

Challenges in Glaucoma Management in Developing Countries – Is Vision 2020 ready for glaucoma?

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SUMMARY

Glaucoma has been referred to as the 'orphan child' of Vision 2020 because, though it is the world's leading cause of irreversible blindness, it was not included in its initial list. The main reasons include the inability to restore lost vision, and the need for upgrading the substandard clinical skill levels of many developing country ophthalmologists. Additional barriers include some or all of the following: poverty; limited or absent follow-up visits because of transportation problems and/or patient indifference; limited medical treatment because drugs are unavailable, unaffordable or not taken; and the necessity of case-based rather than community-based screening.

INTRODUCTION

Glaucoma is the leading cause of irreversible blindness worldwide. Both cataract and glaucoma are more prevalent in the elderly, whose numbers are predicted to rapidly increase due to longer lifespan (according to the UN Department of Economic and Social Affairs, the world population aged 80 or over is predicted to increase almost 4X between 2009 and 2050). However, the similarity ends there. The diagnosis and the treatment of glaucoma are much more complex than for cataract and demand a significantly higher level of clinical skills.

Often, the diagnosis and treatment of cataract blindness can be accomplished in a single day. In many situations, cataract density and prognosis can be determined using only a simple torch. Surgery restores vision, patients are overjoyed, complications are rare and future visits are seldom necessary. The inclusion of cataract by Vision 2020 in the initial list of 5 was a wise one; they chose a 'winner'.

In stark contrast, glaucoma is a 'loser'. Lost vision as a result of glaucoma cannot be restored. Unlike cataract, diagnosis requires a complete history and ocular examination, including gonioscopy and pupil dilation. Although intraocular pressure (IOP) is the most important risk factor for glaucoma, it no longer defines the disease. Algorithmic thinking is required to determine the specific cause of each individual patient's glaucoma in order to select the best corresponding treatment. Also, glaucoma patients need to be followed up throughout their lifetime.

METHODS

This article is based on experience from approximately 15 years of teaching about glaucoma as a volunteer in the training centres of developing countries: 42 two-week workshops in about 50 training centres in 30 developing countries. I use the 'Training the Trainer' method. All members of my core group (5 post-residency ophthalmologists for each workshop) must agree to teach others what they have learnt. If they all kept their promises, the total number of new glaucoma teachers worldwide would be 210. A list of workshop locations is presented in Appendix 1.

THE CHALLENGES

Knowledge Gap

The most significant challenge is the absolute and urgent need to address the common and widespread knowledge gap that currently exists among all levels of eye-care workers, including ophthalmologists, in secondary and tertiary care institutions. At present, far too many ophthalmologists in developing countries continue to diagnose glaucoma based only on intraocular pressure, a practice that results in many false positives and false negatives. It follows that community-based screening for glaucoma is highly inappropriate and ill advised.

Paucity of Ophthalmologists

Not only are there too few ophthalmologists in most developing countries, their distribution within the country is urban oriented, leaving millions in the countryside without ophthalmic care. The utilization of the public health model is not only appropriate but also necessary in these situations.

Reluctance to Treat

Many ophthalmologists, even those with good clinical skills, are reluctant to care for glaucoma patients. Surgical treatment for glaucoma, in contrast to cataract surgery, almost always results in unhappy patients because there is no visual improvement. Though patients are warned repeatedly about this outcome, they believe they will be the exception, and the lack of visual improvement is often interpreted as the doctor's mistake. Thus, there is an associated underlying and realistic fear, on the part of the physician, of developing a bad reputation.

Economics

The initial process of properly diagnosing and treating patients with glaucoma is time consuming and economically unrewarding, when compared to the fees received for cataract surgery or LASIK. This is also true for the long-term follow-up visits.

The cost of the equipment necessary for the diagnosis and treatment of glaucoma can also be a barrier. Equipment required to properly diagnose and treat the glaucoma patient include a slit lamp, a reliable instrument for measuring IOP, a gonioscope, indirect lenses for evaluation of the optic nerve, a visual field tester and, hopefully, a laser for trabeculoplasty. Recent studies have suggested trabeculoplasty as an alternative to medical treatment because it skirts the compliance issue and is much less expensive for the patient and/or government. Glaucoma surgery can be done with the same equipment and instruments as cataract surgery.

Patient Compliance

Medication

Poor compliance for the medical treatment of glaucoma is to be expected. It takes an act of faith to take any medicine for an extended period of time when there is no positive feedback, in this instance, improved vision. For the rural poor, medications are usually unaffordable, unavailable or not taken. Laser trabeculoplasty has been advocated by some practitioners for patients with mild to moderate glaucoma who are considered unlikely to be compliant. Because there is no 'cutting', the patient is less likely to fault the doctor when there is no return of lost vision.

Follow-up visits

Progressive glaucomatous damage is common for a variety of reasons, thus the need for periodic return visits. In rural areas, transportation, when available, is expensive. More often than not, once the patient leaves the clinic/hospital, he/she does not return. Therefore, it is prudent for a rural ophthalmologist to both diagnose and, if indicated, treat during the same visit. Patients who require surgery should be kept in the hospital for as long as necessary before discharge.

RECOMMENDATIONS

Because insufficient past clinical education has resulted in the present knowledge gap, the solution is upgrade the knowledge levels of all healthcare personnel (including primary care physicians and ophthalmology residents, where indicated). In addition, the medical school curriculum should include training in an appropriate level of basic clinical ophthalmology. Although one-on-one teaching is ideal, it is not always possible. However, the Internet, which is now essentially available to all healthcare personnel worldwide, contains an incredible variety of eye-care teaching material, including gonioscopy tutorials, basic clinical ophthalmology teaching programmes, individual study programmes, videos of glaucoma surgery, CME possibilities and much more. Especially useful are the International Congress of Ophthalmology's Guidelines and the ONE programme of the AAO. Both of these are available on the Internet free of charge to ophthalmologists living in developing countries.

Appendix 1: Locations of Glaucoma Workshops, 1993 to present

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| 1. Hanoi, Vietnam X3 | 14. Bishkek, Kyrgyzstan | 26. Banjul, The Gambia |
| 2. Hue, Vietnam | 15. Kuala Lumpur, Malaysia | 27. Asuncion, Paraguay |
| 3. Da Nang, Vietnam X2 | 16. Havana, Cuba | 28. Chittagong, Bangladesh |
| 4. Ho Chi Minh City, Vietnam X3 | 17. Tirana, Albania | 29. Semipalatinsk, Kazakhstan |
| 5. Ulaanbaatar, Mongolia | 18. Nouakchott, Mauritania | 30. Misurata, Libya |
| 6. Kaunas, Lithuania | 19. Lumbini, Nepal X2 | 31. Tripoli, Libya |
| 7. Vilnius, Lithuania | 20. Damascus, Syria | 32. Kabul, Afghanistan |
| 8. Taiyuan, China | 21. Guatemala City, Guatemala | 33. Gaza, Palestine |
| 9. Lagos, Nigeria | 22. Ivano Frankivsk, Ukraine | 34. Aden, Yemen |
| 10. Kaduna, Nigeria | 23. Cairo, Egypt | 35. KCMC, Tanzania |
| 11. Enugu, Nigeria | 24. Arequipa, Peru | 36. Lublin, Poland |
| 12. Ibadan, Nigeria | 25. Rawalpindi, Pakistan (Al Shifa) X3 | |
| 13. Magadan, East Asian Russia | | |