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Study shows combined treatment effective in early, sustained regression of neovascular glaucoma

Presenters at the ASCRS meeting shared study data on techniques to lower IOP, new refractive surgical procedures and new IOLs.

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SAN FRANCISCO – Combining bevacizumab injections and panretinal photocoagulation for the treatment of neovascular glaucoma successfully produced early regression and less recurrence of the disease, Arup Chakrabarti, MS, reported here at the American Society of Cataract and Refractive Surgery meeting.

"Effect of intervention in causing regression of neovascular glaucoma and reducing the time to regression was most significant in the group that received combined [panretinal photocoagulation] and [intravitreal bevacizumab] treatment," he said.



Dr. Chakrabarti presented the results of a prospective, interventional study that he conducted with colleagues. The study examined 38 eyes with neovascular glaucoma that were divided into three treatment groups: a panretinal photocoagulation group, an intravitreal Avastin (bevacizumab, Genentech) group and a combined treatment group. Follow-up was 12 months.

The time to neovascular glaucoma regression was statistically significantly less in the combined group. In panretinal photocoagulation alone cases, recurrence occurred in 53.3%, while in the combined group, recurrence was 20%, Dr. Chakrabarti said.

James C. Tsai, MD, of the Yale University School of Medicine, commented that the results from Dr. Chakrabarti's study are helpful in the clinical management of this visually disabling refractory glaucoma. "They confirm clinically the anecdotal experiences of many clinicians that intravitreal bevacizumab injections do supplement the beneficial effects of panretinal photocoagulation in neovascular glaucoma," Dr. Tsai told *Primary Care Optometry News* sister publication, *Ocular Surgery News*.

"The important take-home point is that combination therapy (bevacizumab and panretinal photocoagulation) was found to be superior to either treatment alone in producing early regression and reduced recurrence of disease," Dr. Tsai continued.

Epi-LASIK platform offers refractive stability at 6 months postop

A new epi-LASIK platform safely and effectively corrects myopia and myopic astigmatism, a speaker said.

"Surface ablation may be an alternative to LASIK for those preoperative patients at risk," Richard M. Davis, MD, said.

Epi-LASIK procedures were performed with the Zyoptix XP epi-LASIK platform (Bausch & Lomb) used in conjunction with the Technolas excimer laser (Technolas Perfect Vision). A retrospective interventional case series included 42 eyes with myopia or myopia with astigmatism. Patients with severe dry eye or abnormal corneal topography were excluded. Mean preoperative sphere was -3.42 D, and mean cylinder was -0.56 D. Mean preoperative spherical equivalent was -3.70 D.

Efficacy, measured as postop uncorrected visual acuity over preop best corrected visual acuity, was 0.64 at 1 week, 0.93 at 1 month, 1.07 at 3 months and 1.06 at 6 months. Safety, measured as postop BCVA over preop BCVA, was 0.83 at 1 week, 1.02 at 1 month, 1.07 at 3 months and 1.06 at 6 months. At 3 months and 6 months, no patients lost lines of visual acuity; 34% of patients gained one line or more at 3 months and 28% gained at least one line at 6 months.

New +3 D IOL improves intermediate visual acuity

A +3 D add power IOL improves intermediate vision while delivering similar vision at near and distance as a +4 D add power IOL.

"The +3 D add did not cause any loss of vision at near or distance vision," Robert P. Lehmann, MD, said. "We saw an improvement of one to two lines in intermediate vision."

According to results from a randomized, parallel group, subject-masked, multicenter trial, the ReSTOR +3 D add power IOL (Alcon) increased near uncorrected best distance by about 6 cm in 138 patients when compared with 134 patients who received a ReSTOR +4 D add power IOL (Alcon).

Intermediate visual acuity was 0.13 logMAR at 50 cm, 0.16 logMAR at 60 cm and 0.21 logMAR at 70 cm in patients in the +3 D group, but 0.29 logMAR at all three distances in the +4 D group. Dr. Lehmann said that 95.7% of patients in the +3 D group had a combined distance, near and intermediate visual acuity of 20/40 or better, compared with 65.7% in the +4 D group.

Latest-generation femtosecond laser allows rapid customized flap creation

A latest-generation femtosecond laser offers customized LASIK flaps that enhance clinical outcomes and patient satisfaction.

"In the United States now, femtosecond LASIK is the dominant approach, and it continues to grow," Richard L. Lindstrom, MD, said. "We can now make a flap in less than 20 seconds. They're easy to lift, much easier than they used to be."

The iFS femtosecond laser (Abbott Medical Optics) features a faster repetition rate than earlier models, which reduces the amount of energy entering the eye, he said. After surgery, patients report improved comfort and less inflammation than with earlier platforms.

Customized oval or round flaps offer better biomechanical stability than flaps created with earlier femtosecond lasers. The customizable side angle of the flap may help facilitate flap healing, Dr. Lindstrom said.

"I do like the inverted bevel, and the good news is that it's better and better, which hopefully will continue to advance our outcomes," he said.



Richard L. Lindstrom

Femtosecond thin-flap SBK speeds return of visual function

A femtosecond laser safely, effectively and accurately creates thin flaps of 90 µm or less for sub-Bowman's keratomileusis, a physician said.

Charles R. Moore, MD, shared his experiences using the Ziemer LDV femtosecond laser and 90- μ m InterShield spacer.

"The LDV is a proven platform," Dr. Moore said. "It offers rapid visual recovery, less patient discomfort. It can be serviced online overnight, between surgery days. ... The quality with these flaps is absolutely excellent."

A prospective study included 244 consecutive sub-Bowman's keratomileusis procedures. The patient group comprised 45% hyperopes and 55% myopes. Flaps thickness ranged from 400 μ m to 700 μ m. Ablation zones were 9 mm and 9.5 mm.

At 1-month postop, the 9.5-mm ablation zone yielded significantly higher best corrected visual acuity on average than the 9-mm zone. Visual function was restored rapidly, with patients able to drive 4 hours postop, Dr. Moore said.

Results showed few complications; the most common complication was decentered flaps. Vertical ridges occurred in about 10% of cases. There were three flap tears.

"I want to remind you that these are very thin planar flaps," he said. "They're just as thin at the periphery as they are in the center. When we're dealing with 90 μ m, we have to be very delicate when lifting the flap."

Three cases required enhancements, Dr. Moore said.

PCON Editorial Board member Richard L. Lindstrom, MD, commented that femtosecond flap generation for LASIK makes up 50% of cases performed in the United States. "In a study performed at our center, my associate Elizabeth Davis, MD, and I also confirmed a more rapid visual rehabilitation for Intralase Thin Flap LASIK when compared to microkeratome-generated flaps," he said. "In addition, we found a lower complication rate and a lower enhancement rate."

Dr. Lindstrom said they have found no difference in outcomes with the IntraLase femtosecond laser combined with the Visx CustomVue excimer when using flap diameters between 8.0 mm and 9.5 mm in diameter. "The finding in this study that 9.5 mm diameter flaps generated better outcomes than 9.0 mm diameter flaps is unexpected and may actually be explained by the excimer laser rather than the femtosecond laser," he said.

Unknown corneal spots may require full range of treatment

Various ailments may cause superficial corneal spots — but not all require treatment, an expert in corneal surface disease said.

Ivan R. Schwab, MD, shared pearls on identifying corneal artifacts and diagnosing underlying systemic disease at Cornea Day.

Conditions heralded by corneal spots and dots include Thygeson's superficial punctate keratitis, basement membrane dystrophy and late mucous plaque keratitis of herpes zoster.

"Certainly corneal scars, trauma and such can mimic any of these [conditions] at almost any time, at almost any depth," Dr. Schwab said.

Interstitial keratitis may point to syphilis, Epstein-Barr virus, leprosy, sarcoidosis and tuberculosis. Those diseases must be diagnosed and may require systemic treatment, he said.

Basement membrane dystrophy and mucous plaque keratitis of herpes zoster seem suitable for débridement. However, débridement in these cases may lead to non-healing epithelial lesions or neurotrophic ulcers. If lesions require treatment, low-dose steroids, cycloplegia and oral antiviral medications may be appropriate, Dr. Schwab said.



Ivan R. Schwab

Clinician: Phaco alone an effective option for some glaucoma patients

For those glaucoma patients with open-angle disease or pseudoexfoliation, phacoemulsification alone often adequately lowers pressure and improves vision, a glaucoma surgeon said.

However, OSN Glaucoma Board member Bradford J. Shingleton, MD, said multiple factors must be accounted for when selecting the best treatment options for glaucoma patients. Significant factors include preoperative IOP, angle status and the continued need for medications after cataract surgery.

"When asked if phaco lowers IOP, I say, yes, it does. In fact, it is probably one of the most commonly performed glaucoma procedures in the world," Dr. Shingleton reported at Glaucoma Day.

Dr. Shingleton, outgoing president of the ASCRS, presented results of studies examining the impact of phaco on lowering IOP. Study results included 1,122 pseudoexfoliation eyes that underwent phaco alone that he and colleagues reviewed.

They found that at 7 years of follow-up, all 1,122 eyes had a significant mean IOP drop of 1 mm Hg to 2 mm Hg. Patients also had good mean visual acuity results.

Good results seen in FDA trial data of phakic IOL for high myopia

Six-month data of a phakic IOL show positive results in managing high myopia.

"Endothelial cell densities in terms of losses were very minimal, both centrally and peripherally," Stephen Lane, MD, said. "There was no pupil ovalization in the 200-plus patients."

In the study, uncorrected visual acuity of 20/25 or better was achieved in 233 of 253 patients (92.1%) who received the AcrySof phakic angle-supported IOL (Alcon), and best corrected visual acuity of 20/25 or better was achieved in all patients. According to Dr. Lane, postoperative refraction was within 0.5 D of the intended target in 215 of 253 patients (85%).

In terms of patients functionally capable of achieving 20/20 vision, 85% reached that marker, and all were 20/40 or better. BCVA of 20/20 was achieved in 99% of this subset of patients.

"Those capable of seeing 20/20 are getting that, even in an uncorrected visual acuity," Dr. Lane said.

The clinical trial, part of the U.S. Food and Drug Administration-mandated 3-year trial evaluating the AcrySof phakic IOL, is now approaching the 2-year follow-up period, Dr. Lane said. The lens has received a CE Mark in Europe.

Study links post-LASIK/LASEK corneal aberrations and internal aberrations

Increased internal aberrations were associated with corneal aberrations after laser refractive surgery, according to the results of a study.

"As we all know, the eye is subject to a variety of aberrations," Colm McAlinden, MCOptom, said. "These are described as either low order or high order. Laser has been successful in the correction of these aberrations."

The prospective study included 50 patients who underwent LASIK and 50 who underwent LASEK. Corneal and internal aberrations were measured preoperatively and 6 months after surgery. Treatment was limited to eyes that were -1 D to -8 D and had less than 1 D of astigmatism.

Among LASIK patients, results showed statistically significant increases in six corneal Zernike terms and three internal Zernike terms. Significant increases were seen in three corneal Zernike terms and seven internal Zernike terms among patients who had LASEK.

Internal aberrations may result from changes in the posterior corneal surface, changes in crystalline lens movement,

such as tilt, or measurement errors, Dr. McAlinden said.

Anti-VEGF effective for unresponsive cystoid macular edema after cataract surgery

Intravitreal bevacizumab is effective for treatment of cystoid macular edema after cataract surgery if it is unresponsive to steroids or NSAIDs, according to a study.

Cystoid macular edema may form after cataract surgery because of a failure in the blood-brain barrier due to inflammation secondary to surgery, Yoshihide Nakai, MD, said.

"Bevacizumab restrains VEGF, and it also has the effect of restraining vasopermeability," he said.

Mean best corrected visual acuity improved from 20/60 (range, 20/35 to 20/200) before injection to 20/30 (range, 20/70 to 20/20) at 1 week, 20/25 (range, 20/50 to 20/20) at 1 month and 20/20 at 3 months after injection. Mean thickness of the macula also improved, from 765 μ m before bevacizumab injection to 590 μ m at 1 week, 371 μ m at 1 month and 225 μ m at 3 months after injection.

In the study, 12 patients received a 1.25-mg injection of Avastin (bevacizumab, Genentech) between 6 and 12 weeks after surgery if they did not respond to prior steroid or NSAID therapy.



Yoshihide Nakai

Multifocal IOL delivers vision over all distances, high patient satisfaction

Phase 3 clinical trial data show that a diffractive spherical multifocal IOL delivers superior vision over a spherical monofocal IOL, with high patient satisfaction and comparable contrast sensitivity, a surgeon said.

In the trial of the Tecnis ZM 900 multifocal IOL from Abbott Medical Optics, 88% of patients reported no glasses use after 1 year, 95% were spectacle independent for distance vision and 93% were for near vision. As well, 94.6% of patients who received the multifocal model said they would opt for the lens again if given the choice.

"You can't please all the patients, but you can really come close with this lens," Mark Packer, MD, said.

Contrast sensitivity between the two lenses was similar, despite reports of halo and glare in some patients in the multifocal group. However, "dysphotopsia does not correlate to diminished contrast sensitivity," Dr. Packer said, adding that tests for contrast sensitivity cannot simulate halo and glare.

Although vision was superior in the multifocal group, results were most pronounced at 1 year.

"Neuroadaptation is absolutely real, and patients perform better at 1 year," he said. "It is important to counsel patients when they are choosing a multifocal or accommodating lens that they will continue to see improvement in the vision for 1 year."

No major differences seen between canaloplasty, trabeculectomy at 1 year

A study comparing canaloplasty and trabeculectomy in the treatment of open-angle glaucoma found no statistically significant differences in IOP reduction at 1-year follow-up. However, nonpenetrating canaloplasty could potentially produce safer results than filtration glaucoma surgery, a clinician said.

"Complications and adjunctive procedures were similar [between trabeculectomy and canaloplasty]. However, no cases of hypotony were seen in canaloplasty," Diamond Y. Tam, MD, said. "This procedure may provide open-angle glaucoma patients with an effective, possibly safer alternative to standard trabeculectomy."

Dr. Tam presented the results of a retrospective chart review that he conducted with colleagues of two groups, each with 25 open-angle glaucoma patients. One group underwent nonpenetrating Schlemm's canaloplasty, while the other group underwent trabeculectomy with mitomycin C.

There was no statistically significant difference between the two groups in IOP reduction up to 1 year, Dr. Tam said. Also up to 1 year, there was no statistically significant difference in the number of glaucoma medications prescribed to the two groups.

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