Glaucoma – Primary open-angle management

DESCRIPTION, SYMPTOMS, SIGNS

See previous condition.

PREVALENCE

POAG accounts for approximately 14 per cent of blindness registrations in the UK, Australia and the US. In the population as a whole, it is uncommon. However, it has a prevalence of about 2.5 per cent in adults of European descent, and is the most common cause of blindness in the African American population. Moreover, of the glaucoma population, about half do not know that they have the disease.

DIFFERENTIAL DIAGNOSIS

Secondary open-angle glaucomas (see Glaucoma – classification), optic discs with large physiological cupping, ocular hypertension, optic atrophy from chiasmal compression, ischaemic optic neuropathy. Conditions that manifest large optic cups or may have glaucoma-like visual field loss, such as optic disc coloboma, optic disc pits, myopia, optic nerve head drusen and branch arteriolar occlusion.

MANAGEMENT

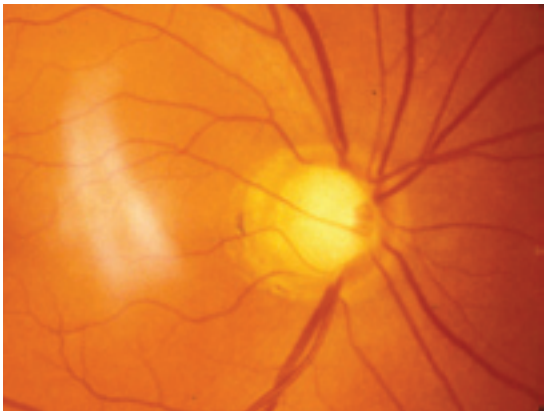
Topical medication

In most patients, a medical regimen with topical agents is the initial treatment. Treatment is tailored to the patient by setting a target IOP that reflects the optic nerve damage already present and the apparent rate of progression. On average, treatment will seek to lower IOP by about 30 per cent, although if the damage is severe, IOP may need to be lowered to less than 15mmHg. The target IOP may change if the disease progresses.

A variety of medications are available:

- Non-selective and selective beta-blockers such as timolol maleate, betaxolol, carteolol, levobunolol, metipranolol *qd mane* or *bid* are effective in reducing IOP but should be avoided in patients with respiratory disease, heart failure and myasthenia gravis
- An alpha-2 agonist such as apraclonidine or brimonidine tartrate *bid* is also useful but is contraindicated if the patient is taking a monoamine oxidase inhibitor
- Topical carbonic anhydrase inhibitors are useful in combination with another agent such as a beta-blocker
- Miotics usually significantly reduce IOP but are not well tolerated
- A prostaglandin agonist, such as bimatoprost, latanoprost or travoprost *qd nocte* or unoprostone *bid*, is often the initial treatment of choice in many patients. It should not be used in patients with uveitis, cystoid macular oedema or in pregnancy, and may lead to local adverse reactions such as darkening of the iris, longer, thicker, 'luscious' eyelashes, and conjunctival hyperaemia and stinging on instillation. However, the drug is usually well tolerated.

Frequently, monotherapy (one drug) is instituted in both eyes initially to judge the effect of the drug and the patient reviewed after two or three weeks. Treatment in only one eye would be considered if there were monocular risk factors providing a basis for unilateral disease. Allow enough time for the initial therapy to work before poly-pharmacy (adding another medication) is entertained. Halting the progression of optic nerve damage and visual field loss long-term is indicative that the treatment is effective.



POAG in an elderly man. There is thinning of the superior and inferior temporal neuroretinal rims

Laser or incisional surgery

Surgery may be considered if IOP is uncontrolled with medical therapy. Such procedures include argon laser trabeculoplasty, selective laser trabeculoplasty and filtering surgery.

Advice and review

Early detection and treatment is paramount. Regular, at least annual, eye examinations are important for those most at risk, such as people in the older age groups, where there is a positive family history especially in first degree relatives, patients with high myopia and diabetes. Patient education regarding appropriate compliance with a life-long treatment regimen is vital. The correct sequential instillation of eye drops, closing the eyes and punctal occlusion to minimise systemic absorption, and informing the patient of potential adverse effects is essential and should be discussed at every review.

PROGNOSIS

The prognosis depends upon the extent of optic nerve damage already present and the current rate of progression. The patient's life expectancy and compliance with treatment must also be taken into account. If diagnosed early, the prognosis is frequently quite good, due to advances in medical and surgical therapies.

The full series of these articles will be available in the book *Posterior Eye Disease and Glaucoma A-Z* by Bruce AS, O'Day J, McKay D and Swann P. £39.99. For further information click on the Bookstore at **opticianonline.net**

- **Adrian Bruce** is a Chief Optometrist at the Victorian College of Optometry and a Senior Fellow, Department of Optometry and Vision Sciences, The University of Melbourne.
- **Justin O'Day** is an Associate Professor in the Department of Ophthalmology, The University of Melbourne and Head Of Neuro-Ophthalmology Clinic, Royal Victorian Eye and Ear Hospital.
- **Daniel McKay** is a Medical Officer at the Royal Victorian Eye & Ear Hospital.
- **Peter Swann** is Associate Professor in the School of Optometry, Queensland University of Technology.