Long-term gene therapy for wet AMD promising

One-year report on rAAV.sFlt-1 finds no evidence of inflammation, IOP elevation, events, clinical changes

By Nancy Groves;
Reviewed by Elizabeth Rakoczy, MSc, PhD

PERTH, AUSTRALIA :: INITIAL OUTCOMES FROM a phase I gene therapy trial for exudative age-related macular degeneration using a subretinal injection suggest that the treatment is safe and well tolerated. Furthermore, it may eliminate the need for frequent re-injection with anti-vascular endothelial growth factor (VEGF) agents.

Subjects treated with the subretinal injection of rAAV.sFlt-1—a viral vector used to deliver a gene that expresses a therapeutic protein in the eye—showed gains in visual acuity and a reduction in center point retinal thickness. Rescue therapy was rarely needed.

“The safety is excellent, and we have seen long-term benefits for the patients from this approach,” said Elizabeth Rakoczy, MSc, PhD, professor and director of molecular ophthalmology, Centre for Ophthalmology and Visual Science, University of Western Australia, Perth. “Patients who receive our treatment do not need any re-treatments, or very few, and the growth of new blood vessels in the eye can be controlled without any additional intervention.”

(Continues on page 15: AMD gene therapy)
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1 Preoperative baseline recovery compared to trabeculectomy
2 Number of postoperative visits compared to trabeculectomy

Clinical Diagnosis

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Cutting-edge advancements changing course of disease management, treatment

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Why the best surgical plan for cataract patients begins with addressing need for lens removal

Video

Using femtosecond laser technology, the anterior capsulorhexis, nuclear fragmentation, and corneal incisions are created. Go to http://bit.ly/1pEffgC
(Video courtesy of Georgina Givaudan-Pedroza, MD)

What’s Trending

See what the ophthalmic community is reading on OphthalmologyTimes.com

1 Don’t let patients self-medicate with marijuana for glaucoma

2 New insights on patient experiences after LASIK
http://bit.ly/1nZ9A43

3 Club drug linked to eye damage
http://bit.ly/1rezoA8

Podcasts

Missed the Glaucoma 360° meeting?
Listen to these presentations on-demand.

Robert Weinreb, MD, on glaucoma monitoring

Richard Lindstrom, MD, on ophthalmic innovation
http://bit.ly/1mCMShY

Alfredo Dubra, PhD, on early glaucoma diagnosis
http://bit.ly/1rbN7IR

Survey Recap

Ophthalmology Times asked: Is your area, is there any increase in demand occasioned by the long-awaited advent of the Affordable Care Act and the health insurance exchanges?

- Yes: 13%
- No: 87%
Saying it simply

Using hard words (or, if you prefer, complex verbiage)

By Peter J. McDonnell, MD
director of the Wilmer Eye Institute,
Johns Hopkins University School of
Medicine, Baltimore, and chief medical
editor of Ophthalmology Times.

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A COLLEAGUE OF mine was recently
preparing a document for inpatients and
family members to read. Her hospital, she told me,
grade 10. She reworked it to simplify the lan-
guage and found it now to be at eighth-grade
finally got it down to 5.9, and left it there.

“it’s almost impossible to write about some-
thing substantive at a fifth-grade level,” she said.

READABILITY LEVEL

The Flesch-Kincaid (F-K) readability grade level
was developed under contract to the U.S. Navy
in 1975. The F-K formula was adopted by
the U.S. Army for assessing the difficulty of technical
manuscripts in 1978 and soon became the standard
for the Department of Defense. Pennsylvania
was the first state to require that car
standard for the Department of Defense. Pennsylvania
developed under contract to the U.S. Navy
was developed under contract to the U.S. Navy
surance policies be written at no higher than a
ninth-grade level (14 to 15 years of age) of read-
requirement has been adopted by many other
states and for other legal documents.

Institutional review boards typically have a
requirement to only a minority of Americans.
Thanks to this research, I comprehend why
some people insist they don’t find my columns
ble to only a minority of Americans.

Constantinople” and “anti-disestablishmen-
tarianism,” I was hoping to keep things light.

F-K system, however, my writings are accessi-
able to only a minority of Americans.

“I am not the only one who works for the Associated Press, is credited
with reducing the difficulty of reading newspaper
 articles, reducing grade levels. A 1948 study

in Journalism Quarterly showed that lowering reading difficulty from the 13th grade to the sixth grade increased the number of paragraphs
read by 93%.

Supposedly, the typical newspaper
is today written at an eighth-grade level.

AT WHAT GRADE LEVEL?

This prompted two questions:

What is my own reading grade level?

What is the F-K grade level of my editorials in
Ophthalmology Times?

Adding up my years in grammar school (8),
high school (3), college (3), medical school (4),
and residency (3)—Note: I had no time to read
during my internship—I logically conclude that I
should be at a 21st-grade level.

To find out if all those years of schooling are
reflected in my writings, I checked a half dozen
of my past editorials. The F-K grade level of a
document can be determined using the Review
function in Word. I discovered that my editorials are consistently in the 12th- to 13th-grade range.

I had presumed my contributions to Ophthal-
mology Times were at a fairly low grade level.
My intent was always that they be simple, and
hopeful, humorous reads in contrast to the
denser scientific articles elsewhere in this pub-
lication. By avoiding complicated words, like
“Constantinople” and “anti-disestablishmen-
tarianism,” I was hoping to keep things light.

some of my family members and
friends are orthopedic surgeons, and I don’t
want them to be left behind. According to the
F-K system, however, my writings are accessi-
ble to only a minority of Americans.

Thanks to this research, I comprehend why
some people insist they don’t find my columns
to be particularly insightful or humorous. It’s
not their fault. I blame myself. My writing is
just too gosh-darned sophisticated.

References

Through its multifaceted content channels, Ophthalmology Times will assist physicians with the tools and knowledge necessary to provide advanced quality patient care in the global world of medicine.
Focus on efficient R&D pays dividends for physicians, patients

By Scott M. Whitcup, MD

Editor’s Note: A lot of information has surfaced over the past several months in Valeant Pharmaceuticals’ $53 billion bid for Allergan. Though the war of words between the two companies has been thoroughly outlined and covered in the financial media, there is one argument that is the most significant to physicians—most importantly, ophthalmologists—and it’s research and development (R&D).

Both companies have different approaches to R&D. On the following pages, Scott M. Whitcup, MD, executive vice president of R&D for Allergan, and Calvin Roberts, MD, chief medical officer of Bausch + Lomb, outline their respective company’s position in developing and bringing new products to market. Valeant acquired B+L in 2013.

This forum was made available to both companies so readers would have a better understanding of the R&D issue and where each company stands in the ophthalmic market and what it means to physicians.

Despite the challenges of higher costs of developing drugs, increased regulatory requirements, and limitations on reimbursement for health care, the key to success in the pharmaceutical industry has been—and still is—innovation.

Research and development (R&D) organizations should be science-based and innovation-focused to provide true value to patients and physicians. For more than 60 years, Allergan has been committed to discovering and developing innovative pharmaceuticals, biologics, and medical devices.

Through thoughtful investment internally and collaboration with both academic centers and outside companies, Allergan has built an effective, efficient R&D model that has resulted in a long track record of developing and progressing new treatments through approvals at an industry-leading pace. Since 2010, the company has received 12 FDA approvals. This success is a direct result of hiring outstanding researchers who focus on science and innovation.

We believe our commitment to internal R&D development fosters a culture of innovation and expertise, an essential element to success. We focus our efforts in the specialty areas where we can develop scientific expertise and concentrate the vast majority of our pipeline on locally administered treatments, where side effects can be limited, and the benefits to patients can be optimized. This selective focus maximizes the potential of our pipeline.

In addition, we foster an entrepreneurial approach to R&D, where we follow the science and develop new indications or novel ways to deliver existing therapies. An example of this approach is the development of bimatoprost, which was a new chemical entity we developed and received regulatory approval for as a topical eye drop (Lumigan) for the treatment of open-angle glaucoma or ocular hypertension. Because poor patient compliance with eye drops leads to suboptimal therapeutic outcomes, we are now developing bimatoprost in a biodegradable, sustained-release implant for glaucoma to ensure more optimal control of IOP.

**PIPELINE FROM PRODUCT**

OnabotulinumtoxinA (Botox) is perhaps the best-known example of developing a pipeline out of a product. In-licensed as a therapy for suppression of organ transplant rejection to develop a therapeutic dry eye agent. This was only possible because our scientists understood that inflammation was a core contributor to the disease and were able to develop and utilize a complex emulsion to deliver the drug effectively to the eye.

Today, nearly a decade since first approved, the agent remains the first-and-only therapeutic product indicated for the treatment of chronic dry eye. Our deep-rooted ophthalmic scientific knowledge has allowed us to create and succeed in markets where other pharmaceutical companies have not been as successful.

Economist Theodore Levitt said, “Creativity is thinking about new things, innovation is doing new things.” Pharmaceutical companies are uniquely positioned to ensure that scientific creativity leads to novel and innovative therapy. Efficient R&D and an innovative pipeline remain the cornerstones of success in the pharmaceutical industry.

It is no surprise then that Allergan’s R&D investment has a direct impact on stockholder value. As a public company, consistently generating innovative products creates stockholder value, and this is what enables us to continue to invest in R&D. Our stockholders and our patients and physicians should expect nothing less.
The survey also identified key components of physician-led ACOs, including:

- They are less likely to include hospitals and other types of providers, and
- They are less likely to offer services traditionally segregated from medical care, such as behavioral health and pharmacy.

**Survey: A look at physician-led ACOs**

A Heath Affairs Survey found that 51% of accountable-care organizations (ACOs) are physician-led and another 33% are operated jointly by physicians and hospitals. More than three-fourths of ACOs have a majority of physicians on their governing board, and 40% are physician-owned.

While the authors cite potential challenges for physician-led ACOs—specifically, coordinating care between care settings and developing health information technology infrastructure—they argue that physician leadership is vital to the care model’s future success.

The managed-care movement in the 1990s showed that physician leadership is essential if physicians are “expected to serve both their patients and the financial interest of their organization.”
Diagnostic technologies enhancing quality of care
Cutting-edge advancements are changing course of disease management, treatment

By Marguerite B. McDonald, MD, Special to Ophthalmology Times

TAKE-HOME

» As technology advances, the ability to serve patients will greatly improve. Having sophisticated tools at physicians’ disposal will make medical decisions all the more appropriate and treatment plans all the more effective.

NEW YORK ::

Recent innovations in diagnostic technology allow eye-care professionals (ECPs) to improve quality of care. Being able to diagnose disease with a higher degree of accuracy, determine treatment based on evidence, and set objective expectations for surgery are some of the many tangible benefits clinicians are seeing in recent years, as their diagnostic armamentarium grows increasingly sophisticated.

Patients recognize and appreciate being evaluated with safe, non-invasive, high-tech equipment. Accordingly, physicians have made sure to implement best-in-class diagnostic technologies for managing several diseases, including dry eye, meibomian gland dysfunction (MGD), allergic conjunctivitis, and age-related macular degeneration (AMD).

These technologies have proven to set the practice apart by building patients’ confidence in their care.

ROOTING OUT THE CAUSE OF DRY EYE

Determining the cause of a patient’s dry eye often can be the determining factor in whether prescribed treatment can relieve symptoms and improve quality of life.

The ocular manifestation of Sjögren’s syndrome—an autoimmune inflammatory disease—has typically been diagnosed as a progressive form of aqueous-deficient dry eye.

Recently, that view of the typical patient with Sjögren’s syndrome has been challenged by data suggesting that as many as 1 in 10 patients with dry eye may, in fact, have Sjögren’s syndrome.

Historically, methods for diagnosing Sjögren’s syndrome have failed to detect early cases and have a low specificity and sensitivity.

A new diagnostic test (Sjö, Nicox) combines traditional markers with three novel, proprietary biomarkers, allowing earlier detection of this serious systemic disease. The test allows physicians to diagnose Sjögren’s syndrome early and, essentially, alter the course of a patient’s health. When considering whether a patient should be tested for Sjögren’s syndrome, ECPs should not only look for early hallmark symptoms of dry eye—as well as dry eye symptoms in unusual patient demographics—but also be cognizant of patients who have difficulty speaking or swallowing, a sore or cracked tongue, dry throat and lips, halitosis, or dental decay.

Additionally, clinicians now have an ocular surface interferometer (LipiView, TearScience) to determine which patients are suffering from dry eye as a result of MGD. The device measures the absolute thickness of the tear film lipid layer by analyzing more than 1 billion data points using white light interferometry of the tear film. It also analyzes how completely the patient is blinking. Results from this test can determine which patients can benefit from treating obstructed meibomian glands with pulsating thermal lid massage (LipiFlow, TearScience).

A TACTICAL APPROACH TO RED EYE

Just as getting to the bottom of dry eye is important to achieving a healthy ocular surface, properly diagnosing and managing a red eye—the presentation of which often can be difficult to diagnose empirically—is critical to ensuring the best possible outcomes for patients. For example, it has been shown that the signs and symptoms of viral, bacterial, or allergic conjunctivitis can be indistinguishable and, furthermore, that ECPs make an accurate differential diagnosis for acute conjunctivitis only 50% of the time.

Accordingly, an in-office immunoassay (AdenoPlus, Nicox) enables rapid, differential diagnosis of acute conjunctivitis at the point of care. The test only takes 2 minutes to administer and provides a confirmation of adenovirus’ presence within 10 minutes.

The device itself operates much like a preg-
A NEW LOOK AT RETINAL LESIONS
In addition to providing best-in-class management of ocular surface disease, new advances in diagnostic technology are impacting the way clinicians approach surgery. Consider that numerous older Americans in normal health who are headed for cataract surgery have lesions indicating early AMD, but that traditionally, it has been exceedingly difficult to determine whether those lesions are clinically significant.

Optical coherence tomography is helpful in detecting macular lesions, but microperimetry (MAIA, CenterVue) is thus far the only way to determine if those lesions will impact postoperative vision, which would then make a patient a poor candidate for multifocal IOLs. Microperimetry also helps monitor the course of retinal diseases and the effectiveness of treatment.

The oldest of the baby boomer generation are undergoing cataract surgery now and could easily live another 20 or 30 years. If those patients could benefit from a multifocal IOL, then that technology should be made available to them. On the other hand, an IOL should not be implanted if the patient has retinal lesions that might cause postoperative symptoms and/or poor vision. Microperimetry is useful in measuring functional changes to the retina caused by disease.

ONBOARDING NEW TECHNOLOGIES
To ensure successful implementation of these technologies, a physician considering implementation should consult with a colleague who has the technology he or she wants to acquire, if possible, to determine if it is a good fit for his or her practice.

Physicians should make it known to staff that implementation of the technology is an important aspect of providing quality care. Fortunately, many of the new diagnostic technologies available today have a short-learning curve, have intuitive software, and are fail-safe.

As technology continues to advance, the ability to serve patients will greatly improve. As medical professionals, we always strive to update our knowledge base and technology offerings to provide state-of-the-art ophthalmic care. Having sophisticated tools at our disposal will make medical decisions all the more appropriate and treatment plans all the more effective.

INDIANAPOLIS ::
A STUDY DESIGNED to set an appropriate benchmark for LASIK is generating interesting findings in a preliminary analysis of outcomes at 1 year, according to Francis Price Jr., MD.

The prospective, Internet-based survey study is under way at multiple centers across the United States and three international sites. It is funded solely by the participating practices and the Cornea Research Foundation of America. Eligible patients are 18 to 60 years old who require some vision correction, are not seeking multifocal treatment, and do not have keratoconus or abnormal topography.

Patients are administered surveys at enrollment with questions about satisfaction with vision correction, vision difficulties, and complications, and are being surveyed again after 1, 2, and 3 years, said Dr. Price, president and founder, Cornea Research Foundation of America, and in private practice, Indianapolis.

As of Sept. 2013, the study had enrolled its target population of 2,000 patients wearing spectacles or contact lenses. Responses to a follow-up survey at 1 year were available from 460 subjects who stayed with contact lenses, 579 patients who went from wearing contact lenses to have LASIK, and 199 patients who wore glasses at entry and then had LASIK.

The 1-year data showed that among patients who went on to LASIK and those who stayed in contact lenses, nearly all (96% to 98%) would recommend their current vision correction method to a family member or friend.

However, the proportion of patients who would strongly recommend their current method of vision correction was much higher among patients who went from glasses or contact lenses to LASIK (77% and 87%, respectively) compared with those who stayed with their contact lenses (53%).

Questions about dry eye showed that compared with contact lens wearers, those in glasses had less dry eye at baseline, but a bigger increase in dry eye symptoms after LASIK.

Patterns of artificial tear use were consistent with the responses to the question on dry eye symptoms, showing an increase in artificial tear use after LASIK and more so in patients who wore glasses previously than among those who had been in contact lenses.

"The data on dry eye indicate that dry eye complaints are common among patients needing vision correction," Dr. Price said.

References

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Understanding new insights on patient experiences after LASIK

By Cheryl Gutman Krader

JULY 15, 2014 :: Ophthalmology Times
PHILADELPHIA ::

The RIDE and RISE phase III long-term extension studies of ranibizumab (Lucentis, Genentech) indicated that the beneficial results of the drug for treating diabetic macular edema (DME) were maintained over the long term, according to Allen C. Ho, MD, FACS.

About 25% of study patients did not need re-treatment, and in most patients requiring further treatment, the drug could be administered on less-than-a-monthly basis to maintain visual acuity gains.

Results of the core RIDE and RISE trials demonstrated the efficacy of ranibizumab for treating DME with the 0.3- and 0.5-mg doses, said Dr. Ho, director of retina research, Wills Eye Hospital, Philadelphia. Patients with DME who completed masked, monthly treatment with ranibizumab at month 36 of the core study then could enter the open-label extension trials. Investigators sought to answer the following clinically relevant questions:

- Can patients maintain visual gains achieved with initial monthly therapy when they transition to as-needed therapy?
- What frequency of re-treatment is sufficient to maintain the visual gains?

STUDY LOGISTICS

Patients in the extension study were treated with 0.5 mg of ranibizumab as needed according to the treatment criteria, i.e., evidence of DME on optical coherence tomography and visual worsening by five or more EDTRS letters compared with month 36 due to DME and not another cause. The visit interval could be extended from 30 days to 60 or 90 days for patients who did not require treatment based on these criteria.

The average time to the first criteria-based injection was 2 to 3 months (from month 36).

“Approximately 25% of the patients received no injections during the open-label extension study,” he said. “The mean annualized as-needed injection frequency was 3.8 injections per year. More than 78% of patients were followed for 10 months or longer.”

Gains in best-corrected visual acuity at month 36 of the core study were maintained in the extension study and decreases in the central foveal thickness were generally maintained with as-needed treatment.

Key ocular adverse events in the extension study were similar to the core study with low rates of endophthalmitis (0% in extension study), retinal detachment, and vitreous hemorrhage.

In the core study, the incidence of Antiplatelet Trialists’ Collaboration-type events and those related to systemic vascular endothelial growth factor inhibition were overall similar among the sham and ranibizumab groups.

In the extension phase, patients received only the 0.5-mg dose. The safety profile during the extension study showed similar serious adverse events to those reported in the core studies.

“Early treatment seems to be important,” said Dr. Ho, because patients who were initially randomly assigned to sham therapy never caught up to the patients who were initially randomly assigned to active treatment.
Analysis: Impact of bupropion use on risk for open-angle glaucoma

Findings may lead to novel therapy, help explain why IOP reduction does not always prevent progression

By Nancy Groves; Reviewed by Joshua D. Stein, MD, MS

ANN ARBOR, MI ::

**USE OF THE** antidepressant bupropion may be beneficial in reducing the risk of open-angle glaucoma due to its properties as a tumor necrosis factor (TNF) inhibitor.

Analysis of bupropion use among patients in a large health-care claims database suggested that bupropion had a dose-response related protective effect, said Joshua D. Stein, MD, MS, assistant professor, ophthalmology and visual sciences, Kellogg Eye Center, University of Michigan, Ann Arbor.

“These findings must be confirmed before we would start to recommend prescribing bupropion specifically for glaucoma, but this study’s results, coupled with basic science models showing that TNF-blocking agents are neuroprotective, offer promise for novel future ways to treat glaucoma,” Dr. Stein said.

A growing body of evidence in both human and animal models suggests that elevated IOP acts as a stressor that can promote neuroinflammation, causing the production of cytokines such as TNF.

Studies in animal models have shown that patients with glaucoma have high levels of TNF, and a 2012 study reported that TNF blockers may protect the retinal ganglion cells, he noted.

Based on this background, Dr. Stein and his colleagues searched for an FDA-approved drug that had anti-TNF activity that might be useful for glaucoma. They turned to bupropion, a norepinephrine-dopamine reuptake inhibitor thought to lower TNF by increasing cAMP via an increase in monoaminergic or dopaminergic tone.

**HYPOTHESIS**

The researchers accessed a health-care claims database of all enrollees in a large U.S. managed-care network between Jan. 1, 2001 and Dec. 31, 2011, reviewing records of all ocular and nonocular conditions, the sociodemographic characteristics of enrollees, and all outpatient medications prescribed.

This provided a cohort of more than 638,000 beneficiaries eligible for analysis. Next, use of bupropion was identified, and the number of days each enrollee was prescribed bupropion or other antidepressant medication classes was quantified.

“We did a regression model analysis to see if the risk of developing glaucoma differed between patients taking and those not taking bupropion,” Dr. Stein said. “Then we also considered other classes of antidepressants to see if the association was specific to bupropion or was apparent with other medications as well, which would contradict our hypothesis.”

The analysis revealed that 7.1% of enrollees (45,337 individuals) had one or more prescriptions for bupropion; the mean length of time taking the drug was 466 ± 583 days, and the median number of eye-related visits was 5 for both users and nonusers of bupropion.

In addition, the analysis showed that 15,292 eligible enrollees (2.4%) developed incident open-angle glaucoma; the rate of disease development was lower in bupropion users (1.8%) than in non-users (2.4%, p < 0.0001).

“After we adjusted for other possible factors in the regression model, the patients taking bupropion had a 0.6% reduced risk for glaucoma for every additional month of use (HR = 0.994, [95% CI: 0.989-0.998], p = 0.007). Over a 4-year period, that amounts to roughly a 29% reduced risk for open-angle glaucoma,” Dr. Stein said.

Analysis of the tricyclic antidepressants and selective serotonin reuptake inhibitors did not show a statistically significant reduction in the risk of glaucoma.

“The study suggests that the apparent effect is specific to this particular antidepressant agent,” Dr. Stein added.

**GENE ANALYSIS: IOP RELATED TO PLASMA MEMBRANE ADHESION**

A GENE DISCOVERY analysis has found evidence that IOP is related to plasma membrane adhesion. Groups of genes involved in biological and cell adhesion—located in the plasma membrane or cellular junction, and involved in calcium ion binding—were significantly over-represented in genetic association profiles for IOP among large cohorts of Caucasians and Asians in the general population.

Go to http://bit.ly/1qRz0W7.

**EXAMINING THE RELATIONSHIP**

The next step was to explore the relationship between the amount of bupropion taken during patients’ time in the health plan and development of glaucoma.

“We found that the group taking the most bupropion had the greatest risk reduction. That also helped support our hypothesis,” Dr. Stein said.

In the analysis, 36 to 48 months of bupropion treatment was associated with a 22% reduced hazard of glaucoma compared with non-users (HR = 0.78, [95% CI:0.60-1.00] p = 0.05).

The researchers also found that the association between bupropion use and glaucoma onset did not differ on the basis of the clinical indication for which the drug was prescribed—for example, a mood disorder or smoking cessation (p ≥ 0.65).

Joshua D. Stein, MD, MS
jdstein@umich.edu
Dr. Stein did not report any commercial relationships.
ARMOR surveillance data update shows increased levels of resistance

Continued monitoring of antibiotic susceptibility warranted as bacterial pathogens continue growth

By Nancy Groves; Reviewed by Mitchell Jackson, MD

LAKES, IL ::

THE MOST RECENT surveillance data on antibiotic resistance trends show increased levels of drug resistance among Staphylococcus aureus and coagulase-negative staphylococci (CoNS), as well as among isolates of Pseudomonas aeruginosa in test sites across the United States.

Results to date from 2013 were compared with those from 2012 by researchers from Bausch + Lomb. They also reported the first data from clinical sites in Canada.

The Antibiotic Resistance Monitoring in Ocular Microorganisms (ARMOR) surveillance study was initiated in the United States in 2009 to monitor resistance trends among bacterial pathogens of ocular significance. Sites in Canada have also begun participating in the study, and the 2012 to 2013 results will provide baseline data.

SUSCEPTIBILITY

To date, 239 isolates from 27 U.S. sites have been subjected to antibiotic susceptibility testing. Both microdilution susceptibility testing per Clinical and Laboratory Standard Institute methods was performed for up to 16 representative antibiotics. Surveillance results showed that isolates of S. aureus and CoNS were non-susceptible to oxacillin/methicillin (43% to 59%), ciprofloxacin (33% to 43%), clindamycin (21%), and azithromycin (60% to 63%), a slight increase over the previous year. Multi-drug resistance (≥3 drug classes) remained prevalent in S. aureus and CoNS isolates (38% to 39%), especially among methicillin-resistant staphylococci (60% to 81%).

“Although no antibiotics are approved for endophthalmitis prophylaxis, what most surgeons care about is what options are available that can protect patients from this devastating eye infection,” said Mitchell Jackson, MD, founder/medical director, Jackson Eye, Lake Villa, IL.

“In this study, the MIC90 (minimum inhibitory concentration) for besifloxacin had a number that was statistically equivalent in vitro to vancomycin, which is our go-to drug when everything else fails, whereas other drugs—moxifloxacin and gatifloxacin—were four-fold less potent, and ciprofloxacin was near 100-fold less potent than besifloxacin or vancomycin for all types of S. aureus,” Dr. Jackson said.

For methicillin-resistant S. aureus (MRSA), the MIC90 of besifloxacin was only one-fold less potent than vancomycin, whereas moxifloxacin and gatifloxacin had an MIC90 of eight-fold less potency; all of the other antibiotics tested had an MIC90 of 64 or greater less potency than vancomycin, Dr. Jackson said.

Across the board, for resistance against S. aureus, MRSA, and methicillin-sensitive S. aureus (MSSA), vancomycin and besifloxacin were far better than all other antibiotics, he added. Vancomycin and besifloxacin were also the most potent against S. epidermidis in the study.

The survey also found that compared with 2012, the ciprofloxacin and imipenem non-susceptibility rates for P. aeruginosa more than doubled to 14% and 21%, respectively; no resistance was detected in Haemophilus influenzae.

“The problem with most top fourth-generation fluoroquinolones is their minimal coverage for gram negative bacteria such as Pseudomonas. The good news is that besifloxacin’s MIC90 value for P. aeruginosa was only slightly lower than that of ciprofloxacin, which is considered the most effective fluoroquinolone against this isolate,” Dr. Jackson said.

Non-susceptibility to penicillin remained steady at 6% among Streptococcus pneumoniae, while the rates for azithromycin and imipenem decreased to 25% and 6%, respectively. Looking at the overall profile resulting from the latest surveillance data from the United States, Dr. Jackson commented that continued monitoring of antibiotic susceptibility is necessary because of high levels of multi-drug resistance.

“You need to determine whether changes among ocular pathogens reflect annual fluctuations, sampling variations, or true trends in resistance patterns,” he said, adding that though ocular use of antibiotics is only a sliver compared with use in systemic treatment, veterinary medicine, and/or agriculture, the prospect of a patient developing a vision-threatening condition justifies judicious use of ocular antibiotics and ongoing, prospective surveillance.

CANADIAN FINDINGS

The surveillance study in Canada collected 180 clinical isolates from patients with ocular infections at seven geographically distributed sites. Isolates included S. aureus, CoNS, P. aeruginosa, H. influenzae, and S. pneumoniae.

Resistance among staphylococci was highest for azithromycin (45% to 51%), oxacillin/methicillin (14% to 42%), and ciprofloxacin (29% to 33%). Among fluoroquinolones, besifloxacin had the lowest MIC90 values (1 mcg/ml for S. aureus, 0.5 mcg/ml for CoNS). These rates were equal to or more potent than that of vancomycin. In addition, more than 21% of S. aureus isolates and more than 43% of the CoNS isolates were non-susceptible to three or more drug classes. Methicillin-resistant isolates of S. aureus (MRSA) and CoNS (MRCoNS) were predominantly multi-drug resistant (89% to 92%).

The Canadian findings showed that among S. pneumoniae isolates, 32% were resistant to azithromycin and 16% were non-susceptible to imipenem—all were susceptible to the fluoroquinolones, ceftriaxone, chloramphenicol, and penicillin. One H. influenzae isolate was non-susceptible to fluoroquinolones, and another showed intermediate resistance to chloramphenicol. No resistance was detected against P. aeruginosa isolates.

MORAL OF THE STORY

The survey also found that compared with 2012, the ciprofloxacin and imipenem non-susceptibility rates for P. aeruginosa more than doubled to 14% and 21%, respectively; no resistance was detected in H. influenzae.

“The problem with most top fourth-generation fluoroquinolones is their minimal coverage for gram negative bacteria such as Pseudomonas. The good news is that besifloxacin’s MIC90 value for P. aeruginosa was only slightly lower than that of ciprofloxacin, which is considered the most effective fluoroquinolone against this isolate,” Dr. Jackson said.

Non-susceptibility to penicillin remained steady at 6% among Streptococcus pneumoniae, while the rates for azithromycin and imipenem decreased to 25% and 6%, respectively. Looking at the overall profile resulting from the latest surveillance data from the United States, Dr. Jackson commented that continued monitoring of antibiotic susceptibility is necessary because of high levels of multi-drug resistance.

“You need to determine whether changes among ocular pathogens reflect annual fluctuations, sampling variations, or true trends in resistance patterns,” he said, adding that though ocular use of antibiotics is only a sliver compared with use in systemic treatment, veterinary medicine, and/or agriculture, the prospect of a patient developing a vision-threatening condition justifies judicious use of ocular antibiotics and ongoing, prospective surveillance.

C A N A D I A N  F I N D I N G S

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How postmortem ultrasound, OCT enhances study of posterior segment

Researchers apply imaging techniques to explore retinal structures in autopsy eyes

By Nancy Groves; Reviewed by Peter R. Pavan, MD

Tampa, FL ::

IN WHAT MAY be the first study of its kind, investigators used standard clinical imaging techniques on autopsy eyes to test a technique that could aid preclinical research. By correlating the findings of optical coherence tomography (OCT) with high-frequency (40 mHz) ultrasound biomicroscopy (UBM), they were able to image fine retinal structures in the eyes.

This technique could be applied to the study of eye diseases, such as age-related macular degeneration and diabetic retinopathy in the early stages, when they are often difficult to detect, said Peter R. Pavan, MD, ophthalmology professor and chairman, University of South Florida (USF) Morsani College of Medicine, Tampa.

“The goal is to be able to provide researchers with information about any pathology in the eye without having to disturb the eye in any way,” Dr. Pavan said. “We looked at techniques that we use in living patients to see how they could be applied to the donor eyes.”

Dr. Pavan and colleagues at USF and the Lions Eye Institute for Transplant and Research conducted the study.

TESTING THE UTILITY

To test the utility of postmortem ultrasound and imaging, fresh autopsy eyes transported to the laboratory were treated within 12 hours with 10% phenylephrine and 1% tropicamide, given in two rounds 3 minutes apart. The eyes were secured to a plastic foam head mount, and balanced salt solution was injected into the vitreous cavity. OCT raster line scanning images were obtained. After the eyes were re-oriented with the posterior pole facing forward, a UBM probe covered with a water-filled ultrasound transducer cover was placed over the back of the eye to obtain images of the macula and adjacent retina.

According to Dr. Pavan, UBM and OCT imaging of the macula identified much of the anatomy.

“The UBM showed recognizable landmarks in the posterior pole and correlated well with pathology seen on the OCT images, such as epiretinal membranes causing macular puckering,” he said, adding that postmortem retinal changes presented some limitations.

VARIABLES FOR SUCCESSFUL IMAGING

In earlier phases of this research, a team led by Timothy Saunders, MD, a fellow at USF, learned that time elapsed since death was the most important variable in postmortem imaging. The time from death to scan varied from 11 to 60 hours, and it was found that correlation of postmortem fundus imaging with histopathologic sections could not be performed in eyes older than 48 hours due to media opacity and tissue autolysis.

In that preliminary research, it was also determined that standard OCT imaging was the most consistently reliable technique for successful imaging, preferable to photography and autofluorescence. Dr. Saunders presented a poster on this work at the 2013 meeting of the Association for Research in Vision and Ophthalmology.

Following these discoveries, Dr. Pavan decided to test high-frequency ultrasound. This technique is highly sensitive but cannot be used in the retina of living eyes because it does not penetrate deeply enough. However, it could be used in the back of the autopsy eyes.

“We found that we could visualize some pathologies, especially those that involve thickening of the retina, and we could visualize some vitreoretinal interface problems, such as epiretinal membranes, that would affect the macular area,” Dr. Pavan said.

The technique is not 100% accurate, he added, but it is an attempt to provide some information to the researchers.
AMD GENE THERAPY

(Continued from page 1)

Dr. Rakoczy presented an analysis of the first eight of 40 subjects enrolled in the safety and efficacy, dose-escalation study.

At 1 year, investigators found no evidence of systemic or intraocular inflammation, IOP elevation, retinal detachment, arterial thromboembolic events, drug-related adverse events, or clinically significant changes in laboratory assessments. The vector was not found outside of the injected eye, although it was detected transiently in the tears of two of six subjects 1 day after surgery.

Subjects who received the sustained-delivery device had an average 6- to 9-letter gain in best-corrected visual acuity versus a 3-letter loss in the control group. The mean visual acuity at baseline was 42 EDTRS letters compared with 49 letters at 1 year. In all, five of the six treated subjects gained vision. The patient who did not have baseline scarring under the fovea and may not have had the capacity to gain vision.

The mean center point retinal thickness of rAAV.sFlt-1-treated patients decreased by 35% at 1 year. Although rescue therapy with ranibizumab was allowed, only 2 of a possible 66 injections were permitted per eye, and ranibizumab was provided only as a rescue therapy who had relied on frequent anti-VEGF therapy to maintain stable vision. Two subgroups of patients were included in the initial analysis. The first group comprised three subjects who received the low dose, 10E10 vg, along with one control subject. Three other subjects were randomly assigned to receive the high dose, 1E11 vg, and also were matched with a control. Since rAAV.sFlt-1 does not reach optimal anti-VEGF expression until 6 to 8 weeks after injection, all patients were given six injections before switching to a single injection; the mean visual acuity at 1 year was 57.8 letters.

“We wanted to make sure that during that time they were protected against the harmful effects of neovascularization in the eye,” Dr. Rakoczy said. After that, ranibizumab was provided only as rescue therapy.

The mean age of the study population at baseline was 77 years, and mean visual acuity was 38 letters. Mean central retinal thickness was 588 µm, and the average number of anti-VEGF injections prior to the trial was 17.

Dr. Rakoczy—who has been developing treatment for blinding eye diseases for more than 20 years—observed that the evolution of the AMD product has been lengthy and is far from over.

“This is the result of very thorough scientific research which spans 25 or 30 years,” she said. “We are potentially looking at the dawn of a completely new way of treating disease with recombinant viruses. Gene therapy has been used for genetic diseases, which usually have relatively low prevalence. "Here, we are using it for a highly prevalent, complex disease, so this is conceptually different from the original role imagined for gene therapy 20 years ago," Dr. Rakoczy continued. “It’s a very important scientific leap.”

FDA approves Allergan implant for DME

By Rose Schneider

IRVINE, CA ::

THE FDA HAS APPROVED Allergan's dexamethasone intravitreal implant (Ozurdex), as a treatment option for diabetic macular edema (DME) in adult patients who have an artificial lens implant or who are scheduled for cataract surgery.

The sustained-release biodegradable steroid implant uses the proprietary Novadur solid polymer delivery system—a biodegradable implant that releases medicine over an extended period—to suppress inflammation.

The approval of the implant for this indication is based on the Macular Edema: Assessment of Implantable Dexamethasone in Diabets study. The implant is already indicated for the treatment of macular edema following branch retinal vein occlusion or central retinal vein occlusion, and for the treatment of non-infectious uveitis affecting the posterior segment of the eye.
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Nanophotonics-based implant may enable at-home IOP monitoring

Developers will begin preclinical research on the sensor, which has a remote optical readout

By Vanessa Caceres; Reviewed by Hyuck Choo, PhD, and David Sretavan, MD, PhD

A SENSOR THE SIZE of four strands of hair may be used one day to monitor IOP in patients with glaucoma.

Three years ago, David Sretavan, MD, PhD, professor and vice chairman, Department of Ophthalmology and Physiology, University of California, San Francisco, heard about the possibility of making miniature nanophotonic sensors for IOP measurement from Hyuck Choo, PhD, now assistant professor of engineering, California Institute of Technology, Pasadena.

“I was interested in this because of the pressing clinical need in glaucoma for a much better IOP sensor.” Dr. Sretavan said.

Current IOP monitors could benefit from more accuracy, the researchers said. Additionally, IOP measurement usually takes place in the office only a few times a year.

DEVICE DETAILS

The device co-developed by Dr. Sretavan, Jeong O. Lee, PhD, and Dr. Choo would be about 100 to 200 µm in diameter and would interact with near-infrared light to obtain a measurement.

“You would point a handheld detector toward the eye for just a fraction of a second to get a reading,” Dr. Choo said.

The near-infrared light is not visible to the human eye, nor is it a laser, so Dr. Choo characterizes it as a noninvasive, safe way of obtaining the IOP. The sensor has a sealed cylindrical chamber and gold nanodot arrays on flexible membranes that form the top and bottom chamber surfaces, according to the researchers.

“When interrogated with light, the reflected signal from the device shows maximal reflectance dips at specific wavelengths and is the spectral signature of a unique gap size between nanodot arrays,” they said.

When IOP rises, the nanodot membranes deform, which would cause the gap between the arrays to decrease.

“This gap narrowing causes the reflectance spectrum to shift and is detected remotely via a spectrometer,” they added.

The sensor is called “nanophotonics-based” because photonics structures strongly enhance the opto-pneumatic signature in the reflected light, Dr. Choo said. It’s called “nano” because of its small size.

“This is much smaller than larger-scale optics, but equally effective,” he said.

There are other IOP sensors in development, but they are larger sized and require an antenna to be placed in the eye itself.

Currently, reading measurements from the device takes place via a tabletop-sized remote setup, but researchers eventually would like to change that to something that is handheld or that could even be embedded onto a television screen, computer screen, or a bathroom mirror.

Eventually, users may be able to obtain readings from the device with their cell phones, Dr. Sretavan said.

One advantage of this device would be the ability to measure IOP on a more regular basis and at different times throughout the day since IOP often fluctuates, Dr. Sretavan said.

He contrasted this with patients who have high blood pressure and are able to check their blood pressure at home with easy-to-use devices, noting that this could lead to more optimal management of IOP tailored to the pressure profiles of individual patients.

WHAT’S NEXT

Researchers are preparing for preclinical studies and hope for results by the end of the year. They have implanted prototypes into rabbit eyes.

One area they will examine in the preclinical work is biocompatibility. However, the material used with the device is common in other medical devices, so they believe the results will be positive. The other area they will analyze is where it would be best to affix the very small device in the eye. One idea would be to piggyback it to an IOL.

“The advantage is that once an IOL is implanted, it’s very stable,” Dr. Sretavan said.

A second possibility would be to hook it on to the iris tissue, a concept used successfully with iris fixation devices that are actually larger than their sensor. Either way, the placement would be in a part of eye that would not be cosmetically intrusive.

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Dr. Choo and Sretavan have no financial interests related to their comments.
Real-world experience provides new insights on ocriplasmin use

Early development of ellipsoid zone changes explains some transient treatment-related events

By Cheryl Gutman Krader; Reviewed by Peter K. Kaiser, MD

CLEVELAND ::

REAL-WORLD OUTCOMES in patients treated with intravitreal ocriplasmin (Jetrea, ThromboGenics) for symptomatic vitreomacular adhesion (sVMA) corroborate information from the pivotal clinical trials on factors predicting success and point to early development of ellipsoid zone changes as another prognostic marker, according to Peter K. Kaiser, MD.

A post-hoc analysis of data in the ocriplasmin pivotal trials determined that VMA diameter ≤1,500 µm, phakic lens status, age <65 years, presence of a full thickness macular hole, and absence of an epiretinal membrane were independently associated with VMA resolution. Therefore, in clinical practice, many retinal specialists have been using those parameters to guide patient selection for ocriplasmin injection, explained Dr. Kaiser, Chaney Family Endowed Chair in Ophthalmology Research, Cole Eye Institute, Cleveland Clinic, Cleveland.

SUCCESS RATE

Analyses of data from patients treated at the Cole Eye Institute and other centers using that approach show its value for increasing treatment success. Whereas 26% of patients treated with ocriplasmin in the phase III studies achieved nonsurgical resolution of VMA, a success rate of about 50% is being achieved at real-world sites, Dr. Kaiser said.

“Interestingly, and importantly, the success rate with ocriplasmin appears to be essentially the same in large retina centers across the country, whether they represent academic institutions or are in a community practice setting,” he said.

“These data validate the idea that with selection of appropriate candidates, retinal specialists can expect to achieve success in about half of patients they treat with ocriplasmin, which is much better than the primary outcome reported in the pivotal clinical trial,” Dr. Kaiser said.

NEW PROGNOSTIC FACTOR

An association between early disappearance of the outer segment (OS) ellipsoid zone and positive anatomic outcomes was also identified in the analysis of data collected at the Cole Eye Institute and corroborated by findings from other centers.

Dr. Kaiser noted that when patients treated at his center were imaged at 1 week post-injection using spectral-domain optical coherence tomography, around 40% had developed this loss of the inner segment-outter segment junction. Within the subgroup of eyes with OS ellipsoid zone changes, about 75% also achieved vitreomacular traction (VMT) release indicating that the two may be related.

In the analysis, all the eyes with OS ellipsoid zone changes normalized by about 1 month, and their temporal course appears to correspond to the appearance and resolution of various adverse events seen in the clinical trials, including dyschromatopsia, electroretinogram changes, acute decrease in visual acuity, and even impaired pupillary reflex.

“The disappearance of the OS ellipsoid zone provides an anatomic correlate for the visual symptoms some ocriplasmin-treated patients were experiencing,” he said. “It is unclear whether the OS ellipsoid zone change represents a metabolic or toxic effect of the treatment, but that is the most likely explanation.

“Importantly, however, it does not appear to be a cause for alarm,” he said. “Not only is the change temporary, but it seems to be a favorable development that is a proxy for treatment success.”

He noted that at the 2014 meeting of the Association for Research in Vision and Ophthalmology, three other large retina groups reported similar findings regarding the OS ellipsoid zone changes.

“It was striking that the collective data from the three other groups were nearly identical to ours in terms of the percentage of patients who developed the change in the OS ellipsoid zone (mean of 42%) and the percentage of those individuals who achieved VMT release (mean of 77%). Similar to our experience as well, the OS ellipsoid zone changes normalized by 1 month in 100% of eyes in two series that had sufficiently long follow-up, and in 81% in the other series that had very short follow-up,” Dr. Kaiser said, adding that the outer retinal changes is a subject for further investigation in ongoing phase IV studies.
Update: Anti-VEGF in infants

Overview highlights how currently role of therapy is poorly defined; further research needed

By Kimberly Drenser, PhD

ANTI-VEGF TREATMENT

VEGF is necessary for the development of both vascular and neuronal development, as coined by the neurovascular unit. In the neurosciences, there is growing concern that VEGF blockade in developing retina, such as that seen in premature infants, may lead to attenuation of neurogenesis. Many clinical reports suggest that the premature infant has decreased visual function, even in the absence of ROP, and relative retinal atrophy if ROP is present.1,2

Further loss of neurons in an anti-VEGF era may have unintended consequences despite physicians’ best intentions. Until recently, bench top research has not been able to adequately address these concerns. The two main agents in anti-VEGF therapy have been biologic agents (humanized antibodies), which show poor to no cross-species efficacy. Many well-designed clinical trials have addressed the efficacy and safety issues in the use of anti-VEGF therapy in adults, and as a result, are now considered standard treatment for age-related macular degeneration, diabetic macular edema, and macular edema secondary to retinal vein occlusion.1,2

Evidence and Research Lacking

Not only does a lack of clinical evidence exist for anti-VEGF use in infants, but also basic science research. Bench research has confirmed the safety of use of anti-VEGF therapies in a mature developed retina, with no adverse effects on vascular beds or neurons.1,2

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PEDIATRIC TREATMENT

More recently, anti-VEGF therapy has been used for treating infants and children with retinal vascular diseases, such as retinopathy of prematurity (ROP). Data derived from adult studies has been extrapolated to pediatric care despite the paucity of empirical data or well-designed clinical trials whose objective is to specifically address this population. The perceived safety combined with the relative ease of administration (compared with laser ablation therapy) has meant that the use of anti-VEGF therapy has been widely adopted. There have only been two studies designed to try to address the safety and efficacy of anti-VEGF therapy in ROP versus standard-of-care laser ablation.

Block-ROP was a phase I trial designed to evaluate safety only. The trial was discontinued due to lack of enrollment (only 3 infants at 11 centers failed laser treatment) at 1 year. BEAT-ROP assessed efficacy and the report looked favorable. However, further review showed the laser treatment arm had an unusually high failure rate compared with published norms (such as the Early Treatment-ROP study).

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References

Case study: Oral versus IV steroid therapy for management of giant cell arteritis

Intravenous steroids may be key to saving sight, achieving visual recovery for GCA

By Lynda Charters; Reviewed by Mark L. Moster, MD

Dr. Moster, professor of neurology and ophthalmology, Wills Eye Hospital, Thomas Jefferson University School of Medicine, Philadelphia, related the case of an 82-year-old male with intermittent flashes and rust-colored vision in the right eye that lasted for seconds to minutes but persisted over 9 days. On the day of presentation, the vision went black, cleared, and was followed by a gray blur over the central visual field. None of the classic symptoms of GCA—such as headache, jaw claudication, decreased appetite, polymyalgia rheumatica, or malaise—were present. The patient had a past medical history of hypertension and hyperlipidemia, coronary artery disease, prostate and colon cancers, and myelodysplastic syndrome.

At presentation, the visual acuity in the right eye was 20/400 with dyschromatopsia, an afferent pupillary defect, and a superior visual field defect. The optic nerves appeared normal. Laboratory evaluation showed a markedly elevated erythrocyte sedimentation rate (119 mm/hr) and C-reactive protein (6.9 mg/dl, normal <0.8 mg/dl), and a normal platelet count. Orbital color Doppler ultrasonography showed severely decreased flow in the ophthalmic artery circulation (Figure 1).

Treatment was started immediately with IV methylprednisolone 250 mg every 6 hours for 3 days. Biopsy of the temporal artery showed chronic vasculitis with intimal fibrosis consistent with GCA, Dr. Moster noted.

Two days after the start of treatment, the patient’s symptoms improved, and visual acuity was 20/40. The patient was discharged and 60 mg of oral prednisone/day was prescribed with vitamin D, calcium, and esomeprazole magnesium (Nexium, AstraZeneca).

At a follow-up visit at week 4, the vision was 20/25+ with a trace afferent pupillary defect and a minor visual field defect in the right eye. Laboratory tests returned to normal levels, according to Dr. Moster.

ORAL OR IV STEROIDS?

“This was a very strong success story in this patient with GCA. Would this patient have done as well on oral steroids?” Dr. Moster asked.

Continues on page 22: Giant cell arteritis

Figure 1 Orbital color Doppler ultrasonography showed severely decreased flow in the ophthalmic artery circulation. (Images courtesy of Mark L. Moster, MD)
When confronted with a patient with GCA, the challenges are to prevent further visual loss, promote visual recovery when possible, and evaluate the ultimate disease course, he said. Currently, 14% to 20% of patients with GCA lose vision. This is in marked contrast to the 30% to 60% rates of vision loss before the use of steroids in these patients.

“GCA with visual symptoms is a medical emergency,” Dr. Moster emphasized. Unilateral vision loss occurs rapidly, i.e., in hours to days, and from 50% to 75% of patients will lose vision in the fellow eye within 2 weeks if left untreated.

WEIGHING THE BENEFITS

There is not a great deal of evidence to show an added benefit of IV methylprednisolone therapy over oral steroid therapy, Dr. Moster noted. “The case for intravenous therapy to prevent disease progression is that emergent treatment is needed,” he said. “Intravenous therapy is more efficient than handing an elderly patient an outpatient oral prescription. There is immediate compliance, and most medications act faster and are more potent when administered intravenously. Patient tolerance of intravenous methylprednisolone is the same as with oral steroids.”

The argument in favor of oral steroids is that further vision loss may occur with either route of administration and oral treatment is more convenient, he added.

The benefits of either route for visual recovery are unclear, with some studies reporting greater visual recovery with IV administration, whereas others show no difference in visual recovery between the two therapies.

Perhaps early treatment is key to any visual recovery, Dr. Moster suggested, as one study reported more visual recovery when patients were treated within 1 day than when treated later (58% versus 6%, respectively), regardless of treatment route. Regarding the clinical course of GCA, one study found that high-dose IV steroids might have a long-term benefit in that patients can be weaned faster, and after steroid removal there were fewer relapses, he noted.

Dr. Moster also said he views hospitalization with administration of IV steroids as a benefit. “Hospitalization allows time to deal with comorbidities, perform a temporal artery biopsy and other tests, evaluate the patient for osteoporosis, and most importantly, educate the patient about long-term treatment with steroids,” he said. However, IV steroids are not a panacea and patients can progress despite this treatment.

The current consensus regarding GCA, according to Dr. Moster, is that patients with transient or persistent visual loss need immediate treatment by either the IV or oral route. Dr. Moster recommends hospitalization with IV methylprednisolone 1 g/day (250 mg every 6 hours) for 3 days, with the first dose administered in the emergency room. After discharge, he prescribes prednisone 1 mg/kg/day.

He advised that in patients without visual loss, oral or IV steroids can be prescribed. In patients with mild GCA (mild polymyalgia and headache) but no vision loss or jaw claudication, he advises 40 mg/day of an oral steroid. However, in the presence of neurologic or visual symptoms, patients should receive 80 to 100 mg/day.

“Importantly, don’t wait for the biopsy results to start [treatment with] steroids, because patients can rapidly lose vision,” he said.

After the first treatment, the steroids should be tapered slowly over months to years, but certainly not until the symptomatology and laboratory values return to normal. Treatment should be in coordination with an internist and/or rheumatologist.

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Dr. Moster has no financial interest in any aspect of this report.

Endophthalmitis rate low despite antibiotic-free intravitreal injection

By Cheryl Guttman Krader

MINNEAPOLIS ::

ANALYSES OF SAFETY DATA from Diabetic Retinopathy Clinical Research Network (DRCR.net) trials show a very low rate of endophthalmitis can be achieved in eyes receiving intravitreal drug injections using a protocol that does not use topical antibiotics, said Abdhish R. Bhavsar, MD.

“Current data suggest it is extremely unlikely that omitting topical antibiotics prior to, on the day of, or after intravitreal injection leads to a moderate or large increase in the risk of endophthalmitis,” said Dr. Bhavsar, in private practice, Minneapolis. “The data suggest that topical antibiotic use might be associated with an increased risk of endophthalmitis, which potentially may be due to additional manipulation of the ocular surface when applying the medication or other unknown causes. Whether all three components of the . . . technique, or any one in particular, are related to the low rate of endophthalmitis is not known.”

Eyes that were administered an intravitreal injection received a topical anesthetic, had a sterile lid speculum placed, and were prepped with topical povidone-iodine to the conjunctival surface. However, per the DRCR.net protocol, sterile draping was not required, and surgeons did not need to wear sterile gloves or a face mask.

Cases of endophthalmitis were identified among patients receiving intravitreal injections across six different DRCR.net trials.

A total of 12,445 injections were administered in 1,975 eyes, of which 6,515 were performed with topical antibiotic use and 5,930 with no topical antibiotic.

There were eight cases of endophthalmitis in the series, of which seven (0.11%) occurred in eyes that received topical antibiotics and one was in the group that had no antibiotic treatment (0.02%).

In one of the endophthalmitis cases, the povidone-iodine prep had been omitted.
When the moment comes for a child who requires eyeglasses to pick out frames, the process can be tricky if the child’s idea of what he or she wants differs from that of the parents. While the child may find a frame designed with Mickey or Minnie Mouse as the perfect fit, his or her parents may feel more comfortable with a more conservative option.

The key is to find a balance between parent and child so that everyone walks away happy, said Penn Moody, OD. “Our approach is not much different [from that] with older children,” said Dr. Moody, founder and chief executive officer of Moody Eyes, Indianapolis. “It is a collaborative effort between the doctor, staff, the parents, and the child—not necessarily in that order.

“We have parents who will let the children select their frames, we have parents who totally dominate their children’s choices, and we have everything in between,” he added.

WHERE TO BEGIN
The best starting point for the physician, Dr. Moody said, is to recommend the prescription and explain why the child needs it. The clinic’s staff should then find out which style the child and/or the parents feel more comfortable with.

The most appropriate way to approach this process is to find out the necessary information from the child and parents separately, said Lisa Frye, ABOC, a longstanding Fellow of the National Academy of Opti-

Finding the right frame styles for children
How to keep the peace between children, parents when selecting youth eyewear

By Rose Schneider, Content Specialist, Ophthalmology Times

Contact lens portfolio
COOPER ENTERS DEAL WITH SAUFON PHARMACEUTICALS
PLEASANTON, CA.: THE COOPER COMPANIES INC. announced it has entered into definitive agreements to acquire Saufon Pharmaceuticals Ltd.—a European manufacturer and distributor of soft-contact lenses and solutions—in a transaction valued at about $1.2 billion.

Saufon forecasts revenue of about $210 million for its fiscal year ending October 2014, up about 22% year-over-year.

“We are extremely pleased to announce this acquisition that gives CooperVision the world’s most comprehensive portfolio of daily disposable lenses,” said Robert S. Weiss, Cooper’s president and chief executive officer. “CooperVision will now be able to offer a multi-tier daily strategy that includes a full suite of silicone hydrogel and hydrogel lenses, including options within all categories—spheres, torics, and multifocals.”

The transaction is subject to regulatory approval and is anticipated to close prior to October 2014, according to the company.

UV exposure
J&J RESOURCE EDUCATES ABOUT SUN EYE HEALTH
JACKSONVILLE, FL.: TO ASSIST EYE-CARE professionals in educating about the risks that may be associated with UV exposure to the eyes and steps they can take to minimize UV exposure, Johnson & Johnson Vision Care Inc. has launched a free educational resource, “The Sun & Your Eyes: What You Need to Know.”

“By helping patients become better educated about the potential year-round risks of exposure to UV rays and the importance of choosing proper eyewear that provides comprehensive UV protection, we can lessen the risk for ocular UV exposure and help protect the long-term eye health of our patients and their families,” said Millicent Knight, OD, head of professional affairs, Johnson & Johnson Vision Care Inc. North America.

The guide is available from the Education and Resources section of www.ACUVEEProfessional.com, or by sending a request including complete name and mailing address information for printed copies (50 sheets per tear pad) to SunandYourEyes@Rprmc.com.
Various eyeglass frame styles, brands, and colors are available for children.

KIDS’ FRAMES

(Continued from page 23)

cians and who has more than 30 years of experience in optometric management. Then, once everyone is together, the optician can relay what was discussed.

“This can help direct the process, as the communication is shared,” Frye said.

Approaching budget limitations should be the next step, she added.

Having a discussion about financing the eyeglasses and insurance is important, because it creates a pathway to understand what the parents are comfortable with, she said.

“This allows me to find out what the parents are most concerned about, whether there is a budget, and if the parents have worn eyewear and understand the process,” Frye explained. “In the case that the child is getting a first pair of glasses and no one in the family wears spectacles, then I take the time to educate them on lens materials, options, and performance.”

Dr. Moody added that he usually approaches the issue of frame cost while the parents and child are browsing through options.

“We do not ask budget questions at first because it focuses the conversation on ‘how much’ versus ‘what is best,’” he said.

INVOLVING THE CHILD IS A MUST

The most important aspect to keep in mind while finding the correct frame is to keep the child highly involved in the process.

“We always involve the child in all parts of the eye-care process/experience,” Dr. Moody said. “We believe they are more likely to wear them if they are involved, (and) we also want them to start to get involved with their health care at an early age.”

Frye said that at her office, she utilizes two approaches to engage the child in the frame process.

“If the parent has indicated they are very open to allow the child to have a lot of say in the process, then I walk the child to our children’s area, and I have a tray that holds several pairs of glasses,” she explained. “We have mirrors at appropriate heights for easy access by a child. I encourage them to try on frames and we start the process of discovering their tastes and preferences.

“As they try on the frames, I will get feedback from parents as well,” she continued. “I offer advice on the fit and make sure the finished product will service them well, (and) . . . once we have at least three frames in that tray, I walk them back to the dispensing table and we go through the frames to eliminate choices until there is only one frame left.”

As for her second approach, Frye said she will take more control by listening to what the parents and child are saying, and then finding the frames herself.

“(I leave) the child and the parent at the dispensing table, listening to what the parents and child are sharing, and then finding the frames herself.

“(I leave) the child and the parent at the dispensing table, listening to what the parent and the child are sharing, and (then go) and (place) frames into my tray that will fit well, keeping in the guidelines that were established through the communication,” she said.

Frye said she will listen to the parents’ and the child’s taste, style, material, type, and budget when selecting frames.

“We always discuss with parents that the child is more likely to enjoy wearing something that they like and helped to choose,” she added.

HANDLING THE AWKWARD TIMES

Nevertheless, awkward moments in discussions between family members are bound to happen, according to Frye.

“Even with the best of intentions, there can be awkward moments,” she explained. “If a parent and a child differ over something, I usually afford them some privacy and step away for them to have a moment to concur.”

If there is a disagreement, Frye recommended suggesting that the child return at a later date to give the family more discussion time.

“I have on a rare occasion suggested they come back when the child is not dilated as an out for them to have time to perhaps get the child used to the idea of corrective eyewear or which direction to take in the selection process,” she said.

The bottom line in keeping the child and parents happy during the decision-making phase, Frye said, is to stay in charge.

“Staying in charge, as the expert, when walking through the frame-selection process allows us to keep the child from being overwhelmed and can help merge the required budget and frame preferences to please both child and parents,” she said.

TAKING HOME

» Maintaining both parents’ and children’s happiness when choosing pediatric eyewear requires a balancing act, supported by the physician and clinic staff.

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Frye has no financial interest in the subject matter.

PENN MOODY, OD
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Dr. Moody has no financial interest in the subject matter.

A collection of children’s frames is displayed. (Images courtesy of Lisa Frye, ABOC)
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Giving a ‘voice’ to lessons learned: Coaching and mentoring in action

Why reality program resonates among managers and business owners alike

Dispensing Solutions By Arthur De Gennaro

I HAVE A CONFESSION to make. I am addicted to the NBC television program, “The Voice.” I have watched nearly every episode, every season. When I travel, my wife records the programs so they can be viewed when I return. I don’t like to miss a single segment.

For those who are not familiar with “The Voice,” it is a reality program. Singers of all genres of music compete. Four celebrity coaches audition singers blindly. Not seeing the singers forces the coaches to concentrate solely on the singer’s voice. Coaches create teams by selecting singers they think can go far in the contest.

Once the teams are set, the competition begins. A number of singers are eliminated each week until one is ultimately voted “The Voice.” The winner is awarded a recording contract, assuring that person a career in the entertainment business.

THE APPEAL OF THE PERFORMANCES

Why do I like the show so much? Much of my interest is clearly the level of talent. This makes for excellent performances, which translates into high-quality entertainment value; it’s a good use of my leisure time. I’ve seen quite a few performances that blew me away, so to speak. That’s impressive for a guy who has been a part-time working musician for much of his life.

Beyond the entertainment value, however, what makes the show impressive is the coaching. Each week, the four coaches work privately with each member of his or her team. During these working sessions they collaboratively decide what song the singer will perform. They then work on strategies that will help the singer take advantage of his or her vocal and performance strengths while minimizing weaknesses. Sometimes this means going into territory that is uncharted by the singer. This provides an element of risk. Some of the singers are visibly shaken by this; it is evident on their faces.

What comes across noticeably in the coaching sessions is the sincere level of interest the coach takes in his or her team members. Remember, the coach has an intense desire to have the winning team. The coach and the team members, therefore, share that goal and vision.

We viewers are allowed a glimpse of the coaching sessions as snippets of them are aired. We get to witness the human dynamics between teacher and student. In my opinion, there are lessons to be learned from these.

What is remarkable about watching the program is witnessing three aspects that I believe can be applied by managers and supervisors—from personal and professional growth to team building to the transformation.

THE GROWTH

As a viewer, each week I get to witness the personal and professional growth of the surviving competitors. I’ve seen people dramatically develop their self-confidence on stage, gain confidence in their decisions about their craft, improve their performances, and take risks that paid big dividends. Almost instantly, team members become energized and their early successes feed more and more rapid growth and success with each succeeding week of competition.

To the point, last year’s winner was a 16-year-old girl who had never sung in front of an audience. She now is a confident performer and has a recording contract. She has launched a successful career as a country singer and has released her first album.

Management lessons to learn from this are:

1. People are energized when they are learning and growing. As a sales trainer and management mentor, I can attest to the fact that when people are growing they are always energized. There is something exciting about expanding one’s knowledge base and learning how to use that knowledge base to succeed. It would stand to reason that every manager should attempt to find ways to help his or her team members to gain new knowledge and grow.

2. People gain confidence when they see themselves grow. As people see positive changes in their personal or professional lives they gain confidence. That confidence is gained by recognizing that the decisions they are making are better and more productive than the decisions they once made. This increased confidence makes them more willing to make independent decisions and take prudent, calculated risks; a process some would call empowerment. Simplicitically, success breeds success.
THE RELATIONSHIP
Your team members must see you not only as knowledgeable and capable, but they also must know you sincerely care about them as individuals and are deeply committed to their personal and professional growth.

The critical lesson for supervisors and business managers, especially those who are new to the management world, is:

When the person being coached truly believes his or her coach sincerely cares, he or she is more willing to submit to that person’s guidance and direction.

THE CHANGE
Only one person can win the competition. Many of my favorite competitors have been voted off long before I thought they should be. Most are asked to comment on their experience on the program, what many call their journey. Many say it is the most significant thing that has ever happened to them.

The life lesson to be learned from this is:

Managers can assist people to make permanent, positive changes in their life. Competitors often say that they will take with them the lessons learned from their coaches. This means they will use that knowledge in the future. Some say the experience has made a radical change in their life. Almost universally, the singer will mention how the opportunity to be mentored by a knowledgeable and caring coach has been the greatest experience of his or her life. It is clear that the singer no longer will approach his or her craft the way he or she once did.

In my experience, this is the sustaining reason for staying in the management world.

Watching someone grow personally and professionally under your guidance is the most rewarding part of the work. It is also a great reason to get out of bed each day and face the rigors and realities of the business world, which, admittedly, can be harsh at times.

Make no mistake, however. Taking on the responsibility of guiding someone’s career path and growth is an awesome one. It should never be taken lightly. On some occasions you will question your own motives and abilities. That is natural.

My advice: Keep yourself learning and moving forward. That way you’ll have more to share.

ARTHUR DE GENNARO

Editor’s Note: Watch for Arthur De Gennaro’s series outlining the third step of a retail sale—the eyewear demonstration—in an upcoming issue.
Taking the sales pitch out of cataract surgery consult

Why the best surgical plan for patients begins with addressing need for lens removal

By Paul S. Koch, MD, and Lawrence Piazza, MD, Special to Ophthalmology Times

Taking the sales pitch out

Informed patients with realistic expectations of the products to the actual needs and desires of their lifestyle and expectations are assessed. Do not bring up brand names or the terms “toric” and “multifocal.”

We like to introduce the topic with a statement such as: “Let’s talk about surgical outcomes before I plan your operation. Tell me how you use your eyes and how you would like to them after surgery.”

This question might catch your patients by surprise. Expect an uncomfortably long silence—wait. Do not say anything. Let the patients think. Eventually, they will say something like: “I watch television. I knit. I drive. I read before bed.”

That is what they do. Now you have to learn how they do it.

The following series of vignettes demonstrates our tested and effective method of directing the conversation with patients to determine their needs and desires for their post-operative outcome.

SCENARIO 1 GLASSES

PATIENT: I don’t mind using glasses.

PHYSICIAN: You will see a lot better than you do now when you get your new glasses after the operation.

SCENARIO 2A READING GLASSES, NO ASTIGMATISM

PATIENT: I prefer not to wear glasses all the time, but I don’t mind reading glasses.

PHYSICIAN: Nine out of 10 times, we can get good overall vision without glasses. You will just need reading glasses.

SCENARIO 2B READING GLASSES, ASTIGMATISM

PHYSICIAN: We can try to get you good overall vision without glasses so you will only need reading glasses. However, your astigmatism poses a bit of a problem. We usually correct astigmatism with eyeglasses, but I can correct the astigmatism during the operation, which makes your vision as good as we can possibly make it. Unfortunately, insurance does not cover treating astigmatism. There will be an added charge, but I think it will be worth it.

SCENARIO 3A NO GLASSES, NO ASTIGMATISM

PATIENT: I do not want to wear eyeglasses.

PHYSICIAN: We can implant a special bifocal lens that will help you see far and near without glasses. Nine times out of 10, the patient does not need to use eyeglasses at all after surgery. The tenth patient still needs to use glasses at least occasionally, depending upon available lighting and visual tasks. There are three important things you need to know:

1. This lens works. The focus point is 10 to 12 inches and does not move. If you want to see something farther away, like a computer screen, you may need to make small adjustments to get it in the focus range. Some people keep a pair of computer glasses.
BRIEF SUMMARY OF PRESCRIBING INFORMATION

INDICATIONS AND USAGE
Ocular Surgery
DUREZOL® Emulsion (dipropionate ophthalmic emulsion) 0.05%, a topical corticosteroid, is indicated for the treatment of inflammation and pain associated with ocular surgery.

Endogenous Anterior Uveitis
DUREZOL® Emulsion is also indicated for the treatment of endogenous anterior uveitis.

DOSAGE AND ADMINISTRATION
Ocular Surgery
Instill one drop into the conjunctival sac of the affected eye 4 times daily beginning 24 hours after surgery and continuing throughout the first 2 weeks of the postoperative period, followed by 2 times daily for a week and then a taper based on the response.

Endogenous Anterior Uveitis
Instill one drop into the conjunctival sac of the affected eye 4 times daily for 14 days followed by tapering as clinically indicated.

DOSAGE FORMS AND STRENGTHS
DUREZOL® Emulsion contains 0.5% dipropionate as a sterile preserved emulsion for topical ophthalmic administration.

CONTRAINDICATIONS
The use of DUREZOL® Emulsion, as with other ophthalmic corticosteroids, is contraindicated in patients with active or existing viral diseases of the cornea and conjunctiva including epithelial herpes simplex keratitis (dendritic keratitis), vaccinia, and varicella, and in mycobacterial infection of the eye and fungal disease of ocular structures.

WARNINGS AND PRECAUTIONS
IOP Increase
Prolonged use of corticosteroids may result in glaucoma, damage to the optic nerve, defects in visual acuity and fields of vision. Steroids should be used with caution in the presence of glaucoma. If this product is used for 10 days or longer, intraocular pressure should be monitored.

Cataracts
Use of corticosteroids may result in posterior subcapsular cataract formation.

Delayed Healing
The use of steroids after cataract surgery may delay healing and increase the incidence of bleb formation. In these diseases causing thinning of the cornea or sclera, perforations have been known to occur with the use of topical steroids. The initial prescription and renewal of the medication order beyond 28 days should be made by a physician only after examination of the patient with the aid of magnification such as slit lamp biomicroscopy and, where appropriate, fluorescein staining.

Bacterial Infections
Prolonged use of corticosteroids may suppress the host response and thus increase the hazard of secondary ocular infections. In acute purulent conditions, steroids may mask infection or enhance existing infection. If signs and symptoms fail to improve after 2 days, the patient should be re-evaluated.

Viral Infections
Employment of a corticosteroid medication in the treatment of patients with a history of herpes simplex requires great caution. Use of ocular steroids may prolong the course and may exacerbate the severity of many viral infections of the eye (including herpes simplex).

Fungal Infections
Fungal infections of the cornea are particularly prone to develop coincidentally with long-term local steroid application. Fungus invasion must be considered in any persistent corneal ulceration where a steroid has been used or is in use. Fungal culture should be taken when appropriate.

Topical Ophthalmic Use Only
DUREZOL® Emulsion is not indicated for intraocular administration.

Contact Lens Wear
DUREZOL® Emulsion should not be instilled while wearing contact lenses. Remove contact lenses prior to installation of DUREZOL® Emulsion. The preservative in DUREZOL® Emulsion may be absorbed by soft contact lenses. Lenses may be reinserted after 10 minutes following administration of DUREZOL® Emulsion.

ADVERSE REACTIONS
Adverse reactions associated with ophthalmic corticosteroids include elevation of intraocular pressure, which may be associated with optic nerve damage, visual acuity and field defects, posterior subcapsular cataract formation, secondary ocular infections, thinning of the skin, and fungal disease of ocular structures.

Secondary Ocular Infections
Secondary ocular infections, including bacterial, fungal, and viral infections, have been observed in patients treated with ophthalmic corticosteroids. These infections may occur coincidentally with long-term use of local corticosteroids. When a coincidental infection occurs, it should be treated appropriately.

Risk of Contamination
Use of the same bottle for both eyes is not recommended. Patients should be advised not to allow the dropper tip to touch any surface, as this may contaminate the emulsion. Use of the same bottle for both eyes is not recommended. Patients should be advised not to allow the dropper tip to touch any surface, as this may contaminate the emulsion.

Risk of Secondary Infection
If pain develops, or if redness, itching, or inflammation becomes aggravated, the patient should be advised to consult a physician.

Contact Lens Wear
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Revised: May 2013
U.S. Patent 6,114,319

Nursing Mothers
It is not known whether topical ophthalmic administration of corticosteroids could result in sufficient systemic absorption to produce detectable quantities in breast milk. Systemically administered corticosteroids appear in human milk and could suppress growth, interfere with endogenous corticosteroid production, or cause other untoward effects. Caution should be exercised when DUREZOL® Emulsion is administered to a nursing woman.

Pediatric Use
DUREZOL® Emulsion was evaluated in a 3-month, multicenter, double-masked, trial in 79 pediatric patients (39 DUREZOL® Emulsion, 40 prednisolone acetate) 0 to 3 years of age for the treatment of inflammation following cataract surgery. A similar safety profile was observed in pediatric patients comparing DUREZOL® Emulsion to prednisolone acetate ophthalmic suspension, 1%.

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

NONCLINICAL TOXICOLOGY
Carcinogenesis, Mutagenesis, and Impairment of Fertility
Dipropionate was not genotoxic in vitro or in vivo tests. In a thyroid iodine uptake test in Sprague-Dawley rats, dipropionate did not affect thyroid iodine uptake. In a developmental study performed in Sprague-Dawley rats, dipropionate did not affect fetal thyroid function.

Animal Toxicology and/or Pharmacology
In multiple studies performed in rodents and non-rodents, subchronic and chronic toxicity tests of dipropionate showed systemic effects such as suppression of body weight gain, a decrease in lymphocyte count, atrophy of the lymphatic glands and adrenal glands, and for local effects, thinning of the skin; all of which were due to the pharmacologic action of the molecule and are well known glucocorticoid effects. Most, if not all of these effects were reversible after drug withdrawal. The NOEL for the subchronic and chronic toxicity tests were consistent between species and ranged from 1–1.25 mcg/kg/day.

PATIENT COUNSELING INFORMATION
Risk of Contamination
This product is sterile when packaged. Patients should be advised not to allow the dropper tip to touch any surface, as this may contaminate the emulsion.

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Risk of Secondary Infection
If pain develops, or if redness, itching, or inflammation becomes aggravated, the patient should be advised to consult a physician.

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EHRs pose potential safety risk to patients

By Alison Ritchie

PHYSICIAN COMPLAINTS regarding the functionality of electronic health records (EHRs) are widespread, and a recent study suggests that those systems pose a potential threat to patient safety.

The study, published in the *Journal of the American Medical Informatics Association*, analyzed 100 consecutive patient safety reports made to the U.S. Department of Veterans Affairs’ Informatics Patient Safety Office between August 2009 and May 2013. Of those 100 reports, 74 involved unsafe EHR technology and 25 involved unsafe use of that technology.

The safety reports were separated into four categories: unmet data display needs in the EHR; intended and unintended software modifications; concerns related to system-to-system interfaces; and hidden discrepancies within the EHR. The majority of the safety incidents fell into the unmet data display needs category, where the EHR screen did not show or support the necessary information.

The study’s authors point to an incident where a pharmacist mistakenly entered a higher dose for a diuretic than what had been prescribed. A warning appeared on the EHR screen, but the pharmacist ignored the alert because it was known for being unreliable. The nurse, who administered the diuretic to the patient, could not see the dose discrepancy on the EHR screen.

Another safety report described an incident where a patient received an angiotensin-converting enzyme inhibitor, despite being allergic, because a network problem prevented providers from viewing the patient’s medication allergy list.

The study emphasizes the need for hospitals and practices to conduct regular patient safety risk assessments, even after implementation.

“Our study suggests that technology-based solutions alone will only partially mitigate concerns and that interventions to improve EHR-related safety should encompass the people, organizations, systems, and policies that influence how EHRs are used.”

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**EHRs pose potential safety risk to patients**

**Physician complaints**

**Results**

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**Notes**

1. Dr. Koch uses toric lenses because of the predictability in treating astigmatism.
2. In this scenario, “no astigmatism,” means anything from zero to a minor astigmatism, correctable with a single incision LRI to get it less than 1 D. In general, up to about 1.75 D of against-the-rule astigmatism, or 1.25 D of with-the-rule astigmatism.
3. This response enforces the excellence of the close vision, but lets patients know that this is not a universal focus lens. Some people will still require glasses for specific tasks, and that is okay.

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**ConeLUSion**

When we, as physicians, understand that patients come in with the problem of decreased vision due to cataract, the solution is cataract surgery. The primary goal of the office visit is to address the complaint and the solution in entirety before moving into outcomes. To bring up anything before the issue of cataract surgery is resolved will make patients feel cheated.

Patients often have expectations different from what physicians might think, particularly when thinking in terms of technology. We must remember to see these technologies as just tools to arrive at what the patient really needs. We are physicians first.

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**ContEd**

(Continued from page 28)

next to the monitor to make it easier for them to see at that intermediate distance.

At this point, the physician can also discuss the options of monovision or a multifocal implant if the patient’s astigmatism is treatable with limbal relaxing incisions (LRI) (manually or with femtosecond laser). If astigmatism is too high for LRs, then after 6 months, the patient might consider PRK to correct astigmatism.

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**EHRs pose potential safety risk to patients**

**Physician complaints**

**Results**

The study analyzed 100 consecutive patient safety reports made to the U.S. Department of Veterans Affairs’ Informatics Patient Safety Office between August 2009 and May 2013. Of those 100 reports, 74 involved unsafe EHR technology and 25 involved unsafe use of that technology.

The safety reports were separated into four categories: unmet data display needs in the EHR; intended and unintended software modifications; concerns related to system-to-system interfaces; and hidden discrepancies within the EHR. The majority of the safety incidents fell into the unmet data display needs category, where the EHR screen did not show or support the necessary information.

The study’s authors point to an incident where a pharmacist mistakenly entered a higher dose for a diuretic than what had been prescribed. A warning appeared on the EHR screen, but the pharmacist ignored the alert because it was known for being unreliable. The nurse, who administered the diuretic to the patient, could not see the dose discrepancy on the EHR screen.

Another safety report described an incident where a patient received an angiotensin-converting enzyme inhibitor, despite being allergic, because a network problem prevented providers from viewing the patient’s medication allergy list.

The study emphasizes the need for hospitals and practices to conduct regular patient safety risk assessments, even after implementation.

“Our study suggests that technology-based solutions alone will only partially mitigate concerns and that interventions to improve EHR-related safety should encompass the people, organizations, systems, and policies that influence how EHRs are used.”
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INDICATIONS AND USAGE:
DUREZOL® Emulsion is a topical corticosteroid that is indicated for:
• The treatment of inflammation and pain associated with ocular surgery.
• The treatment of endogenous anterior uveitis.

Dosage and Administration
• For the treatment of inflammation and pain associated with ocular surgery instill one drop into the conjunctival sac of the affected eye 4 times daily beginning 24 hours after surgery and continuing throughout the first 2 weeks of the postoperative period, followed by 2 times daily for a week and then a taper based on the response.
• For the treatment of endogenous anterior uveitis, instill one drop into the conjunctival sac of the affected eye 4 times daily for 14 days followed by tapering as clinically indicated.

IMPORTANT SAFETY INFORMATION
Contraindications: DUREZOL® Emulsion, as with other ophthalmic corticosteroids, is contraindicated in most active viral diseases of the cornea and conjunctiva including epithelial herpes simplex keratitis (dendritic keratitis), vaccinia, and varicella, and also in mycobacterial infection of the eye and fungal diseases of ocular structures.

Warnings and Precautions
• Intraocular pressure (IOP) increase – Prolonged use of corticosteroids may result in glaucoma with damage to the optic nerve, defects in visual acuity and fields of vision. If this product is used for 10 days or longer, IOP should be monitored.
• Cataracts – Use of corticosteroids may result in posterior subcapsular cataract formation.
• Delayed healing – The use of steroids after cataract surgery may delay healing and increase the incidence of bleb formation. In those diseases causing thinning of the cornea or sclera, perforations have been known to occur with the use of topical steroids. The initial prescription and renewal of the medication order beyond 28 days should be made by a physician only after examination of the patient with the aid of magnification such as slit lamp biomicroscopy and, where appropriate, fluorescein staining.
• Bacterial infections – Prolonged use of corticosteroids may suppress the host response and thus increase the hazard of secondary ocular infections. In acute purulent conditions, steroids may mask infection or enhance existing infection. If signs and symptoms fail to improve after 2 days, the patient should be re-evaluated.
• Viral infections – Employment of a corticosteroid medication in the treatment of patients with a history of herpes simplex requires great caution. Use of ocular steroids may prolong the course and may exacerbate the severity of many viral infections of the eye (including herpes simplex).
• Fungal infections – Fungal infections of the cornea are particularly prone to develop coincidentally with long-term local steroid application. Fungus invasion must be considered in any persistent corneal ulceration where a steroid has been used or is in use.
• Contact lens wear – DUREZOL® Emulsion should not be instilled while wearing contact lenses. Remove contact lenses prior to instillation of DUREZOL® Emulsion. The preservative in DUREZOL® Emulsion may be absorbed by soft contact lenses. Lenses may be reinserted after 10 minutes following administration of DUREZOL® Emulsion.

Most Common Adverse Reactions
• Post Operative Ocular Inflammation and Pain – Ocular adverse reactions occurring in 5-15% of subjects included corneal edema, ciliary and conjunctival hyperemia, eye pain, photophobia, posterior capsule opacification, anterior chamber cells, anterior chamber flare, conjunctival edema, and blepharitis.
• In the endogenous anterior uveitis studies, the most common adverse reactions occurring in 5-10% of subjects included blurred vision, eye irritation, eye pain, headache, increased IOP, iritis, limbal and conjunctival hyperemia, punctate keratitis, and uveitis.

For additional information about DUREZOL® Emulsion, please refer to the brief summary of prescribing information on adjacent page.

For more resources for eye care professionals, visit MYALCON.COM/DUREZOL

References:
1. DUREZOL® Emulsion prescribing information.