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News
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****Laser surgery shows less is best.**

Dallas -- Laser surgery is a useful tool in the treatment of glaucoma, but there may be complications if it's overdone or patients are not properly selected. Now a medical school ophthalmologist says those problems can be reduced with better patient screening and by making only half as many laser burns in the eye as previously thought necessary.

Dr. Robert Weinreb, associate professor of Ophthalmology at The University of Texas Health Science Center at Dallas and director of the center's Glaucoma Service, has recently published reports of his clinical investigations in the American Journal of Ophthalmology and the Archives of Ophthalmology. His findings show that reducing the number of burns does not change the effectiveness of the procedure, suggesting new guidelines are in order for the laser surgery technique.

Glaucoma is a blinding disease affecting more than 1.2 million Americans. An eye with glaucoma is like a sink with a clogged drain. Drainage in the eye becomes inadequate, and fluid backs up. The eye pressure then rises, leading to optic nerve damage and, if untreated, blindness. The disease is dangerously symptom-free until the latest stages, so patients generally aren't aware that they have it.

Each week ophthalmologists at the health science center see between 80 and 100 cases of glaucoma. "We are as busy as any medical center in the United States," Weinreb says. And although many of these glaucoma patients have been treated with conventional therapies, he considers the laser an increasingly important tool for their management.

"The way we treat the disease is by lowering the pressure in the eye. We lower it first by administering a variety of drugs applied as drops to the eye. If this is not effective, then we give oral medications." He explained that the problem with the oral medications is that they often have side effects. Patients may feel tired. They may have tingling in their fingers and their legs or even feel nauseated. If these side effects are severe or if the pressure remains unrelieved, then a surgical approach is recommended.

Weinreb says that laser surgery is a promising alternative to conventional surgery. "In the past we would have to hospitalize the patient and perform a procedure in which a tiny hole was created surgically in the trabecular (connective) meshwork of the eye. This meshwork is a minute, porous tissue surrounding the inside of the eye. It acts like a filter or drain and it is thought that the blockage resulting from glaucoma develops there. This procedure often works, but there are complications, and it does require several days of hospitalization.

"Laser surgery is exciting because it appears to be as effective in most cases as conventional surgery but doesn't require hospitalization and operating room time. It can be done in an outpatient setting using a topical anesthetic. Using the laser and a contact lens, which is placed over the eye to magnify the trabecular meshwork, we focus the laser beam and treat the tissue."

He explained that the patient is awake throughout the procedure, which takes about five

(over)

to 10 minutes and is painless. In contrast, conventional surgery takes an hour to an hour and one-half and requires more general or local anesthesia and several days of hospitalization.

"This really makes a big difference in the management of these patients. They go home the same day they have the procedure."

Weinreb says laser surgery done through the UTHSCD Glaucoma Service is currently reserved for patients whose medications are not effectively lowering their eye pressure. "This is an important point. Many people feel that because they have glaucoma, they should have laser surgery. At the current time, we believe that it should be reserved only for those patients whose eye pressure is too high or whose medications are associated with too many side effects."

Laser surgery for glaucoma is a relatively new technique, and he says more research is needed before these requirements for surgery should be relaxed.

"The first useful reports of the procedure were in 1979, and it was not until 1980 and 1981 that physicians around the country began performing the technique.

"Initially we thought there were very few complications. Only recently are we becoming aware of the side effects. In some patients, the laser may have made their condition worse.

"We do not understand why it works in some cases, does not work in others, and in some it actually makes their condition worse. We think that, in those cases that worsened, the laser intensity might have been set too high or that the burns were improperly placed. These patients develop a great amount of inflammation following the treatment. This inflammation can even lead to higher eye pressure than before laser treatment.

Weinreb is conducting clinical as well as laboratory investigations at UTHSCD to understand better the problems of the laser surgery and determine the safest levels of laser intensity.

"Experimentally, we are using in vitro and in vivo systems. In the in vitro studies, we are culturing cells and studying the effects of laser radiation on them. We are also testing the effects of the laser on intraocular tissues and fluids of experimental animals.

"The clinical investigations are systematically studying different laser burn methods in order to decide which ones can provide the best results with the least complications.

"There is no doubt that the procedure is effective and that we can now manage many patients that could not previously be managed. Because there are many potential complications, persons who are candidates should be carefully screened and, most importantly, the laser surgery should be performed by an ophthalmologist skilled with the technique."

The most effective way to treat glaucoma is to diagnose and manage it at an early stage before it exhibits symptoms. This is best achieved through an ophthalmologic examination, which includes determination of intraocular pressure, examination of the optic nerve and testing of the visual field.

The UTHSCD Glaucoma Service is equipped with computerized instrumentation for testing the visual field. The equipment is sensitive in detecting and monitoring early changes and will allow for more reproducible examinations. "This will help us detect damage at an earlier stage than has previously been possible."

Weinreb recommends that these tests be done every one to two years in individuals over 40 or at an earlier age if there is a family history of glaucoma. For more information call the Glaucoma Service at 688-3838.

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