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This report has been generated to acquaint our patients with glaucoma and its treatment. The care of glaucoma is a joint effort involving both the patient and the doctor. This report is our attempt to help our patients understand the problems and the responsibilities involved.

## **GLAUCOMA**

### **WHAT IS GLAUCOMA? (glah-KO-mah)**

Glaucoma is disease in which the optic nerve is damaged leading to progressive, irreversible loss of vision. It is often, but not always, associated with increased pressure of the fluid in the eye. Loss of sight may occur gradually, or in rare cases, suddenly if glaucoma is not controlled.

In a rare form of glaucoma, acute glaucoma, there is severe pain, headache, and nausea. In the more common chronic form, symptoms are rare and loss of sight occurs so gradually that the patient is not aware of any changes.

Glaucoma is the leading cause of blindness in people over age 40. Half of the people who have glaucoma don't know it because it usually destroys eyesight without any symptoms of pain. Glaucoma occurs when the body produces too much fluid (aqueous humor) inside the eye or when normal drainage of the fluid does not filter out of the eye adequately.

Early diagnosis and treatment is imperative. If glaucoma is discovered early, treatment usually keeps it from getting worse. Regular eye exams are necessary to measure intra-ocular eye pressure, to evaluate the integrity of the optic nerve, and to study a patient's peripheral field of vision. Persons having a family history of glaucoma or other factors indicating predisposition to this disease should be especially cautious.

### **DOES GLAUCOMA CAUSE SYMPTOMS?**

Most patients with glaucoma rarely have any noticeable symptoms. For this reason, it is important to have your eye pressure checked regularly after the age of 40. Two percent of all patients over the age of 40 will eventually develop glaucoma. Contrary to what we generally think, symptoms of eye pain, eye pressure, and headaches almost never signify glaucoma.

#### **Exception:**

In a rare type of glaucoma called angle closure glaucoma or narrow angle glaucoma, there may be some noticeable symptoms such as halos around lights, blurred vision, and eye pain. The symptoms result from the surface of the eye (the cornea) swelling as the pressure inside the eye increases. As the cornea swells with additional fluid, objects may appear to have halos around them. We urge to be alert to these symptoms and inform us of their occurrence if you have been diagnosed as a glaucoma suspect or more importantly, a narrow-angle glaucoma suspect.

### **FACTORS INFLUENCING INTRAOCULAR PRESSURE:**

- Age--eye pressure is generally higher as you age.
- Sex--eye pressure is higher in women than in men.
- Race--eye pressure is higher in African-Americans.
- Time--eye pressure is generally higher in the morning.
- Seasons--eye pressure is higher in the winter months.
- Blood Pressure--eye pressure is higher with higher blood pressure.
- Weight--eye pressure is higher in heavier patients.
- Exercise--eye pressure is generally higher if you don't exercise.
- Diabetes--eye pressure is generally higher in diabetics.
- Myopia--eye pressure is generally higher with high myopia (nearsightedness).

## **WHAT IS EYE PRESSURE?**

The pressure in the eye is determined by the relationship of the fluid (aqueous humor) coming into the eye and the drainage of that fluid out of the eye through normal drainage channels (the trabecular meshwork).

As an example, visualize a closed barrel where water is directed through a hose into a hole in the top. In the bottom of the barrel, the water is allowed to drain out of another hole at the same rate as the water coming in at the top. As long as the water is coming in and going out at the same rate, the pressure inside the barrel remains constant.

Pressure inside the barrel will raise under two conditions:

1. Increasing the rate of water coming into the barrel to be faster than it is to get out of the barrel
2. Blocking or making the bottom hole smaller but keeping the rate of water coming in unchanged.

## **HOW IS GLAUCOMA DIAGNOSED?**

Glaucoma is diagnosed through a variety of methods. Visual field testing is a primary tool in diagnosing and monitoring glaucoma. Analysis of data from the visual field computer allows us to construct a map of the visual responses of your retina and other neurological tissues. This detailed map gives the doctor essential information in the diagnosis and treatment of glaucoma.

Pressure measurements are taken on all patients and high pressures are most associated with patients that have glaucoma. However, glaucoma can sometimes occur in individuals with “normal” pressure.

Gonioscopy is an important examination technique used to evaluate otherwise hard-to-see anatomical features of the human eye. This early warning procedure is most commonly used in the careful diagnosis of a healthy eye from an eye with a tendency towards certain types of glaucoma.

We use digital retinal photography to photograph the optic nerve. In glaucoma the optic nerve can change over time and photography allows us to have a baseline to start from in order to track the change over time.

Perhaps the most important of the tools that we use to diagnose glaucoma is nerve fiber layer analysis. What is the nerve fiber layer? Nerve fibers are the “telephone cord” that connects the photoreceptor (the cell that can sense light) to the optic nerve. Damage to the nerve fiber layer is what can lead to glaucoma (visual field loss). One of the nice things about nerve fiber layer analysis is that it helps with identifying early damage of the nerve fiber layer so that treatment of glaucoma can begin before a patient develops visual field loss.

## **HOW IS GLAUCOMA TREATED?**

Most of the time the initial treatment for someone diagnosed with glaucoma involves the use of drops. Some drops function to lower the pressure by decreasing the aqueous fluid production while others enhance the removal of aqueous fluid from the eye.

Initial treatment would be with one drop/medicine. If the pressure level continues to be troublesome, either another drop/medicine can be added or use of a combination drop (two separate medicines in one bottle) can be used. If the progression of glaucoma continues to be a problem then we would refer you to an ophthalmologist for possible surgical intervention.

Glaucoma is a very serious but treatable disease. You can be assured that everything possible will be done by the doctors and staff to achieve our mutual goal: preservation of your sight.