

Taurine Retinopathy

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BASIC INFORMATION

Description

Taurine retinopathy, also called *feline central retinal degeneration*, is deterioration and death of the retina that is caused by a deficiency of taurine in the diet of cats. Taurine is an essential amino acid (a building block of proteins) that must be supplied in their diet because cats cannot manufacture it themselves.

Within 10 weeks of eating a diet low in taurine, the cone photoreceptors of the retina begin to deteriorate. The cones are responsible for bright-light and color vision. Within 20 weeks, many of the cones are dead. If taurine remains deficient, eventually the rod photoreceptors (responsible for dim-light vision) are also affected. Taurine affects both eyes in a symmetrical fashion, and the end result is complete blindness.

Taurine deficiency also causes dilated cardiomyopathy in cats, a disease of heart muscle. The two conditions can occur alone or together in any individual cat.

Cause

Since the discovery in 1987 that taurine deficiency can cause dilated cardiomyopathy, commercial cat foods have been manufactured with a higher content of taurine. For the past 2 decades, the incidence of taurine retinopathy has steadily declined. Cats that consistently eat a well-balanced commercial food rarely develop the disease.

Taurine retinopathy may occur in cats that eat predominantly dog food, because taurine is not supplemented in canine diets. Dogs can make taurine themselves from other dietary components. Taurine retinopathy is also sometimes found in cats that have been strays and in those exposed to poor-quality food. Rarely, the retinopathy occurs in cats that are fed good-quality commercial foods containing adequate taurine levels (500-750 parts per million), for reasons unknown.

Clinical Signs

Initially, vision is not substantially altered, and affected cats have no clinical signs. As the disease progresses, the cat may bump into objects, stop playing with toys or chasing objects, be reluctant to go outside, or act lost and confused. Eventually, the pupils become dilated, and the eye shine (tapetal reflex) from the back of the eye may become more visible.

Diagnostic Tests

Taurine retinopathy can often be diagnosed from an eye examination, because certain changes characteristic of taurine deficiency can be seen in the retina. As the disease worsens and creates widespread changes in the retina, the condition becomes similar in appearance to inherited progressive retinal atrophy (another slowly developing retinal degeneration of cats; see the handout on **Progressive Retinal Atrophy**). If the diagnosis is uncertain, your cat may be referred to a veterinary ophthalmologist for evaluation of the retinas.

If taurine retinopathy is discovered or suspected, a blood taurine test is frequently recommended. If the blood taurine level is low, the diagnosis of taurine retinopathy is confirmed, and further evaluation of the heart is indicated.

TREATMENT AND FOLLOW-UP

Treatment Options

If the cat is on a poor or unbalanced diet, then a good-quality commercial cat food is provided. Treatment also involves supplementing the cat with extra taurine, usually once or twice daily in pill or powder form. Supplementation is often continued indefinitely. Additional treatments are needed if dilated cardiomyopathy is present. (See the handout on **Dilated Cardiomyopathy in Cats**.)

Follow-up Care

Periodic examinations are performed to monitor for progression of the retinopathy. If the retinal lesions continue to worsen, taurine supplementation may be inadequate. Blood taurine levels may be measured periodically until they become normal. Additional monitoring is needed if dilated cardiomyopathy is present.

Prognosis

Taurine retinopathy can be stopped but not reversed. The areas in the retina that have degenerated by the time of diagnosis will never function again. With adequate taurine supplementation, the remaining healthy part of the retina is protected and the disease does not progress (worsen). If the cat is already blind, the blindness is irreversible. Even in blind cats, however, taurine supplementation is worthwhile, because it will prevent dilated cardiomyopathy.