Highlights of the AGS Annual Meeting

The latest research findings from a joint meeting of the American Glaucoma Society and the Australian and New Zealand Glaucoma Interest Group held March 5 to 8, 2009, in San Diego.

BY GEOFFREY T. EMERICK, MD

Every year, the AGS meeting features presentations of the best in glaucoma research. This year, over 790 registrants from around the world participated in a program covering a broad spectrum of topics, from the latest in basic science to social issues affecting patients. Several symposia, special interest group sessions, and workshops delved into topics in more detail. Lectures by Robert N. Weinreb, MD; Joseph Caprioli, MD; and guest of honor Paul L. Kaufman, MD, provided additional highlights. From all of these, I have chosen several presentations with the most immediate clinical relevance.

IMAGING

Despite advances in imaging technology, careful clinical observation of the optic nerve head is still the gold standard. The cup-to-disc ratio is inadequate, however, for describing many nerves, especially those with focal thinning. George Spaeth, MD, developed the Disc Damage Likelihood Scale (DDLS) to better quantify the degree of damage to the disc. Jonathan Myers, MD, and colleagues compared the performance of the DDLS against optical coherence tomography (Stratus OCT; Carl Zeiss Meditec, Inc., Dublin, CA) and scanning laser ophthalmoscopy (Heidelberg Retina Tomograph 3; Heidelberg Engineering GmbH, Heidelberg, Germany) in distinguishing normal eyes from those with moderate glaucoma. The investigators found that the DDLS, when used by experienced observers, was at least as effective as the imaging devices (Figure 1).

DRIVING AND GLAUCOMA

Visual field loss affects the daily activities of many patients with glaucoma, and losing the ability to drive is often a life-changing event. Pradeep Ramulu, MD, presented findings on the self-reported driving behavior of older patients (aged 73 to 93 years) in rural Maryland. Individuals with bilateral glaucoma were almost three times more likely to have stopped driving than individuals of a similar mean age who did not have glaucoma. As expected, patients with more severe field loss were more likely to have stopped driving. The researchers estimated that over 100,000 older Americans are not driving due to glaucoma, and the investigators emphasized the importance of preserving visual function in the better-seeing eye of patients with bilateral glaucoma.

EYE DROPS AND ADHERENCE

Clinicians do not often watch patients instill their drops. If physicians did, they would be in for an unpleasant surprise, as demonstrated by Amy Hennessy, MD, and colleagues, who videotaped patients as they administered their glaucoma medications. The investigators found that one-third of patients were unable to get a drop in their eye despite multiple attempts and one-third touched the ocular surface with the bottle. The subjects reportedly thought they were doing much better than they actually were: many of the patients with significant difficulties stated they have “no
trouble” administering their drops. Patients with visual field loss (as opposed to a loss of visual acuity), younger patients, and those with prior ocular surgery fared somewhat better. It seems that, aside from direct observation, clinicians have no way of knowing if their patients are properly administering their drops. They may benefit from instruction on instilling eye drops or may need to enlist the help of family members.3

How often do patients attempt to administer their drops? Studies have indicated only about 70% of the time.4 Many researchers are investigating this problem and possible solutions. David Friedman, MD, and colleagues evaluated interventions designed to improve adherence. Using an electronic dosing aid, they identified patients who were not taking their drops consistently. Some patients then watched a video on instilling drops, engaged in discussions of the barriers to adherence and how they could be addressed, received regular reminders by phone, and had an alarm set on their dosing aid. This group’s adherence improved from 54% to 73% after the intervention.5 Patients clearly need help in taking their drops, and multiple strategies are needed.

Doctor/patient communication plays a critical role in physicians’ efforts to improve patients’ adherence to potentially sight-saving therapies. Harry Quigley, MD, and several co-investigators videotaped doctor/patient encounters before and after an educational program for the physicians. Before the training, the ophthalmologists did most of the talking and asked most of the questions, the majority of which were closed-ended. The physicians were generally poor at detecting a lack of adherence. After undergoing training, their rate of detection improved, they had more discussions about adherence, and they asked more open-ended (but directed) questions.6 This study and others emphasize the greater value of asking, “It’s not easy taking all these drops. What problems have you been having?” rather than “You’re taking all your drops, right?”

SURGERY FOR GLAUCOMA

Is cataract surgery an effective treatment for glaucoma? Debate continues regarding eyes with primary open-angle glaucoma or pseudoexfoliation glaucoma, but removing the crystalline lens works very well in eyes with acute angle-closure glaucoma. Reay Brown, MD, showed that eyes with narrow angles and chronic angle-closure glaucoma can benefit from cataract surgery as well. In his series of 83 patients, the mean IOP decreased by 19% with a reduced need for medication. Eyes with higher preoperative pressures or shallower anterior chambers experienced a greater reduction in IOP after cataract surgery.7

MORTALITY AND GLAUCOMA

Are patients with glaucoma less healthy than other individuals the same age and therefore more likely to die? The answer appears to be no, according to Louis Pasquale, MD, and his colleagues. They performed a meta-analysis of nine studies in order to evaluate the relative risk of mortality in patients with glaucoma. Despite the shortcomings of a couple of the studies, the overall finding was that the diagnosis of glaucoma does not carry an increased risk of death—good news for these patients.8

**THE DISC DAMAGE LIKELIHOOD SCALE**

<table>
<thead>
<tr>
<th>DOLS Stage</th>
<th>For Small Disc 1.50 mm</th>
<th>For Average Disc 1.75 to 2.00 mm</th>
<th>For Large Disc 2.25 mm</th>
<th>DOLS Stage</th>
<th>Examples</th>
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<td>.4 or more</td>
<td>.3 or more</td>
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<td>.2 to .29</td>
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Figure 1. The DDLS is based on the width of the disc’s rim at its narrowest point. The unit of measurement is the rim-to-disc ratio. When no rim remains, the rim-to-disc ratio is zero, and the extent of absent rim is measured in degrees. The width of the rim is a function of the disc’s size, which must be taken into account.
As the use of antivascular endothelial growth factor agents proliferates, all ophthalmologists are becoming familiar with their power and limitations. A common (off-label) use is the management of eyes with anterior-segment neovascularization. Intravitreal bevacizumab or ranibizumab can lead to the rapid regression of vessels and a temporary reduction of IOP. As Richard Lee, MD, and colleagues pointed out, however, physicians should not be lulled into a false sense of security by early regression of iris and angle neovascularization. In a series of 56 eyes, most of which had ischemic central retinal vein occlusion or proliferative diabetic retinopathy, 61% eventually needed a glaucoma drainage implant for IOP control. Even if the angle was not closed at the time of the antivascular endothelial growth factor agent's injection, the measure was often too late if the IOP was already elevated. Finally, the researchers emphasized that peripheral retinal laser ablation is still essential in these patients.9

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3. Hennessy AL, Robin AL, Katz J, Covert D. Objective evaluation of the ability of patients with decreased vision or restricted visual fields to properly instill eye drops: a video compliance study. Paper presented at: The 19th Annual AGS Meeting; March 6, 2009; San Diego, CA.