



VETERINARY HOSPITAL & HOTEL

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## Hypertension in Cats

Hypertension is the term for high blood pressure.

### Contributing Factors

In humans, hypertension is related to several factors, including a stressful lifestyle. Although not all the causes of feline hypertension have been identified, stress does not appear to play a role in the development of this disorder in cats. However, kidney disease and thyroid disease are known to cause feline hypertension and will be described in more detail below.

### Clinical Signs

Vision abnormalities are the most common clinical findings with feline hypertension. These abnormalities can include dilated pupils that do not constrict with light, blood within the front chamber of the eye, and blindness. Blindness develops because high blood pressure in the eye causes the retina to detach. These cats run into objects in their path because most of them have no vision at all.

In some cases, hypertension is suspected because of a heart murmur or kidney-related signs, such as increased water intake or urination.

### Causes

Kidney failure and hyperthyroidism have been identified as the two most common predisposing factors for development of feline hypertension.

**Kidney disease.** It appears that several different mechanisms may lead to development of hypertension in cats with kidney disease. One theory suggests that as a cat ages, the kidneys undergo normal aging changes, including a slow accumulation of scar tissue. With time, this scar tissue causes the kidneys to shrink in size. When the kidney shrinks due to the accumulated scar tissue, it is harder for the blood to filter through. Because the kidneys normally receive 20% of the blood with every heartbeat, blood backs up into large arteries and leads to an increase in blood pressure. One study found that about 65% of cats in old-age kidney failure have hypertension. Even elderly cats in the early stages of kidney disease may also have hypertension.

**Hyperthyroidism.** The thyroid gland is located in the neck and plays a very important role in regulating the body's rate of metabolism. Hyperthyroidism is a disorder characterized by the overproduction of thyroid hormone and a subsequent increase in the metabolic rate. This is a fairly common disease of older cats. Although the thyroid gland enlarges, it is usually a non-malignant (benign) change. Less than 2% of hyperthyroid cases involve a malignant change in the gland.

Many organs are affected by hyperthyroidism, including the heart. The heart is stimulated to pump faster and more forcefully; eventually, the heart enlarges to meet these increase demands for blood flow. The increased pumping pressure leads to a greater output of blood and high blood pressure. About 80% of cats with hyperthyroidism have high blood pressure, although most of them do not have blood pressures high enough to cause blindness.

**Primary hypertension.** This means that there is not an underlying disease present. This is very common in humans and is often related to life-style or stress. Although it is not well recognized in cats, it is possible that some cases do exist.

**Diagnosis**

Hypertension should be suspected in any cat with kidney disease or hyperthyroidism. Onset of sudden, unexplained blindness should raise a strong suspicion for hypertension and the associated diseases should be considered. Also, the presence of a heart murmur or kidney-related problems may signal the presence of a hypertensive state.

Blood pressure is determined with a device that can detect blood flow in arteries. Obviously, the cat has very small arteries when compared to those of the human. Consequently, the standard blood pressure equipment used on humans will not work on cats.

**Treatment**

The first step in treatment is to use one or more of several hypotensive agents (drugs to lower blood pressure). Although none are approved for use in cats, we have used several very effectively and safely for several years.

The next step is to diagnose and treat the underlying disease. If it is hyperthyroidism, medical, surgical, or radiation treatment is required. When treatment is completed, hypertension resolves, and further treatment with hypotensive drugs is not needed. If kidney failure is diagnosed, it is usually not curable but often can be controlled. However, most of these cats require long-term treatment for hypertension. If no underlying disease is found, primary hypertension is considered to be present and long-term treatment for hypertension is needed.

**Prognosis**

The underlying disease that caused hypertension to develop must be cured or controlled. Long-term success depends on whether or not this is possible. If the cat has kidney, heart, or thyroid disease, it is important to treat those aggressively. Hyperthyroidism is curable, but old-age kidney failure is not. However, many kidney failure cats can be managed successfully.

If the cat has blindness due to detached retinas, a medical emergency exists. Blood pressure must be lowered quickly for preservation of vision. If the retinas remain detached for several days, the prognosis is poor for a return of normal vision. Therefore, the key to a successful outcome is rapid diagnosis and early administration of the proper medication to lower blood pressure.