

News in Review

COMMENTARY AND PERSPECTIVES

Double Vision? Check the Readers

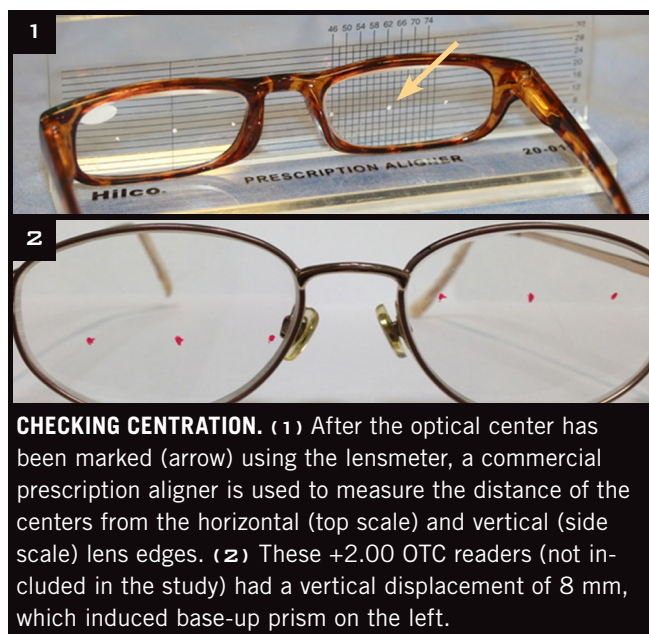
Could induced prism from poorly manufactured over-the-counter (OTC) reading glasses be the source of asthenopia or diplopia? Best to double-check before sending a patient for an extensive,

expensive workup. That's the message of a recent report measuring the quality of a random selection of 160 pairs of OTC readers.¹

A diplopia mystery. The study's genesis was in the experience of a patient seen by coauthor Constance E. West, MD, of Cincinnati Children's Hospital Medical Center. The patient, a 49-year-old woman with high myopia, had new-onset diplopia for which she had previously seen four other ophthalmologists and undergone magnetic resonance imaging, electroretinography, edrophonium testing, and more—all for naught.

"It turned out her OTC reading glasses had optical centers that were 8 mm vertically displaced relative to each other," said Dr. West. The patient's symptoms disappeared once the glasses were replaced.

Displacements discovered. In the study, 11 percent of the readers were vertically displaced by 3 mm or more. Displacement of the optical center of a spectacle lens induces prism, the power of which depends on the amount of displacement and the power of the lens. Given the eyes' poor ability to vertically realign (vertical vergence amplitude), this



defect could be of particular concern, said Dr. West, especially for those susceptible to a vertical heterophoria.

The researchers also found asymmetries in average interpupillary distance and monocular pupillary distance placement, although horizontal disparities generally pose less of a problem because of the eyes' greater ability to converge and diverge horizontally.

OTC readers remain a good option. Dr. West em-

phasized that OTC readers are an affordable, useful option for many people with presbyopia. "But just as we do with prescription lenses, we need to assess OTC readers to ensure that the power and optical center location are correct," she said.

—Annie Stuart

1 West CE, Hunter DG. *J AAPOS*. 2014;18(3):293-294.

Dr. West reports no related financial interest.

Cataract Controversies

Multifocal IOL Explants

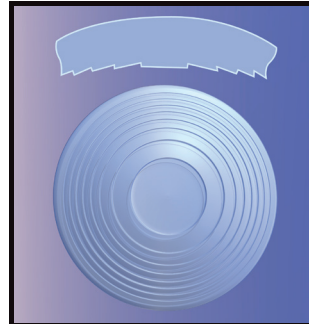
Both advocates and skeptics of multifocal intraocular lenses (IOLs) can find support for their positions in the results of a study of visual dissatisfaction leading to multifocal IOL explantation. In a 10-center, retrospective study by the Survey Working Group of the Japanese Society of Cataract and Refractive Surgery, researchers identified 4,254 cataract surgeries (performed 2005-2012) in which multifocal IOLs were implanted; of these, 3,685 were diffractive and 569 refractive.¹

Small percentage of explants. The good news for multifocals: The researchers found that in more than 4,000 eyes, the patient was

sufficiently satisfied with the vision to keep the multifocal IOL. Of 343 patients who complained of visual symptoms such as “waxy” vision, glare, halos, and dysphotopsia, only 37 (50 eyes) chose explantation.

Results of explantation. The bad news for multifocals: In 90 percent of the explants, the patients chose a monofocal replacement IOL (10 percent of multifocal lenses were exchanged for another multifocal due to incorrect IOL power).

After receiving monofocal lens replacement, patients had significantly better contrast sensitivity across all spatial frequencies. Moreover, on a scale of 1 to 5, with 5 being “very



DIFFRACTIVE IOL. Among patients who had multifocal IOLs removed, a common complaint was loss of contrast sensitivity with the diffractive design.

satisfied,” their mean satisfaction rose to 3.78 ± 0.97 from 1.22 ± 0.55 with the multifocal lens ($p < .001$).

Few complications occurred. Three of the 50 eyes required anterior vitrectomy, and one eye developed a slight asymptomatic IOL dislocation.

Surgeons should be prepared. Overall, the results suggest that explantation

is a viable option for the unusual cases in which the patient cannot tolerate the visual compromises inherent in multifocality, according to lead author Kazutaka Kamiya, MD, PhD, associate professor of ophthalmology at Kitasato University in Kanagawa, Japan.

“All ophthalmologists should carefully explain the possible risk of multifocal IOL explantation preoperatively, and be sure to master the IOL explantation technique, because IOL explantation is one of the significant complications in cataract surgery not only for patients but also for surgeons,” he said.

—Linda Roach

1 Kamiya K et al. *Am J Ophthalmol*. Published online April 20, 2014.

Dr. Kamiya reports no related financial interests.

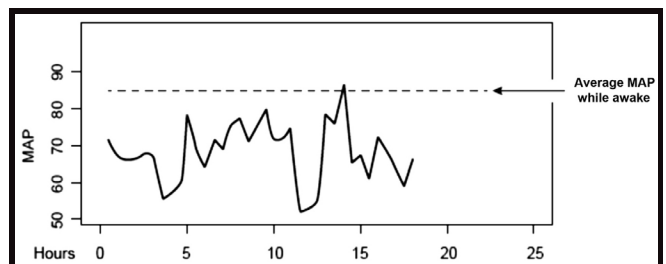
Glaucoma Risks

Visual Field Loss & Low Nighttime BP

Nocturnal hypotension has been shown to pose an ischemic risk in regional circulations, possibly resulting in stroke or myocardial infarction. Now we can add another risk to the list: progression of visual field loss, at least in patients with normal tension glaucoma (NTG).

In a study headed by epidemiologist Mary E. Charlson, MD, NTG pa-

tients whose systemic blood pressure (BP) dipped too low while they slept were at greater risk for visual field loss than those without nocturnal hypotension.¹ Specifically, the total time that mean arterial pressure (MAP) during sleep fell more than 10 mmHg below daytime MAP was a significant predictor of visual field progression. The findings might apply to other forms of open-angle glaucoma as



NOCTURNAL DIPS. Graph of baseline MAP during sleep (in 48-hour monitoring) in an NTG patient who had VF progression. Dotted line shows patient’s average MAP while awake.

well, but “we don’t know for certain,” said Dr. Charlson, a professor of medicine at Weill Cornell Medical College in New York.

Study details and origins. This prospective longitudinal study involved 85 NTG patients whose systemic blood pressure was measured and recorded every 30 minutes over 48

hours by means of an ambulatory monitoring device. Measurements were taken at baseline, six months, and twelve months. Ocular examinations, including automated perimetry and tonometry, also occurred at those intervals.

The study was built upon the theoretical framework used by Dr. Charlson in ear-

Retinal Report

Drugs & AMD Risk: New Links Explored

Since its establishment in 1987, the Beaver Dam Eye Study has been collecting data on the prevalence, incidence, and possible causes of chronic eye diseases. The research group, at the University of Wisconsin, has published more than 300 papers and demonstrated compelling evidence on various risk factors for ocular disease.

So when Ronald Klein, MD, and colleagues recently published 20-year follow-up data demonstrating the association of commonly used blood pressure medications and vasodilators with age-related macular degenera-

tion,¹ both the ophthalmic community and the lay media took note.

What the study showed. Of the 4,926 individuals aged 43 to 86 included at the first examination, 1,923 were alive and still participating at 20-year follow-up. Analysis of multiple factors demonstrated an increased risk of early AMD in participants who used a vasodilator (hazard ratio [HR], 1.72; 95% confidence interval [CI], 1.25-2.38), in particular, nitroglycerin. Participants who used oral beta-blockers were at increased risk for exudative AMD (HR, 1.71; CI, 1.04-2.82).

lier research that focused on autoregulation of regional circulation. One such study, a randomized clinical trial involving coronary bypass patients, “led to the hypothesis that systemic hypotension might lead to ischemia resulting in visual field loss over time,” she said.²

Earlier ophthalmic studies, using a variety of trial designs and definitions, have suggested that systemic BP plays a role in the pathogenesis of glaucoma. This is the first longitudinal study of NTG using 48-hour BP monitoring at six-month intervals.

Other findings. Overall, 26 of the 85 patients (29 percent) demonstrated visual field progression by 12

months. In addition to nocturnal hypotension, prior progression and corneal thickness were found to be significant predictors.

Intraocular pressure in either eye was not found to be a predictor of subsequent VF change; however, the study was neither designed nor powered to disprove the importance of lowering IOP in NTG.

Implications. According to the study, nocturnal hypotension should now be considered a modifiable risk factor for progression of visual field loss. This is very important, said Dr. Charlson, because it provides the foundation for new approaches to treatment. The next step, she said, is to con-

duct a clinical trial to assess whether reducing nocturnal hypotension slows visual field progression.

And what it didn't show. But as strong as these findings are, “You need to understand that this is an epidemiological study, not interventional in nature. It demonstrates an association, not causation,” said Dr. Klein, adding that the first step in confirming the linkages would be replicating them in another large population study. He said that the results could be due to a chance finding, to a condition for which the medications are being taken, or to unmeasured factors associated with taking the medications that are also related to developing AMD but not examined in the study.

Statistics in perspective. Data can be expressed in different ways, and Dr. Klein is concerned that people taking these drugs may be needlessly alarmed by media reports stating that vasodilators increase

AMD risk by 72 percent and beta-blockers by 71 percent. “I don't like to use those figures,” he said. “It gives people a better understanding of the risk if you tell them that 1.2 percent of those who take these drugs develop late AMD compared with 0.5 percent who don't take them. In either case, it's a rare complication.”

Considerations for clinicians. The most important message for physicians at this point is that it's too early to make any changes in medical care based on these results, said Dr. Klein. “We still require replication and better understanding of the underlying biological mechanisms.”

—Peggy Denny

1 Klein R et al. *Ophthalmology*. 2014;121(8):1604-1611.

Dr. Klein reports no related financial interest.

field progression.

Recommendations. For now, Dr. Charlson said that if visual field loss is progressing, a patient's ambulatory blood pressure should be monitored for 48 hours. She also advised quantitatively comparing the patient's daytime and nocturnal pressures and evaluating the total duration that nocturnal blood pressure is below the daytime average.

—Miriam Karmel

1 Charlson ME et al. *Ophthalmology*. Published online May 26, 2014.

2 Gold JP et al. *J Thorac Cardiovasc Surg*. 1995;110(5):1302-1314.

Dr. Charlson reports no related financial interest.