

News in Review

COMMENTARY AND PERSPECTIVES

Keep Some Drops out of Kids' Reach

Over-the-counter eyedrops containing imidazoline derivatives may offer welcome relief to patients suffering from red, itchy, or dry eyes. But the Food and Drug Administration (FDA) wants

you to know that in the hands of curious children, they pose a serious threat.

A recent FDA safety announcement reported 96 cases of children, aged 1 month to 5 years old, who exhibited symptoms associated with ingestion of eyedrops as well as nasal decongestant sprays.¹ In some cases, children had been seen chewing or sucking on the bottle, or an empty bottle was found beside them.

None of the incidents resulted in death, but more than half (53) of the children were hospitalized for symptoms including nausea, vomiting, lethargy, tachy-

cardia, bradycardia, decreased respiration, somnolence, stupor, hypothermia, drooling, and coma.

The products contain the active ingredients tetrahydrozoline, oxymetazoline, or naphazoline, which, in the eye, relieve redness by narrowing blood vessels. Among the products were generic and store labels, and brands such as Visine and OptiClear. Most are not packaged in childproof form, which was one impetus for the FDA announcement.

FDA spokesman Christopher Kelly said that last year, "the U.S. Consumer Product Safety Commission



LOCK AWAY. When talking with parents and caregivers, let them know that ingestion of some over-the-counter drops can be poisonous to children.

published a proposed rule requiring child-resistant packaging for redness-relief eyedrops and nasal decongestant sprays, which triggered the FDA to look into this issue." The proposed rule, which is not yet finalized, would require special packaging for products containing at least 0.08 mg of an imidazoline derivative.²

The volume ingested in the 96 cases ranged from 0.6 mL to one and one-half

bottles. (The products are packaged in 15 mL and 30 mL bottles.) An amount as low as 2 mL to 5 mL of tetrahydrozoline 0.05 percent solution is capable of producing coma in a child.

The 96 incidents, which occurred between 1985 and 2012, were reported by consumers and manufacturers to government databases monitored by the FDA. But they are the tip of the iceberg. Mr. Kelly said that the Children and Poisoning System estimated that, between January 1997 and December 2009, more than 5,600 injuries occurred due to pediatric ingestion of eye and nose sprays containing imidazoline derivatives.

Frederick W. Fraunfelder, MD, MBA, director of the National Registry of Drug-Induced Ocular Side Effects, and professor of ophthalmology at Oregon Health & Science University, said that eyedrops aren't inherently more toxic than other drugs. But their over-the-counter status might lull parents into thinking they're harmless. "It's important to re-

mind parents that drops are real medicines and should be respected," he said.

The FDA advised health care professionals to tell parents and caregivers the following important points:

- Store all medications high up and out of the reach

of children.

- Avoid taking medications in front of young children, who like to mimic adults.
- Relock the bottle after every use.

Anyone who suspects a child has ingested any medication should take the fol-

lowing actions:

- Call the toll-free Poison Help Line, 800-222-1222.
- Seek immediate emergency care.
- Report adverse events to the FDA MedWatch program, 800-332-1088.

—Miriam Karmel

1 www.fda.gov/Drugs/DrugSafety/ucm325257.htm

2 www.cpsc.gov/library/foia/foia12/brief/imidazolines.pdf

Mr. Kelly is an employee of the Food and Drug Administration. Dr. Fraunfelder is a consultant for QLT.

Retina Report

Vitrectomy? Consider Removing the Cataract

You might call it a kind of cataract calculus—deciding whether or not to do cataract surgery at the same time as a pars plana vitrectomy (PPV). The preference has been to retain the lens after a vitrectomy to minimize postoperative risks. But a recent retrospective Korean study calls that approach into question.¹

Researchers at Gachon University Gil Hospital in Incheon, Korea, reviewed the medical records of 365 patients undergoing PPV and cataract surgery between 2007 and 2010. Of these, 54 had cataract surgery in previously vitrectomized eyes (sequential procedure), and 311 had combined vitrectomy and cataract surgery. A control group had cataract surgery alone. To minimize variables, a single surgeon performed all the surgeries, which included treatment of complex vitreoretinal diseases, mainly diabetic retinopathy and retinal detachment.

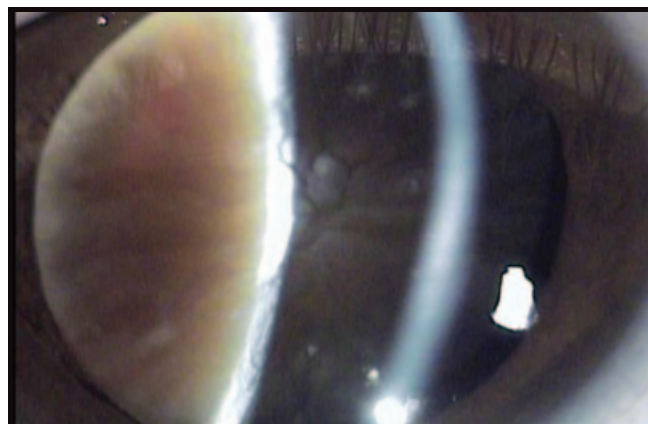
The researchers looked

at intraoperative complications during phacoemulsification, as well as preoperative and intraoperative cataract grading, using the Lens Opacities Classification System (LOCS).

The most common complication during phaco was posterior capsular rupture (PCR)—at rates of 11.4 percent in the sequential group versus 4.5 percent in the combined group ($p = 0.049$) and 2.4 percent in the control group. Lens dislocation and iris trauma were rare, with no significant differences between groups.

"A higher rate of PCR was expected in the sequential group, with harder nuclear cataracts a plausible cause," said coauthor Dong Heun Nam, MD, PhD, who performed all the procedures and is a full-time professor and surgeon in the department of ophthalmology.

What came as a surprise was the speed of cataract progression—especially nuclear sclerotic cataract—in previously vitrectomized eyes, he said. Color grading based on the LOCS



DISCREPANCY. Slit-lamp photograph of the lens of a 50-year-old woman who underwent a vitrectomy for uveitis 10 years ago. Preoperative nuclear color score was 5 on LOCS III, but intraoperative score seemed to be higher.

in vitrectomized eyes was insufficient for predicting this acceleration. "Even in cases where the nucleus does not seem to be hard preoperatively, we should expect a very hard nuclear cataract intraoperatively if the interval between vitrectomy and cataract surgery is several years or more." (In the study, the mean time between vitrectomy and cataract surgery was nine months—with seven months' standard deviation.) For this reason, Dr. Nam suggested performing cataract surgery soon after a vitrectomy, using the phaco chop technique.

Despite the need for prospective studies with larger samples and longer duration, Dr. Nam recommended taking the combination route over the sequential

surgery. Adequate visualization of the posterior segment, good access to the vitreous base, complete laser photocoagulation, immediate visual recovery, reduced costs, and lowered morbidity are just a few of the reasons.

Dr. Nam suggested using endoillumination-assisted phacoemulsification in combined surgeries for eyes with poor fundus reflex caused by a small pupil, corneal opacity, or vitreous hemorrhage.²

—Annie Stuart

1 Lee JY et al. *Retina*. 2012; 32(10):2026-2033.

2 Kim KH et al. *J Cataract Refract Surg*. 2010;36(12):2028-2031.

Dr. Nam reports no related financial interests.

Psychiatry News

Eyes Reveal Schizophrenia

Eyes are said to be the windows of the soul. Now it appears that eyes can also be windows to an individual's mental condition. Researchers from Scotland and Germany have reported that a few simple eye movement tests can be used to diagnose schizophrenia, with near-total accuracy (98.3 percent).¹

Until now, psychiatry has lacked any objective diagnostic test for psychiatric spectrum illnesses. "This

is in stark contrast to the thousands of tests and instruments available to general medical practice," said lead author Philip J. Benson, PhD. The eye movement tests are cheap and easily administered in a hospital or clinic by a trained technician.

But the test cannot stand alone. "It has to be used in conjunction with medical/clinical history to rule out comorbid symptoms, fakers, substance abuse, et cetera,"

said Dr. Benson, a senior lecturer at King's College, University of Aberdeen, Scotland.

The schizophrenia patients showed different results from control subjects on almost all of the eye movement tests, which included horizontal and Lisajous pursuit, visual scan-path, and fixation stability. And fixation dispersal during free viewing was the best single discriminator.

The results were independent of environmental and social stimuli. For example, schizophrenic patients on neuroleptics as well as those not on medication scored within the same

range of eye movement abnormality. And there was no correlation between severity of these observed abnormalities and duration of illness, age of onset, or amount of medication.

Dr. Benson said the study was conducted to discover the presence of a biomarker for psychiatric illness. "Our hopes were upheld that eye movements might actually be a useful proxy for severe mental illness neuropathology." —Miriam Karmel

1 Benson PJ et al. *Biol Psychiatry*. 2012;72(9):716-724.

Dr. Benson reports no related financial interests.

Glaucoma Update

Choroid and Angle Closure

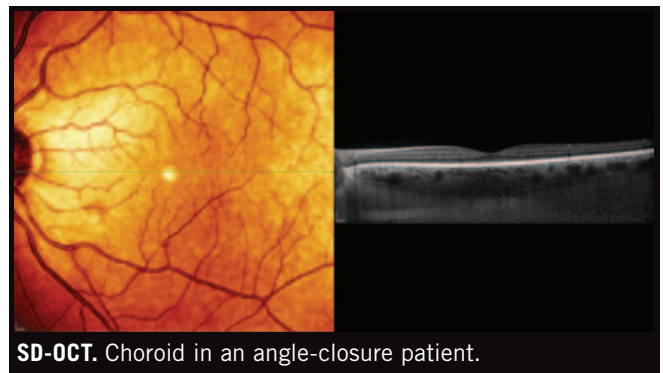
Can an extra-thick choroid predispose some eyes to developing primary angle-closure glaucoma? High-resolution imaging suggests that the answer is yes, according to researchers at Wilmer Eye Institute's Glaucoma Center of Excellence.¹

The group reported using spectral-domain optical coherence tomography (SD-OCT) to show that the choroid averaged about 80 μm thicker in angle-closure eyes than in eyes with open-angle glaucoma or controls.

Choroidal thickness in angle-closure eyes was a mean of 318 μm , compared with 235 μm in the open-angle eyes and 234 μm in controls with no evidence of glaucoma. After adjustment for patient variables,

the thickness differences remained statistically significant (compared with open angle, $p = 0.03$; compared with normal, $p = 0.003$). There was no statistically significant difference between choroidal thickness in the open-angle glaucoma eyes and age-matched controls, the group wrote, indicating this was a characteristic of angle-closure eyes, not of all glaucoma eyes.

The choroid's baseline thickness is important because this tissue layer is part of a dynamic system that responds to changes in blood pressure and intraocular pressure (IOP) throughout the day and night, said Harry A. Quigley, MD, senior author on the study and professor of ophthalmology at Johns Hopkins University.



SD-OCT. Choroid in an angle-closure patient.

If the choroid is thicker than normal, further expansion pushes other ocular structures excessively forward, making aqueous humor movement through the pupil more difficult and leading to angle closure. "The choroid is like an accordion, continuously expanding and contracting," Dr. Quigley said. "When blood pressure goes up, the choroid swells with blood. When the choroid expands, IOP goes up, and in smaller eyes with greater-than-normal expansion tendency, the IOP rise leads to dramatic IOP increase due to intensi-

fication of pupillary block."

This study was part of research published by this group that showed choroidal expansion was greater in angle-closure eyes after provocation by the water-drinking test.

—Linda Roach

1 Arora KS et al. *Invest Ophthalmol Vis Sci*. 2012;53(12):7813-7818.

Dr. Quigley is a consultant to Advanstar, Allergan, Carl Zeiss Meditec, Genentech, Merck, Ono, Pfizer, and Sucampo, and he receives grant support from Heidelberg Engineering.