Evidence has linked the functional activity of the microbiome to a host of biological processes that influence human wellness and several disease states. These disease states include asthma, neurologic and cognitive disorders, mood disorders, cancer, and autoimmune and metabolic disorders such as diabetes.1

The last decade has seen research concerning the microbiome, including the development of several hypotheses linking it to eye disorders such as infectious keratitis, glaucoma, macular degeneration, HLA-B27 autoimmune uveitis, and diabetic retinopathy (DR).2-4

Underlying mechanisms involve dysbiosis, the emergence of suboptimal numbers by manipulating microbial species.

How to overcome barriers when buying or selling a practice

By Chris Wroten, OD

Not long ago, a colleague decided it was time to spin his phoropter for the last time and retire—a decision he had grappled with for quite some time.

With several associates and an impeccable reputation, his practice had been a pillar of the community.

After deciding to transition out of his practice, the owner approached his associates with an offer to purchase it based on standard practice valuation models.

To his surprise, his associates declined. They didn’t even make a counter proposal, stating they weren’t interested in owning the practice.

See Barriers to buying and selling on page 12
**INDICATIONS AND USAGE**

TRAVATAN Z® (travoprost ophthalmic solution) 0.004% is indicated for the reduction of elevated intraocular pressure (IOP) in patients with open-angle glaucoma or ocular hypertension.

**Dosage and Administration**

The recommended dosage is one drop in the affected eye(s) once daily in the evening. TRAVATAN Z® Solution should not be administered more than once daily since it has been shown that more frequent administration of prostaglandin analogs may decrease the IOP lowering effect.

TRAVATAN Z® Solution may be used concomitantly with other topical ophthalmic drug products to lower IOP. If more than one topical ophthalmic drug is being used, the drugs should be administered at least 5 minutes apart.

**IMPORTANT SAFETY INFORMATION**

**Warnings and Precautions**

**Pigmentation**—TRAVATAN Z® Solution and may be reinserted 15 minutes following its administration.

**Use with Contact Lenses**

The IOP lowering effect of TRAVATAN Z® Solution has been reported to increase the pigmentation of the iris, periorbital tissue (eyelid), and eyelashes. Pigmentation is noticeably increased iris pigmentation, these patients should be examined regularly.

TRAVATAN Z® Solution may gradually change eyelashes and vellus hair in the treated eye. These changes include increased length, thickness, and number of lashes. Eyelash changes are usually reversible upon discontinuation of treatment.

TRAVATAN Z® Solution has no FDA-approved therapeutic equivalent available.

**Adverse Reactions**

Bacterial Keratitis—There have been reports of bacterial keratitis associated with the use of multiple-dose containers of topical ophthalmic products. These containers had been inadvertently contaminated by patients who, in most cases, had a concurrent corneal disease or a disruption of the ocular epithelial surface.

Use with Contact Lenses—Contact lenses should be removed prior to instillation of TRAVATAN Z® Solution and may be reinserted 15 minutes following its administration.

**Use in Specific Populations**

The most common adverse reaction observed in controlled clinical trials with TRAVATAN® (travoprost ophthalmic solution) 0.004% and TRAVATAN Z® Solution was ocular hyperemia, which was reported in 30% to 50% of patients. Up to 3% of patients discontinued therapy due to conjunctival hyperemia. Ocular adverse reactions reported at an incidence of 5% to 10% in these clinical trials included decreased visual acuity, eye discomfort, foreign body sensation, pain, and pruritus.

Additional adverse reactions have been identified during post approval use of TRAVATAN® or TRAVATAN Z®, a combination of these factors, include: arrhythmia, vomiting, epistaxis, tachycardia, and insomnia. In postmarketing use with prostaglandin analogs, periorbital and lid changes including deepening of the eyelid sulcus have been observed.

**For additional information on TRAVATAN Z® Solution, please refer to the Brief Summary of Prescribing Information on the following page.**

*Study Design: Double-masked, randomized, parallel-group, multicenter noninferiority comparison of the efficacy and safety of travoprost 0.004% preserved with benzalkonium chloride (BAK) and TRAVATAN Z® Solution after 3 months of treatment in patients with open-angle glaucoma or ocular hypertension. Mean baseline IOPs were 27.8 mm Hg (n=320), 25.5 mm Hg (n=322), and 24.8 mm Hg (n=322) at 8 AM, 10 AM, and 4 PM, respectively. Statistically equivalent reductions in IOP (95% CI about the treatment differences were entirely within ±1.5 mm Hg) were demonstrated between the treatments at all study visits during the 3 months of treatment.1


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**USE IN SPECIFIC POPULATIONS**

**Pregnancy**
- Pregnancy Category C

Teratogenic effects: Travoprost was teratogenic in rats, at an intravenous (iv) dose up to 10 mcg/kg/day (250 times the maximal recommended human ocular dose (MRHO)), evidenced by an increased incidence of skeletal malformations as well as external and visceral malformations, such as fused sternum, dorsal hump, and diaphragmatic hernia. Travoprost was not teratogenic in rats at iv doses up to 3 mcg/kg/day (75 times the MRHO) and in mice at subcutaneous doses up to 1 mcg/kg/day (25 times the MRHO). Travoprost produced an increase in post-implantation losses and a decrease in fetal viability in rats at iv doses > 3 mcg/kg/day (75 times the MRHO) and in mice at subcutaneous doses > 0.3 mcg/kg/day (75 times the MRHO).

In the offspring of female rats that received travoprost subcutaneously from Day 7 of pregnancy to lactation Day 21 at doses of > 0.12 mcg/kg/day (3 times the MRHO), the incidence of postnatal mortality was increased, and neonatal body weight gain was decreased. Neonatal development was also affected, evidenced by delayed eye opening, pinna detachment and preputial separation, and decreased motor activity.

There are no adequate and well-controlled studies of TRAVATAN Z® (travoprost ophthalmic solution) 0.004% administration in pregnant women. Because animal reproductive studies are not always predictive of human response, TRAVATAN Z® Solution should be administered during pregnancy only if the potential benefit justifies the potential risk to the fetus.

**Nursing Mothers**

A study in lactating rats demonstrated that radioabeled travoprost and/or its metabolites were excreted in milk. It is not known whether this drug or its metabolites are excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when TRAVATAN Z® Solution is administered to a nursing woman.

**Pediatric Use**

Use in pediatric patients below the age of 16 years is not recommended because of potential safety concerns related to increased pigmentation following long-term chronic use.

**Geriatric Use**

No overall clinical differences in safety or effectiveness have been observed between elderly and other adult patients.

**Hepatic and Renal Impairment**

Travoprost ophthalmic solution 0.004% has been studied in patients with hepatic impairment and also in patients with renal impairment. No clinically relevant changes in hematology, blood chemistry, or urinalysis laboratory data were observed in these patients.

**NONCLINICAL TOXICOLOGY**

**Carcinogenesis, Mutagenesis, Impairment of Fertility**

Two-year carcinogenicity studies in mice and rats at subcutaneous doses of 10, 30, or 100 mcg/kg/day did not show any evidence of carcinogenic potential. However, at 100 mcg/kg/day, male rats were only treated for 62 weeks, and the maximum tolerated dose (MTD) was not reached in the mouse study. The high dose (100 mcg/kg) corresponds to exposure levels over 400 times the human exposure at the maximum recommended human ocular dose (MRHO) of 0.04 mcg/kg, based on plasma active drug levels. Travoprost was not mutagenic in the Ames test, mouse micronucleus test or rat chromosome aberration assay. A slight increase in the mutagen frequency was observed in one of two mouse lymphoma assays in the presence of rat 9-activation enzymes.

Travoprost did not affect mating or fertility indices in male or female rats at subcutaneous doses up to 10 mcg/kg/day (250 times the maximum recommended human ocular dose of 0.04 mcg/kg/day on a mcg basis (MRHO)). At 10 mcg/kg/day, the mean number of corpora lutea was reduced, and the post-implantation losses were increased. These effects were not observed at 3 mcg/kg/day (75 times the MRHO).

**PATIENT COUNSELING INFORMATION**

**Potential for Pigmentation**

Patients should be advised about the potential for increased brown pigmentation of the iris, which may be permanent. Patients should also be informed about the possibility of eyelid skin darkening, which may be reversible after discontinuation of TRAVATAN Z® (travoprost ophthalmic solution) 0.004%.

**Potential for Eyelash Changes**

Patients should also be informed of the possibility of eyelash and vellus hair changes in the treated eye during treatment with TRAVATAN Z® Solution. These changes may result in a disparity between eyes in length, thickness, pigmentation, number of eyelashes or vellus hairs, and/or direction of eyelash growth. Eyelash changes are usually reversible upon discontinuation of treatment.

**Handling the Container**

Patients should be instructed to avoid allowing the tip of the dispensing container to contact the eye, surrounding structures, fingers, or any other surface in order to avoid contamination of the solution by common bacteria known to cause ocular infections. Serious damage to the eye and subsequent loss of vision may result from using contaminated solutions.

When to Seek Physician Advice

Patients should also be advised that if they develop an intercurrent ocular condition (e.g., trauma or infection), have vellus eyelash, or develop any ocular reactions, particularly conjunctivitis and eyelid reactions, they should immediately seek their physician’s advice concerning the continued use of TRAVATAN Z® Solution.

**Use with Contact Lenses**

Contact lenses should be removed prior to installation of TRAVATAN Z® Solution and may be reinserted 15 minutes following its administration.
Make one decision per week to improve the practice

By Benjamin P. Casella, OD, FAAO
Chief Optometric Editor
Practices in Augusta, GA, with his father in his grandfather’s practice
BPCasella@gmail.com
706-257-2972

Part of me always thought there was something arbitrary about the New Year. Why does one need January 1st to come around in order to turn over a new leaf? Nonetheless, I buy into it both personally and professionally. With that said, I always say I’m not going to let things stack up on my desk at work, and I’ll say it again and leave that thought alone for another year or so.

The whirlwind
What I do want to focus on this year is something I heard many years ago in a practice management lecture. It was so long ago that I forget who said it, but the phrase went along the lines of, “You get too busy to get anything done.”

By this it is meant that there is so much work involved in the status quo of one’s life that it can be hard to tangibly change without falling behind. That notion is so true in my professional life. I wake up at night with these grand ideas in my head about making patient flow better, paying off some expensive piece of diagnostic instrumentation sooner, or going out into the public to recruit new patients.

What I can do is be the best version of me that I can be

Then, as always, the days, weeks, and months come and go, and before I turn around it’s the middle of May, and I’m complaining about the same problems that bothered me during the previous year.

Effecting change
So, what can I do to change this behavior? I can complain, but what good does that do? The short answer is not very much (if anything at all). What can I do is be the best version of me that I can be—even if it includes not letting things stack up on my desk.

Henceforth, my New Year’s resolution: I’m going to make one decision each week that I believe will be good for my practice. This seems like a goal tangible enough to achieve.

As I begin to map out this scheme for 2019 and beyond, I’m going to pay special attention to those aspects of my practice with which I really don’t care to consume myself, like dealing with staff.

Further, I’m going to try not to complain as much but face business challenges head-on. I need to take a closer look at what I pay for inventory, insurance, and other expenses with this resolution in mind.

Finally, I need to take time to appreciate everything that goes right in my practice. Through all the perplexities of owning a small business, I feel very fortunate (and downright lucky) to be in such a position. I need to recognize that more.

So, here’s to a fruitful and fulfilling 2019 for you all. Now, what are we going to do that’s huge for the year 2020? Better start planning.

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See what our readers are checking out on page 25

1 Know the legal aspects of myopia control

2 Holiday dos and don'ts for ODs in 2018

3 Vision therapy: A top 10 must-have list

4 Using warm compresses to treat meibomian gland disease

MODERN MEDICINE
Optometry Times is part of the ModernMedicine Network, a Web-based portal for health professionals offering best-in-class content and tools in a rewarding and easy-to-use environment for knowledge-sharing among members of our community.
How to improve glaucoma referrals

ODs’ role in influencing and treating glaucoma patients can have a lasting impact

By Alex Delaney-Gesing
Associate Editor

The care that ODs provide and convey to their referral sources can improve the overall quality of glaucoma care.

Glaucoma is a public health concern, according to Michael J. Cymbor, OD, FAAO, of Port Matilda, PA, at American Academy of Optometry’s annual meeting in San Antonio.

“It is the second-leading cause of blindness in the world—the number of patients with glaucoma will double by the year 2040,” he says.

ODs’ role in influencing and treating glaucoma can have the potential for lasting management in glaucoma patients.

What referral patients want to know

Referencing a 2013 study3 that surveyed a glaucoma subspecialist, Dr. Cymbor shared five top pieces of information participating patients reported wanting to receive from their referral doctors:

- Serial visual fields
- Current interocular pressure (IOP)
- Current therapy
- Peak IOP
- Serial disc imaging

SLT is one of the most under-utilized procedures within glaucoma care

Referral sources in the study included both optometrists and ophthalmologists, as well as general practitioners, Dr. Cymbor says. Some 34 percent of participants in the study missed at least one, if not more, of the five criteria patients wanted.

“If you really want to blow away your glaucoma referral source, calculate mean IOP. Sometimes it is not easy to do, but we know that mean IOP was one of the factors that was used in many studies,” says Dr. Cymbor.

When referral numbers come into the office, the peak IOP is important to consider. Knowing the highest pressure a patient ever hit can help with determining a treatment, according to Dr. Cymbor.

Improving referrals collectively

Dr. Cymbor advises ODs not to blindly trust their optical coherence tomography (OCT).

“If you’re so focused on certain things in the OCT, there may be parts that you’re missing,” he says.

With so much information within OCTs, weaning out the right information can help elevate an OD’s level of care.

High myopia, for instance, is one area in which ODs may not want to trust a nerve fiber layer (NFL) scan with an OCT, Dr. Cymbor says. With such high amounts, it can torque the NFL, moving it in a different direction.

“Red disease,” as Dr. Cymbor calls it, is an example of this. It involves diagnosing something that really isn’t there.

The average NFL thickness of the superior and inferior retinal nerve fiber layer (RNFL) are looked at as being two of the best predictors of glaucoma progress, visual field narrowing, or otherwise.

Staging glaucoma

At what point do cases go from moderate to severe? Dr. Cymbor recommends using a staging method called the HAP criteria—Hodapp, Anderson, Parrish.

With this, ODs can determine the progression of a patient’s diagnosis: early, moderate or severe. But the caveat is any central points on a visual field study within the four central areas will kick the stage up to the next category, Dr. Cymbor says.

While not the only method of staging, Dr. Cymbor says completing the HAP criteria can be done very quickly in a clinic.

He also raised the question of staging according to OCT.

“There is no accepted criteria now for OCT technology that we can use to grade,” Dr. Cymbor says.

Give a concise procedure history

Dr. Cymbor says it’s surprising how many times a patient will come in, and an OD doesn’t know what previous surgeries the patient had.

“This information is so important to know as you send a patient on,” he says.

Lack of knowledge can cause complications when the patient is referred to a new doctor.

Discuss treatment options beforehand

If an OD sees a patient with mild glaucoma who is not compliant with drops, a discussion should be undertaken with the patient prior to referral, Dr. Cymbor says.

Treatment options beyond drops include minimally invasive glaucoma surgeries (MIGS), trab/tubes, or selective laser trabeculoplasty (SLT).

In Dr. Cymbor’s experience, SLT is one of the most under-utilized procedures within glaucoma care and has low-risk complications.

“If I had glaucoma now, I would choose to have SLT,” he says.

A study conducted on glaucoma patients receiving SLT surgery showed that 70 percent of participants did not require further surgical procedure within a five-year period.3

With MIGS treatment, Dr. Cymbor says the procedure can lower pressure 10 to 15 percent in conjunction with cataract surgery.

Include angle assessment

A number of cases Dr. Cymbor sees in his practice are labeled primary open-angle glaucoma, he says. However, careful angle assessment does not always show that.

“It shows that the angles are often narrow,” Dr. Cymbor says.

Compression gonioscopy, in lieu of a standard gonioscopy, is recommended when conducting open angle-assessments. The smaller footprint lens and a little pressure can ensure an angle opens up, Dr. Cymbor says.
Evaluate risk factors
For a patient with siblings, the risk for those brothers and sisters developing the disease increases by two-fold, Dr. Cymbor says.
If they haven’t already, Dr. Cymbor recommends siblings of glaucoma patients to have their eyes checked immediately and mention a sibling has the disease.
Other potential threats include:
- Smoking
- Low blood pressure
- Sleep apnea
- Pesticides
- Hypertension medication
- Obesity
- Diabetes
- Migraines

Aggressively manage secondary glaucoma
Often ODs are trained to think of glaucoma as progressing slowly over time. While this is true in some cases, it can also move more forcefully as Dr. Cymbor says.
Patients with exfoliation or pigmentary glaucoma should be scheduled for office visits every six months, even if they appear stable during a five-year period of checkups.

“Do not wait a year to see these patients again,” Dr. Cymbor says. “Because you never know—particularly with pseudoexfoliation—when they are going to turn bad.”

Value of corneal hysteresis
The Ocular Response Analyzer (ORA, Reichert) tests IOP and is considered to be the most accurate method for obtaining IOP.

The drawback of the ORA, Dr. Cymbor says, is cost: Prices can range from $15,000 to $16,000.

Despite the steep price tag, the ORA is viewed as the most accurate test for corneal hysteresis, a process in which the cornea absorbs and dissipates energy.

Studies show that corneal hysteresis is the strongest parameter for visual field progression, Dr. Cymbor says.

“It’s a hugely important factor as it relates to managing both early and advanced glaucoma,” he says.

REFERENCES
How to manage digital eye strain

Educate patients on damaging vision effects linked to regular digital device use

Digital eye strain (also referred to as computer vision syndrome [CVS]), is a condition characterized by visual disturbance and/or ocular discomfort related to the use of digital devices.

As an emerging public health concern, digital eye strain results from a range of stresses on the ocular environment. An estimated 50 to 90 percent of digital device users experience symptoms of digital eye strain. Studies suggest multiple factors are associated with CVS.1,2

Nationwide concern

Americans have reported experiencing the following symptoms associated with digital device use:3
- 32.4 percent report experiencing eye strain
- 27.2 percent report experiencing dry eyes
- 27.7 percent report experiencing headaches
- 27.9 percent report experiencing neck and shoulder pain
- 35 percent report experiencing neck and shoulder pain
- 27.2 percent report experiencing dry eyes
- 27.7 percent report experiencing headaches
- 27.9 percent report experiencing neck and shoulder pain
- 35 percent report experiencing neck and shoulder pain
- 35 percent report experiencing dry eyes
- 32.4 percent report experiencing eye strain

Addressing digital eye strain

A 2018 study investigated the influences of smartphone use on ocular symptoms, status of the tear film, and oxidative stress indices in the tears and at the ocular surface.4 Results found that smartphone use could not only aggravate subjective symptom scoring indices of dry eye but also induce tear film instability and oxidative stress indices in the tears and at the ocular surface.

Suggested management strategies for digital eye strain include:4
- Correcting refractive error, including astigmatism and presbyopia
- Managing vergence anomalies
- Managing accommodative anomalies
- Blinking exercises/training to maintain a normal blinking rate
- Lubricating eye drops to help alleviate dry eye-related symptoms and/or increasing ambient humidity with the use of a room humidifier or moisture-loss preventing glasses
- Prescribing spectacle color filters, especially blue light-absorbing filters
- Computer or gaming glasses with decentered optics (creating small amounts of base-in prism)
- Attention to work and recreational digital device ergonomics

I believe that the amount of time patients report using digital devices is well underestimated.

Prevention

Depending on the manufacturer and operating system, a phone may be equipped to monitor how much time the owner spends using the device, as is seen in the latest Apple iPhone update (see Figure 1).

Other manufacturers allow for programming downtime, setting locked time limits on applications for the individual or shared family users, and setting content blocking. Prevention is the main strategy for management of digital eye strain. This includes ensuring an ergonomic work environment and visual hygiene practice through patient education.

Be a “dry eye hero” and share cell phone screen-time monitoring information with your patients so that they can be proactive participants in their ocular health.

REFERENCES
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Focus On GLAUCOMA

Sleeping position may cause increased glaucoma risk

New research indicates position of patient's head during sleep might make a difference

I don't know exactly how my head is positioned on the pillow during the night because I'm sleeping. My positive family history, increasing age, and myopia make me at an increased risk for glaucoma.¹

With that said, am I at an increased risk for glaucoma because of how I lay on my pillow? A recent study led me to ponder this very question.²

Research

In this prospective case-control study, investigators sought to determine whether turning one's head into a pillow leads to a clinically significant increase in intraocular pressure (IOP).

They also sought to determine if protective eye shields had any effect on this occurrence. Eleven patients with primary open-angle glaucoma and 11 controls participated in the study.

An epipalpebral sensor was attached to the right eyelid of all patients.

The probable relationship between epipalpebral pressure and IOP was calibrated by increasing epipalpebral pressure at stepwise increments and simultaneously measuring IOP by means of Goldmann applanation tonometry at a slit lamp.

The study participants then simulated a sleeping position with their heads turned into a pillow. Epipalpebral pressure was measured through the upper eyelid, and IOP was estimated based on the patients' previous calibrations.

Patients completed the study both with and without protective glasses to determine if shielding their eyes from the pressure of the pillows had any tangible effect on IOP.

Results

The average IOP while in the simulated sleeping position increased by over 19 mm Hg in the glaucoma group and over 25 mm Hg in the control group.

Investigators concluded that wearing protective eye glasses while sleeping may be a treatment option for patients.

Study researchers found a significant difference in IOP with an increase from the induction of pressure by a pillow and the relative decrease from wearing protective glasses while simulating sleep.

With 11 glaucoma patients and 11 controls, the sample size of this study is quite small. More and larger-scale studies are needed to prove that one's position on a pillow can have such a substantial effect on IOP.

However, combining this notion with the fact that IOP tends to be higher when one is in the supine position, the need to not only reduce IOP but also to lessen diurnal IOP variation becomes apparent.³

Many patients may already be used to sleeping with a therapeutic device on their faces

Future of glaucoma treatment

It may seem far-fetched for an eye doctor to prescribe patients a protective sleep mask to be worn chronically for the treatment of glaucoma.

However, with the incidence of moderate to severe obstructive sleep apnea being reported at 10 to 20 percent, many patients may already be used to sleeping with a therapeutic device on their faces.⁴

Studies such as these point to the fact that glaucoma treatment is becoming more and more individualized—as it should. Different patients respond to different therapies in different ways.

REFERENCE


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practice because they didn’t see any value in it.

He was then faced with a huge dilemma: Now that he was finally ready to retire, how was he going to make it happen?

**Sale management**

One of the most important but overlooked aspects of practice management is managing the sale of a practice on the back end of a career.

While each situation is unique, more optometrists are struggling with the same question: “How do I transition out of my practice?”

The answer for an alarming number of ODs has been to simply lock their doors and walk away, receiving nothing in return for the equity they have built in their practices.

This problem is not limited to optometry—medicine and other healthcare professions are experiencing the same phenomenon.

The situation then begs the question: Is the traditional transaction of transferring private practice ownership to a new owner in danger of extinction?

**Planning ahead**

Meanwhile, other eyecare professionals are asking, “How do I transition into practice ownership?”

With many optometry school graduates expressing a desire to enter private practice yet ultimately choosing other alternatives, why is there this disconnect?

And more importantly, how can these inter-related problems of owners failing to transition their practices—and private practice opportunity seekers failing to make their wishes come true—be remedied?

The old mantra is never truer than when it comes to practice transitions: Failing to plan is planning to fail.

Because it typically takes several years for a successful practice transition to come to fruition, the time is now to start planning your next move, either as the purchaser or as the seller.

But to use another cliché, the devil is always in the details. So how do we successfully transition a practice, either as the seller or as the purchaser?

**Barriers**

Consider common barriers to acquiring a practice. Whether a new graduate or an established practitioner seeking to change his situation, the potential buyer often faces several challenges, which are important for both parties to understand:

- Misunderstanding ownership benefits/ responsibilities
- Student loan debt
- Realistic expectations
- Identifying opportunities

I have worked as an associate in a private practice, as an independent contractor in a commercial setting, and now as a private practice owner. I understand the risks and benefits of employment as well as ownership.

**Student debt**

An additional concern is the increasing number of optometry school graduates entering the profession with student debt in excess of $200,000, which mirrors the average medical school graduate’s indebtedness of $190,694.1

This financial burden can overwhelm young doctors and lead them to unnecessarily limit their career choices to opportunities that only appear to be the best option due to higher starting salaries.

Helping these doctors understand the potential long-term rewards of practice ownership—not to mention their student loan repayment and refinancing options—can significantly increase the pool of prospective participants in practice transactions.

The American Optometric Association’s (AOA) Excel program offers consulting services in practice transition/student loan repayment, as well as student loan refinancing services. These

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**Is the traditional transaction of transferring private practice ownership to a new owner in danger of extinction?**

**Misunderstanding ownership**

For me, the satisfaction that comes from being directly involved in decision-making and seeing our practice succeed, the job independence and security it offers, as well as the reimbursement and equity that’s built over time, far outweigh the commitment and responsibility required versus being an employee.

But some doctors may prefer the employment option, leaving the decision-making and extra commitments of ownership to others.

It’s critical to respect both groups, but it’s also important to ensure potential buyers understand the benefits and responsibilities of ownership.

For doctors who have never been owners and may not have a grasp of that knowledge. The responsibility to educate potential buyers in this area may fall on the seller.

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1. Source: American Optometric Association
2. Source: American Optometric Association
3. Source: American Optometric Association
sidize or refinance student loans for potential practice purchasers while also realizing tax savings in certain situations.

Seek the advice of a certified public accountant (CPA), financial advisor, and/or practice management consultant to learn more.

**Realistic expectations**

Unrealistic expectations are another common problem the practice transition faces. Both parties can be guilty of having unrealistic expecta-

**Resources to consider**

Even when these barriers are overcome, many purchasers still struggle to find opportunities.

Several great resources connect with sellers are:

- Job boards such as Optometry’s Career Center and state optometry associations’ websites, most of which allow ODs to post their curriculum vitae at no cost
- Optometry school faculty and state association executive directors, who can be a wealth of knowledge regarding discreet opportunities
- Networking at local/state/regional/national/international optometry meetings
- Direct recruitment

The tasks can appear daunting, especially as the purchaser, but these barriers can be overcome and result in life-changing opportunities for everyone involved in the sale.

**REFERENCES**


Dr. Wroten serves as the practice's chief operating officer and residency supervisor. He has twice been elected president of the Optometry Association of Louisiana, has been appointed to the Louisiana State Board of Optometry Examiners, and sits on the Board of Trustees for SCO. He enjoys playing golf, fishing, and coaching youth sports. He serves as a consultant to Alcon.

cwroten@od.sco.edu

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Focus On DIABETES

How to potentially reduce DR by manipulating microbial species

Continued from page 1

and/or ratios of microbial species that leads to inflammation, loss of normal immune regulation, disease and/or metabolic defects.

Underlying factors
The human microbiome refers to a diverse biological ecosystem of microorganisms residing within—and on the surface of—human beings. It consists of roughly 100 trillion commensal, symbiotic, and pathogenic microbial cells housed primarily within the gastrointestinal tract, including bacteria, fungi, and viruses. Microbial cells living within and on us outnumber human cells 3 to 1.

These species contain up to 10 million nonredundant genes compared to 23,000 human genes, a ratio of almost 500 to 1. Although each of us is about 99.9 percent identical genetically, our individual microbiome may be up to 90 percent dissimilar given variations in diet, lifestyle, and gene mutations. These directly influence microbiome’s composition and function or expression of genes encoded within that microbial universe.

Treatment
Evidence suggests that people with both type 1 and type 2 diabetes have reduced butyrate-producing intestinal flora, and that restoration of healthy butyrate production is possibly via the following:

- Changing diet (increased fiber and fermented foods)
- Reducing dietary saturated/trans fat and glycemic index
- Avoiding non-nutritive sweeteners like aspartame/sucralose/saccharin
- Using prebiotic/probiotic supplements
- Considering fecal microbiota transplantation (FMT)

Avoiding artificial sweeteners, adding probiotics, and FMT from lean/healthy donors can temporarily improve blood glucose in animal and some human models. Metformin, the most commonly prescribed medicine for type 2 diabetes, has been shown to increase butyrate-producing flora, and have fasting and Roux-en-Y gastric bypass surgery.

The link between gut dysbiosis and the development of diabetes is illustrated in Figure 1.

Experimentation
Significant reduction of DR lesions (pericyte ghosts and capillary leukocyte adhesion) was recently demonstrated in a mouse model using intermittent fasting with modulation of the gut microbiome. Mice with diabetes were fed an ad libitum diet or were fasted for 24 hours every other day for seven months. Intermittent fasting (IF) increased fatoric species, resulting in production of favorable bile acids by the liver.

Those bile acids changed into tauroursodeoxycholate (TUDCA), a neuroprotective “secondary bile acid” that enters systemic circulation and crosses the blood-brain and blood-retina barriers. TUDCA also activated receptors on the surface of retinal ganglion cells.

Though the animals in the two feeding groups had no difference in blood glucose levels, retinopathy lesions were nearly eliminated in the fasting group. When a synthetic analog for the TUDCA receptor was given to another group of diabetic mice, they also developed minimal DR lesions.

This study demonstrates that intermittent fasting may have the potential to reduce DR severity in humans independently of hyperglycemia by altering the microbiome.

Fasting benefits
Another mechanism through which fasting might benefit DR is via enhanced numbers of butyrate-producing bacte-
Putative mechanisms through which dysbiosis may contribute to the development of diabetic retinopathy. Focus On... optimal microbiome might augment the severity of HLA-B27 mediated uveitis. Analysis of food frequency surveys showed a significant association among lower fiber intake and higher fatty acid intake with DR risk. Both of these dietary features have been directly linked to both dysbiosis and endotoxemia. Activation of T-lymphocytes by gut bacteria has also been implicated in pericyte destruction underlyng DR. This suggests that selective antibiotics could be deployed to reduce DR analogously to the successful use of targeted antibiotics, to reduce the incidence and severity of HLA-B27 mediated uveitis. Various pathways through which suboptimal microbiome might augment the pathogenesis of diabetic retinopathy are illustrated in Figure 2.

**REFERENCES**

Increasingly, I am seeing patients in our practice who have a condition called trigeminal dysphoria, characterized by a misalignment in the synchronization of the peripheral and central visual processing systems. It was first identified in a series of clinical studies on patients with chronic headache.

The small misalignment creates chronic stress on the largest nerve in the body, the trigeminal nerve. As one might guess from the name, the trigeminal nerve has three major branches:

- Ophthalmic branch
- Maxillary branch
- Mandibular branch

The trigeminal nerve innervates the eyes, nose, mouth, head, and neck. When the ophthalmic branch, which is responsible for reporting the eyes' positions as well as detecting sensation and pain, is repeatedly stimulated by the misalignment, patients can become symptomatic.

Patients with trigeminal dysphoria present with symptoms such as neck and back pain, headaches, and trouble focusing, especially after a long day at work.

ODs seeing this condition may find that the patient has previously seen a neurologist and may be on a cocktail of medications for chronic headaches without significant symptom relief.

Lifestyle impact

I practice in a highly educated, biotech region where most people spend between five and eight hours of their work day looking at a screen. It is not unusual for patients to go home and spend another two to three hours looking at digital devices.

ODs know that digital device use leads to a five-fold reduction in the blink rate, which destabilizes the tear film. Couple this with minor visual system misalignment, and it is easy to see why patients become symptomatic. Their energy levels and productivity begin to suffer.

The misalignment isn't new, but it is likely exacerbated by heavy device use. I often see the condition in young people, but I see it also in those just becoming presbyopic. For the latter category, the triple whammy of screen-related dryness, trigeminal dysphoria, and presbyopia can be truly miserable.

Screening and treatment

Our practice uses a patient intake form that includes questions about ocular symptoms, device use, and head/neck pain. If a patient has three or more symptoms or spends more than four hours per day at a computer, we obtain measurements with a measurement device (eyeBrain Medical) as part of the pretest process.

The device provides a customized measurement of misalignment from 50 cm to optical infinity and incorporates multiple elements of ocular fusion, such as heterophoria, vergence conditioning, fixation disparity, accommodative convergence response, and alternating monocular central fixation.

I admit that I was initially skeptical of this technology. ODs routinely test fixation disparity and binocular vision. I thought that if a patient exhibited a misalignment, I would be able to detect it with our typical vision testing protocols. We utilize polarographic slides and cards to help detect fixation disparities.

However, even though fixation and bin-
ocularity results may be normal, I have seen misalignment in about half the patients I test with the measurement device. The device provides a prescription for neurolenses (eyeBrain Medical), a new category of lens that incorporates contoured prism and can be ordered for almost any lens/frame combination, including progressive addition lenses (PALS).

At the end of the exam, I’ll put the suggested amount of base-in prism in front of the patient’s glasses and ask how he feels. Patients will tell me, “It makes my eyes go ‘Ahhh...’” They feel a palpable sense of relief. **Making a difference**

Neurolens contoured prism lenses are distinctive because they relieve binocular misalignment at distance, intermediate, and near in a single lens. Clinical research shows that more than 90 percent of patients have a larger misalignment at near than at distance. In most cases, the distance prism in the neurolenses we prescribe is as little as 1.00 D to 2.00 D, with slightly more in downgaze for intermediate and near.

I find now that simply correcting this small amount of misalignment provides a more relaxed visual environment. Patients don’t usually need much time to neuroadapt to the lenses. In fact, they notice the difference immediately, right in the chair.

I prescribed neurolenses recently for a professor at University of California, San Diego, who was complaining of eye fatigue and neck aches. He was a low myope with no significant fixation or convergence problems on other tests. One week after starting to wear the neurolenses, he told me his symptoms were resolved and he felt better able to function at work.

In the past, we might have prescribed more plus for these patients or sent them to vision therapy, but neither option is an effective solution. Offering a new solution to an identifiable challenge has been positive for our practice not only to be able to address a real patient need but also to provide a premium product that cannot be purchased at online retailers or big-box stores.

Testing for and treating trigeminal dysphoria has increased word-of-mouth referrals and become a clear practice differentiator.

**REFERENCES**


Dr. Geffen is a past president of the Optometric Cornea and Cataract Society. He is a frequent lecturer and author on refractive and cataract surgery as well as contact lenses. Dr. Geffen is involved in community affairs and serves on three current boards. An avid sports enthusiast, he enjoys golf and coaching his grandchildren. Dr. Geffen is a consultant to Alcon, Bausch + Lomb, eyeBrain Medical, Shire, Sun, and TearLab. dig2020@aol.com
CASE REPORT:  

Diagnosis clouded by concomitant glaucoma and giant cell arteritis

No optic nerve elevation visible on slit-lamp exam required OCT

By Emily Evans, OD

A 65-year-old Caucasian male presented as a work-in appointment with a chief complaint of sudden painless vision loss in the right eye, gradually worsening over the prior week.

When asked, he admitted to a right-sided temporal headache. He denied having jaw claudication, neck pain, or scalp tenderness, and his temporal artery was not particularly palpable or different from his left side.

History
His medical history was pertinent for Type 2 diabetes mellitus (with unknown A1C or blood sugar), hypertension, and high cholesterol, with compliance to all medications. He admitted to not having had an eye exam in over a decade and reported no family history of ocular disease.

Clinical findings
Best-corrected visual acuities were counting fingers at 4 feet in the right eye and 20/30 in the left eye. Confrontation visual fields showed an inferior temporal defect in the right eye with a full field in the left eye. While facial symmetry and extraocular motility were normal without proptosis or ptosis, a 2+ afferent pupillary defect was found in the right eye.

His anterior segment exam was unremarkable. Intraocular pressure (IOP) by Goldmann applanation tonometry was 31 mm Hg in both eyes. Upon finding elevated IOP, gonioscopy was performed, and a Grade 4 open angle was noted in all four quadrants in both eyes.

Dilated fundus exam of the right eye revealed a pale optic nerve with subtly indistinct margins but no perceptible elevation and a 0.4 cup-to-disc ratio. The optic nerve in the left eye had distinct margins and a 0.5 cup-to-disc ratio.

Pachymetry readings were 571 μm OD and 578 μm OS.

Blood pressure was 171/97 mm HG, reported by the patient to be “normal” for him.

Optic nerve OCT was performed (see Figure 1).

Treatment
Even with a non-thin retinal nerve fiber layer (RNFL) in the right eye, the high bilateral IOPs deemed it necessary to follow the community standard of care by initiating an in-office topical IOP treatment in both eyes.

After one drop of Alphagan P (brimonidine 0.1%, Allergan), IOP reached 22 mm Hg OD and 25 mm Hg OS before the patient left the office. He was given a sample of Simbrinza (brinzolamide 1%/brimonidine 0.2%, Novartis) to use three times daily in both eyes.

The patient was sent for same-day bloodwork with his primary-care physician (PCP) for complete blood count (CBC) with differential, erythrocyte sedimentation rate (ESR or sed

See Case report on page 20
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Case report

Continued from page 18

rate), and C-reactive protein (CRP). A strong recommendation was given to the patient to manage his hypertension, and a prompt letter was sent to the PCP accordingly.

In addition to being a glaucoma suspect, differential diagnoses included both arteritic and non-arteritic anterior ischemic optic neuropathy, optic neuritis, and compressive lesion. Judging by this patient’s age, temporal headache, and the sudden and profound nature of his vision loss, arteritic anterior ischemic optic neuropathy (AAION) was highly suspected.

At his next day follow-up visit, visual field 24-2 was performed, which revealed a severe central visual field defect in the right eye and superior arcuate defect with nasal step in the left, corresponding to his OCT.

ESR and CRP were both significantly elevated: 46 and 6.9, respectively.

The patient was sent the same day to rheumatology for giant cell arteritis evaluation and was started on 40 mg of oral prednisone. Temporal artery biopsy came back inconclusive, but after six weeks of oral steroids, the patient’s vision had improved to 20/100 OD, and his IOPs were much improved.

An optic nerve OCT was repeated (see Figure 2). The optic nerve swelling had resolved and subsequently revealed what was likely a compressive lesion. Judging by this patient’s age, temporal headache, and the sudden and profound nature of his vision loss, arteritic anterior ischemic optic neuropathy (AAION) was highly suspected.

Figure 2.

OCT after steroid therapy reveals severely thin RNFL OD with optic nerve cupping (note artifact in the right eye).

Consequently, this patient is now being tapered off of oral prednisone and is being managed for glaucoma.

Discussion

Concerning this patient, there are two distinct diagnoses: primary open-angle glaucoma and AAION caused by giant cell arteritis. Glaucoma and subsequently revealed what was likely a compressive lesion. Judging by this patient’s age, temporal headache, and the sudden and profound nature of his vision loss, arteritic anterior ischemic optic neuropathy (AAION) was highly suspected.

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An optic nerve OCT was repeated (see Figure 2). The optic nerve swelling had resolved and subsequently revealed what was likely a compression of both post-AAION cupping and gluocuous cupping.

Because both glaucoma and post-AAION status derive from similar vascular mechanisms, it is suggested that the acute ischemic event in an AAION acts as a faster version of the chronic ischemia occurring in glaucomatous optic neuropathy.

Consequently, this patient is now being tapered off of oral prednisone and is being managed for glaucoma.

A small study showed that IOP is usually significantly lower in patients with giant cell arteritis, with hypotony occurring in one third of these cases. The difference in this case resulted from the concomitant glaucoma, causing IOPs to be high.

Additionally, in patients with giant cell arteritis, it is not likely that vision will improve after initiation of corticosteroid therapy, but this patient was part of the approximately 34 percent of patients who do have small improvement after steroid treatment.

Conclusion

In a case such as this, communication with other specialties is vital. If AAION is suspected, time is crucial, and same-day bloodwork and urgent rheumatology consultation are both imperative.

This case additionally highlights the importance of noting the presence of concomitant illnesses. Currently there is no known causative relationship between AAION and glaucoma, but their similarities lie in vascular origin. In the future, optical coherence tomography angiography (OCT-A) may prove to be an important tool in the management of cases like this with ischemic optic nerve conditions.

Judging by this patient’s age, temporal headache, and the sudden and profound nature of his vision loss, arteritic anterior ischemic optic neuropathy (AAION) was highly suspected.

REFERENCES


Dr. Evans specializes in peri-operative surgical management and ocular surface disease. She received her doctor of optometry degree at Southern College of Optometry. She is a member of the Tennessee Association of Optometric Physicians and American Optometric Association. Dr. Evans is a member of Shire’s advisory board and receives financial support from Bruder Healthcare Company. She enjoys tennis and participating in the Downtown Nashville Lions Club and Daughters of the American Revolution.

ejevans22@gmail.com
I didn’t realize
STARS
were little dots that twinkled
—Misty L, RPE65 gene therapy recipient

WE’RE SEEING AMAZING RESULTS. AND SO ARE THEY.

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FightBlindness.org
Know how to comanage MIGS patients

Continued from page 1

The iStent (Glaukos), iStent Inject (Glaukos), and Hydrus Microstent (Ivantis) gain access to Schlemm’s canal by stenting through the trabecular meshwork.1–4

The ideal patient candidate is someone with a visually significant cataract, mild to moderate glaucoma, and taking one or two topical glaucoma medications.

Ab-interno canaloplasty (AbiC, Ellex) and Visco360 (Sight Sciences) use microcatheters to viscodilate the trabecular meshwork, Schlemm’s canal, and the distal outflow system.5

The ideal patient candidate is someone with mild to moderate glaucoma, on one or two topical glaucoma medications, and is pseudophakic or has a visually significant cataract.

The Kahook Dual Blade (New World Medical) excises or removes roughly three clock hours of trabecular meshwork, giving aqueous direct access to the collector channels and the distal outflow system.6 The device was designed to be used as a standalone procedure but can be combined with cataract surgery.

Trabectome (Neomedix) ablates 120 to 180 degrees of trabecular meshwork and the inner wall of Schlemm’s canal, lowering resistance to aqueous outflow. This procedure can be used as a standalone procedure or in conjunction with cataract surgery.7

Postoperative care

The devices—specifically the stents—in this category are placed in the anatomical angle of the eye and typically not visible with only slit-lamp examination. To visualize the angle and the devices, the optometrist must be proficient with gonioscopy.

Although uncommon, a tuft of iris can obstruct the stent, causing intraocular pressure (IOP) to elevate. If this is identified, return the patient to the surgeon for obstruction removal.

I recommend observing the stent at least one time in the first three months postoperatively and then once per year moving forward.

With the devices and procedures in this category, a mild, transient hyphemia is not uncommon. During the preoperative examination, it is important to tell the patient that there is a possibility of cloudy vision for about one week due to a hyphemia.

This hyphemia, which appears on slit-lamp exam similar to an anterior chamber reaction, is not urgent to address, and the patient can be monitored until it resolves. If a large hyphema is present, the patient should be referred to the surgeon for anterior chamber washout.

Hypotony is not a concern with this category of MIGS because they do not bypass episcleral venous pressure. That means IOP should not decrease below 10 mm Hg.

IOP spikes are a concern in this patient population because their optic nerve heads are compromised from the disease. The decision on how aggressive to be with IOP lowering is based on the severity of the glaucoma. Because most patients in this MIGS category have mild to moderate glaucoma, control can often be obtained with one or two topical glaucoma medications. Once IOP is controlled, medication can be removed to assess the efficacy of the MIGS procedure.

If the IOP spike is severe, the addition of an oral anti-glaucoma medication to topical glaucoma medications can help reduce the IOP. Oral agents are only a temporary fix, but they are effective for a short period of time.

In an emergent situation in which the IOP spike could quickly compromise the health of the optic nerve head, an anterior chamber decompression is an effective way to rapidly decrease IOP. The patient should be placed on topical glaucoma medications and followed closely over the next two to seven days to make sure the IOP spike does not reoccur.

Supraciliary devices

Currently no supraciliary devices are approved.
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Managing MIGS
Continued from page 22

for use. These devices carry the potential to significantly lower IOP because access to the supraciliary space allows bypass of episcleral venous resistance. Episcleral venous pressure is a range from 8 mm Hg to 10 mm Hg. A patient with moderate glaucoma with a visually significant cataract on one, two, or three topical glaucoma medications is an ideal candidate.

Postoperative considerations are the same as trabecular meshwork and Schlemm’s canal devices, except there is a small risk of hypotony with supraciliary devices. In the Study of an Implantable Device for Lowering Intraocular Pressure in Glaucoma Patients Undergoing Cataract Surgery (COMPASS) trial, the rate of hypotony was 2.9 percent.

CyPass Microstent (Alcon) was removed from the market in September 2018 due to complications resulting in corneal endothelial cell loss that occurred around five years postimplantation.

In the Study to Assess Long-Term Safety of the Transcend CyPass Micro-Stent in Patients Completing the COMPASS (COMPASS XT) trial, 27.2 percent of patients implanted with CyPass Microstent had greater than 30 percent of endothelial cells loss at five years. Device position was the only thing strongly correlated with an increase of endothelial cell loss.

American Society of Cataract and Refractive Surgeons (ASCRS) task force recommended that stent removal should not occur; however, if the surgeon felt it was necessary to intervene due to positioning, trimming the proximal end of the stent is the preferred procedure. It is also encouraged that each patient with a stent have endothelial cell count and pachymetry to monitor for changes to the corneal endothelium and monitor for edema.

Subconjunctival devices
Xen gel stent (Allergan) lowers IOP by creating a drainage pathway from the anterior chamber through the intrascleral anatomy and into the subconjunctival space. The device is approved as a standalone procedure for refractory glaucoma in phakic or pseudophakic eyes.

Ideal patient candidates for subconjunctival devices are those on maximum medications and have failed with other medical or surgical treatment options.

Ideal patient candidates are those on maximum medications and have failed with other medical or surgical treatment options.

Postoperative care
Subconjunctival devices form a low-lying filtering bleb postoperatively, so optometrists co-managing this device must monitor for bleb-related complications. These include erosion of the stent through the conjunctiva leading to a leaking bleb or blebitis, fibrosis, and encapsulated bleb.

These complications will cause the device to fail and IOP will not be effectively lowered, or in the case of a bleb leak, hypotony can occur.

If fibrosis occurs, bleb manipulation or needling will maintain adequate IOP control. In one study, the rate of bleb needling was 32 percent, similar to what is seen with conventional filtration procedures.

IOP spikes, obstruction, and transient hyphema occur with subconjunctival devices. They are managed similar to occurrences with other MIGS devices.

Hypotony is another postoperative consideration for optometrist when co-managing a subconjunctival device.

The first step in managing hypotony is discontinuing topical glaucoma medications.

Next, examine the anterior chamber to make sure it is formed with no iridocorneal touch. Perform a fundus examination to rule out choroidal effusions.
If the anterior chamber is formed and no choroidal effusions exist, the patient can be monitored. In the setting of a flat anterior chamber or choroidal effusions, the patient will need to be referred to the surgeon for intervention.

In one study involving a subconjunctival device, the hypotony rate was 24.6 percent. The majority of the hypotony suffered in the study was self-resolving, with only two eyes requiring intervention.

Managing MIGS patients
As primary eyecare providers, optometrists will play an integral role in recommending and postoperatively managing MIGS.

It is imperative that ODs understand the mechanism of action of MIGS procedures and what to expect in the postoperative period.

Patient education preoperatively is as important as managing MIGS patients postoperatively. This education includes setting realistic goals, discussing postoperative complications that can occur, and reminding patients that a MIGS procedure doesn’t cure the disease, only manages it—and periodic follow-ups are necessary.

This is an exciting time in the management and treatment of glaucoma. Now, more than ever before, the toolbox available to treat glaucoma patients is growing—MIGS is one of those tools.

Hypotony is not a concern because they do not bypass episcleral venous pressure—that means IOP should not decrease below 10 mm Hg

REFERENCES

Dr. Schweitzer specializes in the treatment of glaucoma, anterior segment pathology, and cataracts. He is adjunct clinical professor at The Illinois College of Optometry and a member of the American Optometric Association, Optometric Cornea, Cataract, and Refractive Society; Scleral Lens Education Society, and the South Dakota Optometric Society. He is immediate past president of the Intrepid Eye Society and a board member of the Optometric Glaucoma Society. He enjoys camping, spending time at the lake, running, biking, and swimming. Dr. Schweitzer consults for Alcon, Allergan, and Glaukos. Justin.Schweitzer@vancethompsonvision.com
Swarovski expands with signature design

The new Swarovski Eyewear Collection is expanding the brand’s offering of women’s styles. Inspired by its jewelry collection, the new frames convey signature Swarovski design.

- The reinvented classic style of **SK0189** is designed to lift even the simplest of outfits with its Swarovski crystals and pearls embellishments.

- Understated crystal detailing elevates the iconic pilot shape of **SK0194**.

- The cat-eye shape of **SK5286** features subtle sparkling embellishment.

- **SK0201** features crisp lines, an innovative lens-on-lens technique, and high-impact styling.

- **SK5283** features Swarovski-exclusive rhombus stone detailing.

- **SK5287** combines crisp lines and bold square Swarovski crystal temple decorations.

- **SK5291** updates the classic cat-eye look into a modern eyewear statement using the Swarovski crystal fine rock for sparkle.
EVATIK introduces darker frames for men's style

The new EVATIK collection features darker colors and fine details for men's style.

- **E9181** includes a beveling along the top and bottom of the brow bar, giving a three-dimensional appearance to the rectangular frame.
- **Style E9182** consists of a thin, stainless steel round frame. A tortoise-patterned acetate is overlaid on the top rim, along with metal end pieces and barrel temples.
- **Style E9183** features a laser-cut cross hatch pattern over the brow bar and highlights along the eye rim in a contrasting color.

FYSH launches seasonal styles for women

The latest release of FYSH eyewear features metallic hues and patterns.

- **F-3620** combines metal and acetate by wrapping a metal bar along the brow and piercing it through the end piece to connect with the temples. A matte finish is included on the metal, along with a handmade acetate. Available color options are honey amber black, black matte gold, crystal palladium, and nude gold.
- **F-3621** features an uneven pattern along the edge of the top rim and the temples with a two-tone coloration. The frame design includes looped end pieces, polished temples and metal temple tips. Color options for these frames include rose, gold, burgundy, black gold, brown gold, and gold brown.
- **F-3622** has a metallic and round frame constructed from a monoblock sheet. A three-dimensional design includes a dual shape rim with matte and two-tone finishes.
- **F-3623** features layers of handmade crystal acetate laminated with a stylized metallic brow bar in contrasting color. The frame's end pieces are carved to mirror the triple metal curves laminated into the acetate. Available colors for this style are blush rose gold, grey gun, crystal gold and nude gold.

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Fred releases signature Force 10-inspired collection

Based on Fred’s signature Force 10 bracelet created more than 50 years ago, the brand’s new collection of eyewear contains maritime-inspired styles.

- **FG40001** features a reinterpretation of the pilot shape with a mix of endura gold front and pink or blue lenses. Two options are available for a unisex style.

- **FG40003** sunglasses include a rhodium appearance or endura gold front and temple.

- **FG40004** has an oval shape with an acetate front and endura gold or rhodium. The acetate is available in black, havana, or blue-black tortoise.

- The oval variation of **FG40007** features a metal composition in gold and rhodium. The lenses are available in blue, bordeaux gradient, or brown.

- **FG40005** features a rectangular model with gold or rhodium temples.

- **FG40002** features a rectangular shape with yellow and white gold-plated accents.

- The gold-plated structure of **FG50001** is made of a yellow, gold, or mixed with a white-gold front rectangle.

- **FG50003** features gold plating.
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Justin Bazan, OD  Owner of Park Slope Eye, Brooklyn, NY

Art gallery and beer in the office, no office phone, and reggae music

Why choose private practice? Private practice was a burning desire. My first job in optometry as an employee I thought was going well, but I got fired. My vision of handling patient care and the business wasn’t in alignment with the retail/commercial model that’s common in New York City. The 15 minutes for an exam, inability to maintain communication with patients, lack of practicing to my full scope—I was a glorified refractionist. Once I was terminated, I opened my own practice. At the time, cold start seemed to be the best way to go. It was 2008, the start of the recession. It was busy enough that we were able to pay our bills and ourselves. But it was slow enough that I was able to spend time learning the business side. It is a lot of work, but you’re going love doing it because it is your baby.

What were the three biggest challenges you faced growing your practice? The first is finding good people who care almost as much as you. Then it’s a tricky balance of how to retain them. The third biggest challenge we’re having now is growing pains. It’s a good problem to have. But the real estate situation in New York is not ideal. The office is starting to feel crowded.

Why an art gallery in the office? It was a way we could make the office look cooler and work with community artists. We host an opening event, sometimes we host a closing event when we sell off the art. The art has a description with artist names and price. Patients can buy the art right off the walls. It’s a no-commission gallery; the artist gets 100 percent of the sale.

What do you still not have an office phone? We haven’t had a phone since 2011. We figured out why people were calling us, and none of it had to be handled live with a person. They called to find out more information about the office and insurance plans we took, and the most common reason was to make an appointment. In 2011, we implemented an online scheduler, which alleviated the majority of phone calls. Then we made sure our online presence had an FAQ that had the most common questions we used to get on the phone. Another reason for calling was to find out if glasses or contact lenses are ready. Now when we make an order for glasses or contact lenses, we are very clear that we will email the second it comes in and give them a realistic estimated time of arrival. Then we go old school and write it down on a business card with our email address. We have a Google voice line which allows people to leave a voice mail, but there’s no phone in the office that rings. Doing so eliminated a whole position, which helps keep our staff payroll down. In New York, staff isn’t cheap.

What do you do for downtime? I love optometry, so it’s rare that I say “no” to things. When I make time to enjoy stuff, I’m out exploring whatever city I’m in. Here in New York, I’m usually at a restaurant or a show. I like live music. I like food; I don’t know how to cook, so I’m at a restaurant. I don’t think I’ve touched a stove in over a decade.

What’s your guilty pleasure food? Ice cream. I eat healthy, but I buy little pints of Häagen-Dazs or Ben & Jerry’s. I try not to eat it in one sitting, but sometimes it is going to get consumed in two seconds.

What’s the craziest thing you’ve ever done? Oh man, I can definitely not get honest with that! [Laughs] The next craziest thing, I went to a nine-day reggae festival in Spain. It was in a little town called Benicassim. We rented a house on the cliffs overlooking the ocean. We had 10 friends with us. We did the reggae festival all day and night, and took breaks to chill on the beach. —Vernon Trollinger

Do you still serve beer? Absolutely. We’ve had beer since our grand opening, and it has been part of our office environment ever since. We offer a choice of beverage to all patients, and beer from local breweries is offered. We wait until after 5 p.m. The New York State Liquor Authority says you can’t sell alcohol; however, you can give it away if it’s not tied to a purchase and the person is of age. So, we’re clear on all fronts.

What do ODs fall off social media marketing, and how can they stay engaged? They don’t build it into their routine day-to-day operations. Our office is successful at it because we make it part of our opening procedures—unlock the front gate, turn on the light, post on social media. If more ODs stuck it in their opening procedures, you would see a greater success rate.

To hear the full interview with Justin Bazan, listen online: optometrytimes.com/JustinBazan
**BRIEF SUMMARY:**
Consult the Full Prescribing Information for complete product information.

**INDICATIONS AND USAGE**
Xiidra® (lifitegrast ophthalmic solution) 5% is indicated for the treatment of the signs and symptoms of dry eye disease (DED).

**DOSAGE AND ADMINISTRATION**
Instill one drop of Xiidra twice daily (approximately 12 hours apart) into each eye using a single-use container. Discard the single-use container immediately after using in each eye. Contact lenses should be removed prior to the administration of Xiidra and may be reinserted 15 minutes following administration.

**CONTRAINDICATIONS**
Xiidra is contraindicated in patients with known hypersensitivity to lifitegrast or to any of the other ingredients in the formulation.

**ADVERSE REACTIONS**

**Clinical Trials Experience**
Because clinical studies are conducted under widely varying conditions, adverse reaction rates observed in clinical studies of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice. In five clinical studies of dry eye disease conducted with lifitegrast ophthalmic solution, 1401 patients received at least 1 dose of lifitegrast (1287 of which received lifitegrast 5%). The majority of patients (84%) had ≤3 months of treatment exposure. 170 patients were exposed to lifitegrast for approximately 12 months. The majority of the treated patients were female (77%). The most common adverse reactions reported in 5-25% of patients were instillation site irritation, dysgeusia and reduced visual acuity. Other adverse reactions reported in 1% to 5% of the patients were blurred vision, conjunctival hyperemia, eye irritation, headache, increased lacrimation, eye discharge, eye discomfort, eye pruritus and sinusitis.

**Postmarketing Experience**
The following adverse reactions have been identified during postapproval use of Xiidra. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

Rare cases of hypersensitivity, including anaphylactic reaction, bronchospasm, respiratory distress, pharyngeal edema, swollen tongue, and urticaria have been reported. Eye swelling and rash have been reported.

**USE IN SPECIFIC POPULATIONS**

**Pregnancy**
There are no available data on Xiidra use in pregnant women to inform any drug associated risks. Intravenous (IV) administration of lifitegrast to pregnant rats, from pre-mating through gestation day 17, did not produce teratogenicity at clinically relevant systemic exposures. Intravenous administration of lifitegrast to pregnant rabbits during organogenesis produced an increased incidence of omphalocele at the lowest dose tested, 3 mg/kg/day (400-fold the human plasma exposure at the recommended human ophthalmic dose [RHOD], based on the area under the curve [AUC] level). Since human systemic exposure to lifitegrast following ocular administration of Xiidra at the RHOD is low, the applicability of animal findings to the risk of Xiidra use in humans during pregnancy is unclear.

**Animal Data**
Lifitegrast administered daily by intravenous (IV) injection to rats, from pre-mating through gestation day 17, caused an increase in mean preimplantation loss and an increased incidence of several minor skeletal anomalies at 30 mg/kg/day, representing 5,400-fold the human plasma exposure at the RHOD of Xiidra, based on AUC. No teratogenicity was observed in the rat at 10 mg/kg/day (460-fold the human plasma exposure at the RHOD, based on AUC). In the rabbit, an increased incidence of omphalocele was observed at the lowest dose tested, 3 mg/kg/day (400-fold the human plasma exposure at the RHOD, based on AUC), when administered by IV injection daily from gestation days 7 through 19. A fetal No Observed Adverse Effect Level (NOAEL) was not identified in the rabbit.

**Lactation**

There are no data on the presence of lifitegrast in human milk, the effects on the breastfed infant, or the effects on milk production. However, systemic exposure to lifitegrast from ocular administration is low. The developmental and health benefits of breastfeeding should be considered, along with the mother’s clinical need for Xiidra and any potential adverse effects on the breastfed child from Xiidra.

**Pediatric Use**
Safety and efficacy in pediatric patients below the age of 17 years have not been established.

**Geriatric Use**
No overall differences in safety or effectiveness have been observed between elderly and younger adult patients.

**NONCLINICAL TOXICOLOGY**

**Carcinogenesis, Mutagenesis, Impairment of Fertility**

Carcinogenesis: Animal studies have not been conducted to determine the carcinogenic potential of lifitegrast.

Mutagenesis: Lifitegrast was not mutagenic in the in vitro Ames assay. Lifitegrast was not clastogenic in the in vivo mouse micronucleus assay. In an in vitro chromosomal aberration assay using mammalian cells (Chinese hamster ovary cells), lifitegrast was positive at the highest concentration tested, without metabolic activation.

Impairment of fertility: Lifitegrast administered at intravenous (IV) doses of up to 30 mg/kg/day (5400-fold the human plasma exposure at the recommended human ophthalmic dose [RHOD] of lifitegrast ophthalmic solution, 5%) had no effect on fertility and reproductive performance in male and female treated rats.
IN A CLASS OF ITS OWN

Xiidra is the only lymphocyte function-associated antigen-1 (LFA-1) antagonist treatment for Dry Eye Disease\(^1,2\)

Xiidra, the first in a class of LFA-1 antagonists for Dry Eye Disease, is a prescription eye drop FDA-approved to treat both signs and symptoms of the disease.\(^1,3\)

There’s no substitute.\(^2,4\)
Check out patient resources, insurance coverage, and more at \textbf{Xiidra-ECP.com}

\textbf{Indication}

Xiidra\(^\circledast\) (lifitegrast ophthalmic solution) 5% is indicated for the treatment of signs and symptoms of dry eye disease (DED).

\textbf{Important Safety Information}

Xiidra is contraindicated in patients with known hypersensitivity to lifitegrast or to any of the other ingredients.

In clinical trials, the most common adverse reactions reported in 5-25% of patients were instillation site irritation, dysgeusia and reduced visual acuity. Other adverse reactions reported in 1% to 5% of the patients were blurred vision, conjunctival hyperemia, eye irritation, headache, increased lacrimation, eye discharge, eye discomfort, eye pruritus and sinusitis.

To avoid the potential for eye injury or contamination of the solution, patients should not touch the tip of the single-use container to their eye or to any surface.

Contact lenses should be removed prior to the administration of Xiidra and may be reinserted 15 minutes following administration.

Safety and efficacy in pediatric patients below the age of 17 years have not been established.

\textbf{References:}

1. Xiidra [Prescribing Information]. Lexington, MA: Shire US.