

Keys to Successfully Managing Primary Angle-closure Glaucoma

It is incumbent on eye care providers to learn to recognize the risk factors.

BY SIMON K. LAW, MD, PHARM D

Successfully managing primary angle-closure glaucoma (PACG) requires recognizing patients at risk, making the correct diagnosis, and understanding the unique considerations involved in medical and surgical treatment.

DIAGNOSIS

PACG may be asymptomatic until optic neuropathy reaches an advanced stage and affects the patient's central vision. Delayed diagnosis may be common,



Figure. Patent iridotomy on the peripheral iris.

“Certain characteristics help to identify who is more likely to suffer primary angle closure.”

because a lot of these patients are emmetropic or mildly hyperopic. They therefore often require no ophthalmic examination for spectacles when they are young and tend to consider themselves “normal.” Unfortunately, even when these individuals receive an ophthalmic examination, the eye care provider may not discern a narrow angle if he or she is not familiar with the presentations or does not evaluate the anterior chamber. It is therefore important that eye care specialists understand who is at increased risk of angle closure.

Although much remains to be learned about why some patients with narrow angles develop PACG, certain characteristics help to identify who is more likely to suffer primary angle closure. It is generally agreed that demographic characteristics include older age, female gender, certain ethnicities such as East Asian, and a family history of PACG. The anatomical char-

acteristic of a crowded anterior segment also places individuals at higher risk of angle closure. A crowded anterior segment is associated with a shallow anterior chamber, short axial length, small corneal diameter, shallow peripheral chamber depth, thick or relatively anteriorly positioned lens, and increased anterior curvature of the lens. Although these ocular biometric parameters are not readily available in a routine ophthalmic examination, they are often associated with hyperopia, which is easily detected. The aforementioned demographic characteristics combined with a hyperopic refractive error, therefore, should prompt providers to focus on these patients and to evaluate the anterior chamber angle.

Despite the availability of sophisticated tools such as ultrasound biomicroscopy and anterior segment optical coherence tomography, gonioscopy remains the gold standard for evaluating the angle. Because the dimension and configuration of the anterior chamber of an eye may change over time, it is important to repeat gonioscopy periodically to recognize a narrow, "occludable" angle or to correctly classify the glaucoma subtype. After all, correct diagnosis is the foundation of effective treatment.

TREATMENT

Medical

Most of the familiar medications for treating primary open-angle glaucoma (POAG) can be used effectively in patients with PACG. In eyes with extensive, permanent angle closure or an extremely shallow peripheral anterior chamber angle, however, parasympathomimetics of high concentration (such as pilocarpine > 2%) may paradoxically raise IOP secondary to an increase in the anterior-posterior diameter of the lens and a further reduction of the anterior chamber depth. Use of these agents should be limited to the lower concentration (eg, pilocarpine ≤ 2%). Although prostaglandin analogues are probably the most effective class of ocular hypotensive agent available, their ability to reduce IOP immediately in an angle-closure attack is unreliable due to their slow onset.

Surgical

In PACG, laser peripheral iridotomy widens the angle and reduces a patient's risk of developing angle closure and glaucoma (Figure). Laser trabeculoplasty is relatively contraindicated due to poor visualization of the angle and a possibly increased risk of peripheral anterior synechiae unlike in POAG. Cataract removal may also widen the angle and reduce the IOP in patients with PACG to a greater extent than in patients with POAG.

**"Treatment is more effective
before the angle has permanently
and extensively closed."**

Treatment is more effective before the angle has permanently and extensively closed. Unfortunately, it is not uncommon for PACG patients who require surgical intervention to present at an old age and an advanced stage of glaucomatous optic neuropathy with a crowded anterior segment. This timing, unfortunately, makes surgical intervention more difficult.

CONCLUSION

The success of PACG management depends on how well eye care providers recognize patients with an occludable anterior chamber, whether they correctly classify and diagnose PACG, and how familiar they are with the medical and surgical treatments for the disease. As the old saying goes, an ounce of prevention is worth a pound of cure. Ophthalmic and medical personnel alike should familiarize themselves with the demographic risk factors for PACG and the easily detectable clinical characteristic of hyperopia. Someday, more sophisticated technology (such as ultrasound biomicroscopy or anterior segment ocular coherence tomography) may assist in the objective detection of a narrow, occludable angle, but currently, gonioscopy remains the key procedure by which to evaluate the angle's configuration.

Laser peripheral iridotomy is indicated even in eyes that already have some areas of permanent angle closure in order to prevent further angle closure. ■

Simon K. Law, MD, PharmD, is a clinical professor of health sciences, Jules Stein Eye Institute, David Geffen School of Medicine, University of California, Los Angeles. Dr. Law may be reached at (310) 794-1477; law@jsei.ucla.edu.



CONTACT US

Send us your thoughts via e-mail
to gtletters@bmctoday.com.