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Eye Complications

- People with diabetes are at increased risk for eye complications.
- Most people with diabetes will get some form of retinopathy, a disorder of the retina.
- Huge strides have been made in the treatment of diabetic retinopathy.
- The earlier problems are diagnosed, the more the successful the treatments can be; see Eye Care.

You may have heard that diabetes causes eye problems and may lead to blindness. People with diabetes do have a higher risk of blindness than people without diabetes. But most people who have diabetes have nothing more than minor eye disorders. With regular checkups, you can keep minor problems minor. And if you do develop a major problem, there are treatments that often work well if you begin them right away.

Eye Insight

To understand what happens in eye disorders, it helps to understand how the eye works. The eye is a ball covered with a tough outer membrane. The covering in front is clear and curved. This curved area is the cornea, which focuses light while protecting the eye.

After light passes through the cornea, it travels through a space called the anterior chamber (which is filled with a protective fluid called the aqueous humor), through the pupil (which is a hole in the iris, the colored part of the eye), and then through a lens that performs more focusing. Finally, light passes through another fluid-filled chamber in the center of the eye (the vitreous) and strikes the back of the eye, the retina.

Like the film in a camera, the retina records the images focused on it. But unlike film, the retina also converts those images into electrical signals, which the brain receives and decodes.

One part of the retina is specialized for seeing fine detail. This tiny area of extra-sharp vision is called the macula.

Blood vessels in and behind the retina nourish the macula. The smallest of these blood vessels are the capillaries.

Glaucoma

People with diabetes are 40% more likely to suffer from glaucoma than people without diabetes. The longer someone has had diabetes, the more common glaucoma is. Risk also increases with age.

Glaucoma occurs when pressure builds up in the eye. In most cases, the pressure causes drainage of the aqueous humor to slow down so that it builds up in the anterior chamber. The pressure pinches the blood vessels that carry blood to the retina and optic nerve. Vision is gradually lost because the retina and nerve are damaged.

There are several treatments for glaucoma. Some use drugs to reduce pressure in the eye, while others involve surgery.

Cataracts

Many people without diabetes get cataracts, but people with diabetes are 60% more likely to develop this eye condition. People with diabetes also tend to get cataracts at a younger age and have them progress faster. With cataracts, the eye's clear lens clouds, blocking light.

To help deal with mild cataracts, you may need to wear sunglasses more often and use glare-control lenses in your glasses. For cataracts that interfere greatly with vision, doctors usually remove the lens of the eye. Sometimes the patient gets a new transplanted lens. In people with diabetes, retinopathy can get worse after removal of the lens, and glaucoma may start to develop.

Retinopathy

Diabetic retinopathy is a general term for all disorders of the retina caused by diabetes. There are two major types of retinopathy: nonproliferative and proliferative.

Nonproliferative retinopathy
In nonproliferative retinopathy, the most common form of retinopathy, capillaries in the back of the eye balloon and form pouches. Nonproliferative retinopathy can move through three stages (mild, moderate, and severe), as more and more blood vessels become blocked.

Although retinopathy does not usually cause vision loss at this stage, the capillary walls may lose their ability to control the passage of substances between the blood and the retina. Fluid can leak into the part of the eye where focusing occurs, the macula. When the macula swells with fluid, a condition called macula edema, vision blurs and can be lost entirely. Although nonproliferative retinopathy usually does not require treatment, macular edema must be treated, but fortunately treatment is usually effective at stopping and sometimes reversing vision loss.

Proliferative retinopathy
In some people, retinopathy progresses after several years to a more serious form called proliferative retinopathy. In this form, the blood vessels are so damaged they close off. In response, new blood vessels start growing in the retina. These new vessels are weak and can leak blood, blocking vision, which is a condition called vitreous hemorrhage. The new blood vessels can also cause scar tissue to grow. After the scar tissue shrinks, it can distort the retina or pull it out of place, a condition called retinal detachment.

Your retina can be badly damaged before you notice any change in vision. Most people with nonproliferative retinopathy have no symptoms. Even with proliferative retinopathy, the more dangerous form, people sometimes have no symptoms until it is too late to treat them. For this reason, you should have your eyes examined regularly by an eye care professional.

Am I at risk for retinopathy?

Several factors influence whether you get retinopathy:

- blood sugar control
- blood pressure levels
- how long you have had diabetes
- genes

The longer you've had diabetes, the more likely you are to have retinopathy. Almost everyone with type 1 diabetes will eventually have nonproliferative retinopathy. And most people with type 2 diabetes will also get it. But the retinopathy that destroys vision, proliferative retinopathy, is far less common.

People who keep their blood sugar levels closer to normal are less likely to have retinopathy or to have milder forms.

How is it treated?

Huge strides have been made in the treatment of diabetic retinopathy. Treatments such as scatter photocoagulation, focal photocoagulation, and vitrectomy prevent blindness in most people. The sooner retinopathy is diagnosed, the more likely these treatments will be successful. The best results occur when sight is still normal.

In photocoagulation, the eye care professional makes tiny burns on the retina with a special laser. These burns seal the blood vessels and stop them from growing and leaking.

In scatter photocoagulation (also called panretinal photocoagulation), the eye care professional makes hundreds of burns in a polka-dot pattern on two or more occasions. Scatter photocoagulation reduces the risk of blindness from vitreous hemorrhage or detachment of the retina, but it only works before bleeding or detachment has progressed very far. This treatment is also used for some kinds of glaucoma.

Side effects of scatter photocoagulation are usually minor. They include several days of blurred vision after each treatment and possible loss of side (peripheral) vision.

In focal photocoagulation, the eye care professional aims the laser precisely at leaking blood vessels in the macula. This procedure does not cure blurry vision caused by macular edema. But it does keep it from getting worse.

When the retina has already detached or a lot of blood has leaked into the eye, photocoagulation is no longer useful. The next option is vitrectomy, which is surgery to remove scar tissue and cloudy fluid from inside the eye. The earlier the operation occurs, the more likely it is to be successful. When the goal of the operation is to remove blood from the eye, it usually works. Reattaching a retina to the eye is much harder and works in only about half the cases.

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