

Glaucoma

What Is It?

Glaucoma is a common eye condition in which vision is lost because of damage to the optic nerve. The optic nerve carries information about vision from the eye to the brain.

In people with glaucoma, optic nerve damage is related to increased pressure of the circulating fluid inside the front portion of the eye. However, glaucoma-related eye disease can occur even when the fluid pressure is normal.

In the most common form of glaucoma, called primary open angle glaucoma, fluid circulates less freely within the eye and the pressure tends to rise slowly over time. Gradual loss of vision is usually the only symptom. A less common form of the disease, called acute or closed angle glaucoma, develops suddenly and usually causes eye pain and redness. In this form of glaucoma, pressures rise quickly because normal fluid flow within the eye is blocked by the closing of a structure called the anterior angle (where the iris and cornea meet). Experts are uncertain why either form of glaucoma damages the optic nerve. In addition to open angle and angle closure glaucoma, rarer forms of the illness exist. They may be related to eye defects that develop before birth (congenital glaucoma) or to eye injuries, eye tumours or medical problems such as diabetes. In some cases, medications, such as corticosteroids, also can trigger glaucoma.

Glaucoma is the second leading cause of blindness in the United States, and the leading cause of blindness in African-Americans. It currently affects as many as 2.5 million Americans but up to half of people with glaucoma don't know that they have the condition. Glaucoma tends to run in families and is five times more common in African-Americans than in Caucasians. The risk of glaucoma also increases with age in people of all ethnic backgrounds.

Symptoms

Although open angle glaucoma and acute glaucoma both cause blindness their symptoms are very different.

- **Open angle glaucoma** - In this form of glaucoma, vision is lost painlessly and so gradually that most people do not realize they have a problem until substantial damage has occurred. Peripheral vision is usually lost first, especially the field of vision near your nose. As larger areas of your peripheral vision fade, you may develop tunnel vision that has narrowed so you see only what is directly in front of you, like looking through a railway tunnel. If glaucoma is not treated, even this narrowed vision disappears into blindness. Once gone, areas of lost vision cannot be restored.

- **Acute glaucoma** - (closed angle glaucoma) — Symptoms of acute glaucoma occur suddenly and can include blurred vision, pain and redness in the eye, severe headache, halos around lights at night, a haziness in the cornea (the clear front portion of the eye in front of the pupil), nausea and vomiting, and extreme weakness.

Diagnosis

In most cases, open angle glaucoma is found by an optician during a routine eye examination. When looking at the back of the eye (fundus) using a special instrument or better, a dedicated camera, they may notice changes in the appearance of the optic nerve. If glaucoma is suspected, your optician will perform one or more additional tests:

- Tonometry measures the pressure within the eye. This may be done by pressing an instrument against your eyeball, or by blowing a puff of air against your eye. Your eye pressure is measured in millimetres of mercury, commonly abbreviated as "mmHg". Normal eye pressure is between 8 and 22 mmHg.
- Visual-field testing is the best way to find early signs of loss of peripheral vision. Often, visual fields are checked using an automated machine. You look straight at the machine and press a button when you see a blinking light. The machine shows a picture of where you are able to see the blinking lights.

If glaucoma is suspected your optician will refer you to an ophthalmologist for definitive diagnosis and treatment. Your ophthalmologist will not diagnose glaucoma unless your optic nerve shows evidence of damage. However, some people will be found to have elevated eye (intraocular) pressure but no evidence of optic nerve damage. In this case, you may be told that you are a "glaucoma suspect" or have "pre-glaucoma," but do not yet have the disease. It is important to remember that not everyone with elevated pressures will develop glaucoma, and that not everyone with glaucoma has elevated eye pressures.

Angle closure glaucoma usually is diagnosed in a person who has developed a red, swollen eye and difficulties with vision. The eye pressure is usually quite high. Some people may be told by their optician that they are at risk of angle closure glaucoma based on the narrow appearance of their angle.

Expected Duration

Glaucoma is a lifelong illness, but proper treatment can prevent loss of vision.

Prevention

In most people, glaucoma cannot be prevented. However, regular eye tests should identify people either with early stages of the disease or elevated eye pressures. Screening should be done by an experienced and qualified optometrist who is trained to recognize glaucoma. Medical organisations recommend regular eye tests bi-yearly for everyone over age 40, for African-Americans and yearly for people with a family glaucoma.

There is also some evidence that, in people who are glaucoma suspects, lowering eye pressure with medications may help to prevent loss of vision over time.

Treatment

Treatment of open angle glaucoma usually begins with prescription eye drops. These medicines lower pressure inside the eye. As an alternative to medication or when medication fails to control glaucoma, laser surgery can be done. This surgery, also called trabeculoplasty, uses a laser to widen the openings in the eye's drainage system.

Laser surgery is considered safe, but the results diminish over time. If both medication and laser surgery are unsuccessful conventional eye surgery may be necessary to make a new opening for fluid to leave the eye.

If you have been diagnosed with glaucoma, be sure to follow up regularly with your ophthalmologist. It is also important that you use your medication as directed. Many people do not follow through with treatment because they feel fine and do not notice the gradual loss of their vision. However, it is important to remember that glaucoma treatment prevents further damage to your eye, but will not restore vision that has already been lost.

Acute glaucoma must be recognized and treated within 24 hours to prevent loss of vision. Treatment usually begins with eye drops. This often cures the problem, but it sometimes is necessary to use surgery.

When to Call a Professional

Call your optician or doctor immediately if you notice any sudden decrease in your vision, especially if you also have any pain or redness in the eye. Acute glaucoma is a sight-threatening medical emergency that requires immediate treatment to prevent blindness. If you are older than 40, especially if you are African-American, schedule an eye examination with your optician on a regular basis, even if you have not noticed any change in your vision.

Prognosis

The outlook depends on the type of glaucoma:

- Open angle glaucoma - Proper treatment greatly reduces the risk of vision loss in people with open angle glaucoma. However, if glaucoma remains untreated, permanent blindness can occur.

- Acute glaucoma — if an episode of acute glaucoma is treated early, vision in the affected eye may return to a level that is almost the same as what it was before the episode began. If acute glaucoma is neglected, you can become blind in the affected eye within two days or less.