Abstract

Purpose: To report the results of a Latin American (LA) consensus panel regarding the diagnosis and management of primary open angle glaucoma, and to compare these results with those from a similar panel in the United States (US).

Design: A RAND-like appropriateness methodology was used to assess glaucoma practice in LA.

Methods: The 148 polling statements created for the RAND-like analysis in the US and 10 additional statements specific to glaucoma care in LA were presented to a panel of LA glaucoma experts. Panelists were polled in private using the RAND-like methodology prior to and after a panel meeting.

Results: Consensus agreement or disagreement amongst LA experts was reached for 51.3% of statements prior to the meeting and increased to 66.5% in the private, anonymous post meeting polling (79.0% agreement, 21.0% disagreement). While there was a high degree of concordance (111 of 148 statements, 75%) between the results of this LA panel and the US panel, there were some notable exceptions relating to diagnostic and therapeutic decision-making.

Conclusions: This RAND-like consensus methodology provides a perspective of how LA glaucoma practitioners view many aspects of glaucoma and compares these results with those obtained using a similar methodology from practitioners in the US. These findings may be helpful to ophthalmologists providing glaucoma care in LA and in other regions of the world.

Introduction

This article summarizes the findings of a recent paper published in the American Journal of Ophthalmology.1

Glaucoma is the second leading cause of blindness worldwide, estimated to affect approximately 70 million individuals.2 Significant advances have been made in the diagnosis and treatment of this group of diseases over the past two decades, and several large randomized multicenter clinical trials have shed light on the relationship between intraocular pressure (IOP) and glaucomatous damage.3-7 Despite the information from these and other studies, several aspects of glaucoma management remain based more on the personal experience of an individual practitioner.

There is a paucity of information on how specialists view glaucoma and manage this disease in much of the developed and developing world. Latin America (LA) is one such area where there is a need for a better regional understanding of how one manages glaucomatous disease.

One well recognized standard for combining scientific evidence with expert opinion is the modified RAND-like appropriateness methodology4 This is a method of consensus development based on a well-established means of deciding the clinical pertinence of a medical treatment or an intervention.8,9 This system has previously been validated for obtaining consensus with regard to glaucoma diagnosis and therapy by a group of panelists in the United States (US).9-10

We used the Rand-like method to conduct a consensus on diagnosis and management of Primary Open-Angle Glaucoma in LA, and compared these results with a similar study performed in the US.

Methods

The RAND-like appropriateness methodology applied in this study was similar to that employed in a study in the United States and used all 148 polling statements created for the US study8.
Ten additional statements pertaining to fixed-combination glaucoma therapy available in LA, but not in the US, were added for a total of 158 polling statements. The voting panel consisted of 8 glaucoma specialists, selected primarily due to their recognition as leaders in the LA glaucoma community, with fluency in English, being an important prerequisite qualification. There were 2 voting panel members from Argentina, Brazil and Colombia accordingly, as well as one from Chile and Mexico. Panelists were required to attend the face-to-face panel meeting for methodological reasons.

The polling statements were divided into the following categories: medical therapy, adjunctive medical therapy, assessment and modification of medical therapy; laser trabeculoplasty; glaucoma surgery; trabeculectomy; combined cataract and trabeculectomy; aqueous drainage devices; nonpenetrating glaucoma drainage surgery; diagnostic testing and general considerations.

The panelists were provided with a comprehensive list of articles pertaining to the polling statements with an effort made to select literature with the highest possible level of evidence based on criteria from the Oxford Center for Evidence-Based Medicine. The list included only articles that met Oxford grading level 1 or 2, and had been published within the preceding 15 years.

A series of syntheses dealing with major topics addressed in the polling statements, previously developed by the methodologist for the US study were made available to the voting panelists. The polling process began with a list of statements and all relevant articles and syntheses being electronically sent to each panelist, along with the instructions on grading polling statements. The panelists were given 2 weeks to review all documents after which they submitted responses electronically to a statistician who analyzed the results. The statistician was not a member of the steering committee or the voting panel, and further, had no financial relationship with any of the sponsors of the study or manufacturers of any products referenced directly or indirectly in the polling statements. None of the sponsors had access to, or influence over, the polling statements, selection of panel members, meeting location or date of the panel, or results of this study. Sponsors, or their representatives, were not allowed to attend any meetings related to this project. The steering committee was masked with regard to the individual responses of the panelists at all times during the course of the process. Five weeks after the initial polling, all participants were invited to a meeting to discuss the results and to clarify any misinterpretations. Voting panel members in attendance reviewed the collective results pertaining to all 158 polling statements without knowledge of how any individual panelist voted for each statement. All panelists attending the panel meeting voted again within two weeks of the meeting, using the same methodology as in the initial voting process. The results of this second polling were considered final and are presented here.

Results

There was consensus agreement or disagreement for 51.3% (81 of 158) and 66.5% (105 of 158) of the polling statements in the pre and post-panel meeting voting respectively. Seventy nine percent of the post meeting consensus statements where consensus was reached represented agreement with the polling statement with the remaining twenty-one representing disagreement. In the US study, the panel reached consensus in 55.4%, increasing to 74.3% of statements after the meeting (71.8% consensus agreement). There were some notable differences between glaucoma practitioners from the US and those practicing in LA. In the medical therapy section, the US panel agreed to consider topical carbonic anhydrase inhibitors (CAIs) or alpha agonists as acceptable for first-line therapy, while the LA panel was indeterminate. The US experts disagreed and the LA experts were indeterminate regarding the use of a fixed combination agent (topical CAI and beta-blocker) as first-line therapy. While the US panel reached consensus agreement that medical therapy should be initiated with a one-eye trial, the LA panel was indeterminate on this issue. The LA panel deemed the availability of a drug sample in the office as being less important in choosing a therapeutic agent than the US panel and was indeterminate regarding consideration of race or ethnicity in such a choice while the US panel disagreed with this latter polling statement. The US panel agreed and the LA panel was indeterminate with regard to the importance of age as a factor for choosing a therapeutic class of drugs.

No differences were found between panels regarding indications for laser trabeculoplasty and glaucoma surgery. While the LA panel agreed that Mitomycin C should be used...
routinely as an adjunct with combined cataract and glaucoma procedures, the US experts were indeterminate on this issue. Differences in the use of glaucoma drainage devices (GDD) included the LA panel agreeing to consider GDD implantation as an alternative to trabeculectomy with the US panel being indeterminate on this issue. The US panel disagreed in considering nonpenetrating glaucoma surgery (NPGS) as an acceptable alternative surgery to trabeculectomy for maximal lowering of IOP, and agreed in that NPGS has a lower postoperative complication rate than trabeculectomy with the LA panel being indeterminate with regard to both of these statements.

Regarding diagnostic testing, the LA panel agreed that stereo disk photographs are more useful than nonphotographic imaging of the disk for diagnosing glaucoma, while the US panel was indeterminate on this issue. The US panel disagreed, and the Latin American panel was indeterminate in considering standard automated perimetry (SITA) as the gold standard for diagnosing glaucoma. The US experts agreed that frequency doubling perimetry can detect glaucoma or glaucoma progression earlier than standard automatic visual field testing, and that central corneal thickness should be measured in all POAG patients while the Latin American panel was indeterminate with regard to these two statements.

There was one polling statement for which there was absolute discordance between the LA and the U.S. panels. The LA and US panelists reached consensus agreement and disagreement respectively with the necessity of advancing therapy when IOP consistently exceeded the target pressure, even without documented optic nerve or visual field progression.

Discussion

While there have been many large multicenter clinical trials to support decisions in glaucoma practice in recent years, many and perhaps most decision making remains based upon clinical impressions and expert opinion.1,6,12-13 The information from trials does not address all aspects of glaucoma management, and even when such evidence is available, one must consider that the subject profiles of those randomized in such trials are not always similar to patients seen in routine practice. Consensus methodology has been developed in an effort to merge available evidence-based data with expert opinion. The modified RAND-like approach is one such methodology that is believed to have a significant impact on practice patterns.14

The population of LA and the Caribbean is projected to increase from 580 million in 2009 to 724 million in the year 2050.15 The population and life expectancy increase, combined with the importance of age as a risk factor for glaucomatous disease, will lead to glaucoma becoming an increasingly important public health problem in LA over the coming decades. Using models based on prevalence studies performed on Hispanic residents of the US, it has been estimated that by the year 2020, 12.9% of the global open-angle glaucoma population will reside in LA.1 Currently; there is no specific information available in the peer-reviewed literature pertaining to glaucoma diagnosis and treatment in this region of the world. The modified RAND-like methodology presented in this paper reflects the current glaucoma practice patterns for open-angle glaucoma in LA.

Some notable highlights of the panel results include agreement with the use of prostaglandin analogs as the preferred first-line agents for glaucoma therapy, with other classes deemed acceptable for initial therapy. Compliance with therapy was determined to be inversely related to the number of eyedrops used each day. Difficulties in the assessment of compliance with medications for chronic conditions such as glaucoma persist and other specific medication related factors might also play an important role in influencing compliance.16-18

The factors found to be most relevant to choosing a therapeutic class of drugs related to the efficacy and tolerability of available agents. The panel generally agreed on the definitions of “non-compliance” with therapy and the value of setting a target IOP goal when commencing therapy. There was also agreement that when there is non-response to initial therapy, switching classes or switching within a class is preferable to adding another medication. The LA experts voted in favor of what is optimal for individual patients rather than what is most convenient for the practitioner. In terms of advancement of treatment, the panel voted to proceed to the next therapeutic step when disease progression was noted on any of a number of parameters or, when a predetermined target IOP goal had not been reached, even in the absence of progression.

One topic that has not been previously well studied in LA is the use of fixed combinations as first-line agents. In
particular, prostaglandin-beta blocker fixed combination agents are not available in the US and some other developed countries. It is noteworthy that the panel disagreed with the use of the prostaglandin – beta-blocker analog as first-line fixed combination therapy perhaps reflecting a viewpoint that a prostaglandin alone may be almost as efficacious in terms of IOP lowering without the added costs and systemic risks associate with beta-blocker therapy.

With regards to laser trabeculoplasty, the LA panel did not recommend it as a first-line option for treatment of POAG, but agreed that it should be used as an alternative to second or third-line therapy. Although the results of the Glaucoma Laser Trial determined that initial treatment with laser trabeculoplasty was at least as efficacious as initial medical treatment, this study was conducted prior to the availability of several contemporary classes of glaucoma medications, and the panel was not convinced that laser trabeculoplasty is presently an ideal first-line therapeutic choice for POAG.

There was generally strong agreement amongst the panelists in the glaucoma surgery category. It appears that despite the increasing popularity of non-penetrating and drainage device procedures globally, trabeculectomy remains the gold standard surgical procedure for glaucoma in LA. There was also agreement that antifibrotic agents should routinely be used as adjuncts with trabeculectomy and, in the case of combined glaucoma and cataract procedures, mitomycin C was deemed preferable to 5-FU. Glaucoma drainage devices were considered an alternative to trabeculectomy in most cases, although it was agreed that lower IOP could be obtained with mitomycin-C augmented trabeculectomy. It is noteworthy that the three-year postoperative follow-up report of the Tube versus Trabeculectomy Study showed a higher success rate for the tube group with similar mean IOP and number of postoperative medications, but higher cumulative probability of failure in the trabeculectomy with mitomycin-C group relative to the drainage device group. The overall incidence of complications was also higher in the trabeculectomy group in this study. Despite these findings, it appears that LA practitioners generally prefer trabeculectomy over drainage device implantation, particularly as an initial surgical procedure for glaucoma refractory to medical and laser therapy.

The group agreed that disc photos are needed to manage glaucoma, and that stereo disc photos are preferable. The preference for stereo disc photos over imaging devices was in concurrence with previous studies, although some reports have shown comparable results between these two methods to measure structural damage related to glaucomatous damage. However, in general, the panel’s views on the frequency of required structural and functional assessment of the optic nerve as well as gonioscopy were similar to those recommended by the AAO in their Preferred Practice Pattern document. There was strong agreement that the presence of structural damage, even without functional loss, may be considered an indication to initiate IOP lowering treatment. A consensus was reached that progression, either structural or functional, is an indication to advance therapy. The results of this panel suggest that LA glaucoma experts recognize the importance of diagnosing glaucoma in the earliest stages, sometimes prior to visual manifestations on automated perimeter.

In comparing the results of this LA RAND-like methodology study with a previously published similar study in the US, it is noteworthy that there was strong concordance between the two studies with no differences found for 111 of 148 statements (75%) and complete discordance found for only one statement. One major reason for such strong overall concordance might be that the majority of LA panelists in this study practice in urban areas with greater wealth and access to care than found in many rural regions of the continent.

LA is a large region of the world, the practice patterns of which cannot be fully represented by the handful of experts involved in this project. Every effort was made to assemble a panel including individuals of diverse backgrounds with regard to glaucoma training and region of practice. While not perfect, the views of these experts pertaining to glaucoma care in LA are more relevant to that region than the views of similarly trained individuals practicing in North America and Europe. Region specific practice patterns are best assessed by engaging those who are familiar with the diagnosis and management of glaucoma in the areas being evaluated. We are hopeful that this paper will provide a summary of such practice patterns to those involved in glaucoma care in LA and will serve as a stimulus for other comparative assessments in this region and throughout the world.

REFERENCES


Latin America Glaucoma RAND Study Group.