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Glaucoma

The rising cost of glaucoma drugs

A Azuara-Blanco, J Burr

Are we wasting precious resources of our healthcare budgets?

In the recent past glaucoma care has experienced a revolution led by new technologies and treatments. As Knox *et al* describe in this issue of the *BJO* (p 00), new glaucoma medications have caused profound changes in glaucoma treatment in Ireland. It is highly likely that these trends are occurring throughout the Western world.¹⁻⁴ We would like to comment on several of the findings reported in their compelling and solid analysis.

There is an overall increase in the number of prescriptions for glaucoma that is not justified by an increased prevalence of the disease

Among several possible explanations, it would seem that physicians may be (a) trying to reach lower intraocular pressure (IOP) in existing glaucoma subjects, and/or (b) recommending treatment to patients who would not be treated in previous years (for example, patients with ocular hypertension, OHT). Considering the available scientific evidence, maximising IOP lowering in patients with advanced glaucoma should not be contested. However, we should question the benefit of treating patients with OHT or pre-perimetric glaucoma (that is, incipient optic nerve damage with normal visual field) and challenge this trend. From the health provider point of view, this is a most important problem as the prevalence of OHT and early glaucoma is much higher than the prevalence of manifest disease. According to the Ocular Hypertension

Treatment Study, the number needed to treat to prevent conversion to early visual field loss in patients with OHT is 42.⁵ From the patients' perspective, a deterioration of their condition to reach an incipient visual field loss in one eye would not affect their quality of life (QoL).⁶ How many patients with OHT converting to early glaucomatous visual field loss in one eye will end up with severe visual disability? With current medical and surgical standards the number could be zero. If the number were not zero, we would still need to know whether such visual disability would be avoidable by treating them earlier.

The use of β blockers is decreasing and prostaglandins are becoming the mainstay of medical treatment. Other new treatments (topical carbonic anhydrase inhibitors and α -2 adrenergics) have been successfully introduced in the market and the overall cost of medical treatment is escalating

Considering the IOP lowering efficacy and safety profile, it is not surprising to see prostaglandins displacing β blockers as the most commonly used drug. However, prostaglandins cost three to four times more than β blockers, the difference in efficacy is small (5% reduction of baseline IOP, or 1.6 mm Hg),⁷ and β blockers are well tolerated by the majority of patients without respiratory or heart disease. Other new medications are also more

expensive than β blockers but with similar or less IOP lowering efficacy. It is remarkable that the cost of glaucoma treatment in the Republic of Ireland has increased 227%. Will this increase in cost be translated in a reduction of visual disability—that is, what is the cost/effectiveness or cost/utility of new antiglaucoma medications?

The frequency of glaucoma surgery is decreasing. Laser trabeculoplasty for treating open angle glaucoma continues to be rarely used

In spite of apparent improvements in surgical techniques and outcomes (for example, releasable and adjustable sutures, antimetabolites, etc), the frequency of glaucoma surgery has decreased considerably. It seems that the majority of patients and doctors choose to avoid surgery when glaucoma can be controlled medically. This trend would be supported by a recently published Cochrane review that did not find any substantial difference in glaucoma control and QoL between these two options.⁸ However, it is interesting to see that laser trabeculoplasty is ignored as a treatment option, in spite of scientific evidence supporting its role.⁹⁻¹⁰ In an environment of evidence based medicine, the lack of use of laser trabeculoplasty is a good example of how difficult it is to change physicians' attitudes and practices.

Glaucoma management is also being influenced by new diagnostic technology. Primary and secondary healthcare providers are increasingly using new diagnostic tools that may detect glaucoma at early stages (for example, frequency doubling perimetry, confocal scanning laser tomography, scanning laser polarimetry, and optical coherence tomography). This technology is further increasing the cost of glaucoma care although there may not be scientific evidence to support its use in clinical practice.¹¹⁻¹² In addition, it is unclear

whether diagnosing glaucoma without detectable functional loss would help at all to preserve patients' QoL (see above).

Will this considerable increase in expenditure associated with the use of new treatments and technologies for glaucoma reduce the burden of this disease or are we wasting precious resources of our healthcare budgets? We are not able to answer these questions without a proper health economic assessment.¹³ In order to conduct such evaluation we would need to consider the costs and consequences of alternative approaches to prevent visual impairment. Such estimation would need to focus on measures of effectiveness that are relevant to patients such as the QoL associated with varying degrees of severity of glaucoma.

Perhaps a better strategy to reduce visual disability would be to use screening campaigns of high risk populations to detect glaucoma before it reaches an advanced stage. Late presentation seems to be the most important factor for blindness and severe visual disability.¹⁴ The NHS Health Technology Assessment programme is currently funding a project evaluating cost effectiveness of screening for open angle glaucoma in the United Kingdom. This is a timely task that will inform policy making as to whether population screening could be effective in reducing glaucoma

blindness at an acceptable cost to the society. In the meantime, thanks to the work of Knox *et al*, we will monitor the rising costs of glaucoma care with increasing awareness and uneasiness.

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