

Glaucoma therapy

Reflections on the difficult treatment decisions

by Mark H. Rubinstein, MD
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The management of glaucoma demands more time, observation and patient involvement in decision making than any other eye disorder that we as ophthalmologists care for today. The vast number of treatments and their side effects along with the question of when to start management, push the physician to the maximum limits of practicing the art of medicine. Even today we have not been able to find a definitive way to manage glaucoma.

One basic accepted principle is that the vision loss seen in the glaucoma patient is secondary to the optic nerve's inability to exist without nerve fiber layer loss at the intraocular pressure (IOP) that exists in the eye at the time the nerve fiber layer loss occurs. Therefore, our goal as physicians is to create an IOP low enough to prevent such damage. Recent studies have shown that nerve fiber layer loss occurs even before visual field changes and that when IOP is reduced in patients with early field changes these changes can be reversed. For these reasons examination of the nerve fiber layer is a very important part of a glaucoma patient's workup and is extremely useful in determining when glaucoma management should begin.

I have been disappointed with electrophysiology as a tool in diagnosing early glaucoma because there is a large overlap of wave amplitudes and latencies between late-stage glaucoma patients and normal patients. However, it is apparent that once a patient's wave amplitudes and latencies are determined, altering IOP in these patients does affect their amplitudes and latencies. With further research this may become a more sensitive means of following glaucoma patients than visual field testing. Perhaps electrophysiology will allow us to diagnose glaucoma with early nerve fiber layer change without waiting for field change to occur.

Parameters that are used to diagnose early glaucoma, such as IOP levels and asymmetric cup/disk ratios, do help to identify patients with early glaucoma. However, there are patients with high IOPs and asymmetric cup/disk ratios who do not have glaucoma, as there are those patients with low IOPs and severe glaucoma.

Once a patient has been diagnosed as having glaucoma, the goal is to lower IOP to prevent nerve fiber layer

loss. Medical management has usually been the initial approach, but recently interest has centered on taking a more aggressive initial approach. Data are being analyzed comparing argon laser trabeculoplasty and medical management in the initial treatment of glaucoma. In Europe a study is being done to evaluate the effects of early surgical intervention in glaucoma. There is not any one way which is the best way to treat the newly-diagnosed glaucoma patient. All avenues of treatment must be explained to the glaucoma patient so that the patient and doctor can agree on when and how to begin management.

Alternative approaches to the initial management of glaucoma patients are being evaluated because patients with glaucoma who have been cared for properly are still going blind from the disease. One reason is that if treatment is implemented after a certain amount of disk damage has occurred, no matter what treatment methods are used the patient will ultimately have progressive field loss.

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Another reason is poor patient compliance. Every time a patient neglects to use his or her drops or medicine, the IOP rises. These small rises lead to small amounts of nerve fiber layer loss that increase over years to ultimately cause significant disk damage beyond the point at which IOP reduction will prevent progressive visual loss. It is for this second reason that when initial management plans are discussed with patients, if there is any doubt concerning compliance, alternative treatment modalities should be considered. Medical management is the simplest method of treatment for the physician, but the most difficult for the patient and perhaps the most visually threatening if the patient doesn't comply. A more aggressive initial approach, such as argon trabeculoplasty or surgery, should be used with the patient who indicates poor compliance. This should prevent the patient from sustaining a significant amount of nerve fiber layer loss to the point at which he will have progressive visual loss regardless of IOP reduction.

It has become apparent that glaucoma can be divided into two phases: one with a slow rate of visual loss



Filtering bleb: before field loss.

and the other with a relatively rapid rate of visual loss.

It is important to maintain glaucoma patients in the phase at which the rate of visual field loss is the slowest. It is in this phase that lowering IOP appears to almost cure these patients. Once management is begun, the doctor-patient relationship should be strong enough to detect problems of compliance, because it is in the early stages of glaucoma that one wants to make sure IOP control is at its maximum in order to maintain patients in the phase of glaucoma with a slow rate of visual field loss. Therefore, if a compliance problem is a possibility, one should not wait to discover progressive field loss, because it is then that patients will have entered the phase of rapid field loss.

In the past, operative procedures

had been saved for end-stage glaucoma patients because of their potential risks. A more precise, low-risk, high-success-rate operative procedure would be a wonderful advancement, allowing safer early operative intervention. For this reason I am a principal investigator evaluating the excimer laser to perform precise cutting down to Schlemm's canal and uveal meshwork underneath a conjunctival flap. It is my belief that with improved methods of scientifically diagnosing glaucoma early and performing safe, early surgical procedures that do not depend on patient compliance, glaucoma will become a curable disease. ■

Editor's Note—We are not certain that all of the concepts described by Dr. Rubinstein reflect current accepted standards of care, but we welcome his opinions and those of other glaucoma specialists who might like to comment on this article.—DRS

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