

# BJO

British Journal of Ophthalmology

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## Editorials

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### Seven million too many

That ethnicity predisposes towards forms of glaucoma has long been known by ophthalmologists. The analysis of Dr Quigley, published in this issue (p 389), now highlights the fact that projected population growth, especially in Asia, will provide a surge in the prevalence of glaucoma worldwide. It is interesting to note that the majority of cases of glaucoma in the next century may be of the primary angle closure type and two thirds of these will be in China. Primary open angle glaucoma, which is more commonly found in the African eye, and most obviously apparent in African-Americans, is also apparently on the increase. Second only to cataract as a cause of bilateral blindness, cases of glaucoma will produce, according to Quigley, 6.7 million blind people worldwide by the year 2000. But, unlike cataract blindness, glaucoma blindness is irreversible.

The growing problem of glaucoma is a significant challenge for ophthalmologists. It is challenging because there are no agreed diagnostic criteria, therapy does not restore sight, and no permanent treatment is available to stabilise the disease. East Asian and, particularly, Chinese eyes are prone to the insidious process of 'creeping angle closure' as described by Lowe.<sup>1</sup> It occurs in eyes with shallow anterior chambers, like other forms of primary angle closure, and is a common cause of irreversible visual loss in Chinese eyes.<sup>2</sup> Routine gonioscopy, however, seems rarely practised as a screening tool in China where angle closure glaucoma is endemic.<sup>3</sup> Furthermore, the costs of the other standard methods of glaucoma screening, including computerised perimetry, are prohibitive in most developing countries where no more than a few pounds per head are spent on health care each year. Even in developed countries, perhaps one half of all glaucoma cases remain undiagnosed.<sup>4</sup> Clinical detection of glaucoma is difficult anywhere, but in the absence of ophthalmic knowledge, the disease invariably remains undiagnosed until very late in its course.<sup>5</sup> More efficient methods are required but less expensive screening tools, including oculokinetic perimetry, have been less reliable.<sup>6</sup>

While the treatment of cataract is advancing through the transfer of low cost intraocular lens technology to developing countries, the management of glaucoma is a more difficult issue. The treatment of angle closure glaucoma would be greatly assisted throughout the world by the development of low cost, portable, YAG laser systems. Even though significant chronic angle closure and disc damage have usually occurred at presentation, often requiring initial trabeculectomy, the management of fellow eyes by laser iridotomy would be greatly assisted by

portable YAG laser systems. Much bilateral blindness could be prevented.

For primary open angle glaucoma, it is clear that while treatment to lower intraocular pressure will minimise the rate of progression of optic nerve damage, intraocular pressure alone is not responsible for the disease. Family history, age, and race are known determinants of risk, and may also be prognostic factors, but our understanding of the importance of vascular abnormalities is less certain.<sup>7</sup> Moreover, current medical therapy for open angle glaucoma suffers from the ongoing costs of medication, the need for continuing compliance, and appropriate monitoring. Laser trabeculoplasty is known to have limited long term efficiency<sup>8</sup> and functional ophthalmic lasers are not widely available<sup>5</sup> in the developing world. These are significant issues where resources are limited. Verrey *et al*<sup>9</sup> reported that of those given medical therapy for newly diagnosed glaucoma in western Ghana, only 22% of patients presented for follow up at 6 months and of those only 17%, or 4% overall, had an intraocular pressure (IOP) of less than 22 mm Hg in either eye. By contrast, 86% of surgically managed patients seen at 6 months had an IOP less than 22 mm Hg in at least one operated eye. Although it is difficult to make a judgment as to the long term prognosis for these two groups, it remains likely that surgical intervention achieves a more desirable IOP and a longer period of control at lower cost. But so called surgical success can be associated with significant morbidity in unskilled hands and the long term success is less certain in those of African descent who have the highest prevalence of primary open angle glaucoma.<sup>5</sup> Quigley correctly suggests that the advent of antimetabolites will improve the success of trabeculectomy, but the use of these drugs must also be balanced by their expense and a likely increase in the risk of late bleb related infection and endophthalmitis.<sup>10</sup> In developing countries the sight threatening potential of this complication is unknown and might be significant in some tropical climates. The delivery of intervention in these settings requires further study. While we must identify and educate those at risk of the disease, we must also support health workers and our ophthalmic colleagues to develop the necessary clinical research and advocacy skills to deliver appropriate care in their respective communities. Hopefully, they will determine the most appropriate case detection methods and treatments in the context of their own available resources and competing health priorities.

Quigley is to be commended for his exhaustive analysis of glaucoma prevalence across the world and for his signal

that this is a significant public health issue. Variability in prevalence measurements of glaucoma may follow from inadequate sampling methods but more usually follows from varying diagnostic criteria.<sup>11</sup> Quigley has carefully excluded studies where the clinical examination or glaucoma definition was inadequate. His estimate has served to emphasise the great misery that this disease will create in the next century, especially as human life expectancy improves across the world. We must commit ourselves to sensible management strategies and renewed research efforts if the increasing tragedy of glaucoma blindness is to be controlled.

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