotecan hydrochloride (8-20 µg in

0.04 mL of balanced salt solution), followed by injection-site cryotherapy, was administered to nine eyes initially categorized as group D (n = 6) or E (n = 3) according to the International Classification of Retinoblastoma.

This treatment produced complete control of vitreous seeds in all nine eyes following a mean of 1.9 injections (median, 2; range, 1-3 injections). In three cases, tumor control was achieved with a single injection, whereas in six cases, two or three injections were necessary. Three patients subsequently underwent enucleation because of recurrent tumor and persistent anterior chamber lesions. During a mean 15.2 months of follow-up (median, 16; range, 7-25 months), there was no recurrence of new tumor or vitreous seeds in the six remaining eyes.

Complications included temporary hypotony of two weeks or less in two eyes, temporary epithelial defect in one eye, and vitreous hemorrhage in one eye. No episcleral or orbital retinoblastoma extension or remote retinoblastoma metastasis occurred among the six eyes that were not enucleated. There was no change in the a- and b-waves of bright-flash electroretinograms.

Alteration of Tear Mucin 5AC in Office Workers Using VDTs

August *JAMA Ophthalmology*

Uchino et al. evaluated the relationship between mucin 5AC (MUC5AC) concentrations in tears, working hours, and the frequency of ocular symptoms among visual display terminal (VDT) users, including patients with dry eye disease (DED) and controls without DED.

In an institutional cross-sectional study, participants included 96 Japanese office workers; both eyes of each individual were studied. Participants completed questionnaires about their hours working at a VDT and the frequency of ocular symptoms. DED was diagnosed as either definite or probable, or it was not present.

Tear fluid was collected from the inferior fornix after instillation of 50 µL of sterile saline. The MUC5AC

concentration was normalized to tear protein content and expressed as MUC5AC (nanograms) per tear protein (milligrams). The differences in MUC5AC concentration between DED groups, between VDT working hours (short, intermediate, or long), and between symptomatic and asymptomatic groups were evaluated at a 95 percent confidence interval (CI) based on non-parametric Hodges-Lehmann determination. The prevalence of definite and probable DED was 9 percent (n = 9) and 57 percent (n = 55), respectively.

The mean MUC5AC concentration was lower in the tears of VDT users with definite DED than in those with no DED (estimated difference, -2.17; p = .02; CI, -4.67 to -0.30). The mean MUC5AC concentration in tears was lower in the group that worked longer hours than in the group that worked shorter hours (estimated difference, -1.65; p = .049; CI, -3.12 to 0.00). Also, MUC5AC concentration was lower in participants with symptomatic eye strain than in asymptomatic individuals (estimated difference, -1.71; p = .001; CI, -2.86 to -0.63).

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).

EXTRA

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More at the Meeting

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editorial processes at peer-reviewed journals and describes good author habits that help speed publication.

When: Sunday, Oct. 19, 10:15 a.m.-12:30 p.m. **Where:** Room N136.

Access: Academy Plus course pass.

