

# Feline Hypertension

Hypertension is the medical term for high blood pressure. Hypertension in the cat is either primary or secondary. Hypertension is commonly secondary to kidney disease and to hyperthyroidism. A complete blood and urine sample should accompany the diagnosis of hyperthyroidism. When hypertension is secondary to hyperthyroidism, controlling the thyroid disease will often control the hypertension. When secondary to kidney disease, hypertension often persists and will exacerbate the renal disease significantly, when not controlled. When a hypertensive cat has kidney disease, a controlled hypertension is an essential part of kidney disease management.

Primary hypertension is poorly understood in feline medicine. Since cats are rarely smokers or alcoholics, lifestyle is not known to play a role. An overweight body condition has not been associated with hypertension in cats. Interestingly, excessive vocalization and gait abnormalities are often associated with feline hypertension. The three primary diseases; CRF, hyperthyroidism, and cardiac disease; will often be diagnosed later, when "primary" hypertension has been diagnosed previously. However, even when hypertension is the only symptom, treatment is crucial. Hypertension is the "silent" killer in humans. Hypertension is detrimental to body systems. The kidneys will become diseased in a hypertensive patient. The cardiovascular and neurological systems are also prominently affected by hypertension.

Regardless of the cause, hypertension should be treated and rechecked to confirm adequate management.

## **Which cats are likely to get high blood pressure?**

In humans, hypertension is related to several factors, including a stressful lifestyle. Although not all 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 and thyroid are known to cause feline hypertension, and will be described in detail.

## **What are the clinical signs?**

Visual 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 chamber of the eye, and blindness. Blindness develops because high blood pressure in the eye causes the retina to detach. Other possible indications of high blood pressure include restlessness, agitation, decreased grooming, changes in appetite, thirst and/or weight. These problems may be temporary or permanent, just like in people and only time can tell which ailments will resolve, and which will be long lasting. Cats that do not feel well, just like people, may act in ways we would refer to as cranky, easily agitated, or aggressive towards people, especially children, and/or other animals.

## **What causes hypertension?**

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, 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 the arteries and leads to an increase in blood pressure. One study found that about 60% of cats in old-age kidney failure have hypertension. 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 metabolic rate. 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 change (benign). Less than 2% of hyperthyroid cases involve a malignant change in the gland.

Many organs are affected by this disease, including the heart. The heart is stimulated to pump faster and more forcefully, and eventually, the heart enlarges to meet these increased demands for blood flow. The increased pumping pressure leads to a greater output of blood and high blood pressure. About 25% of cats with hyperthyroidism have high blood pressure, although most of them do not have blood pressures high enough to cause blindness. Primary hypertension is greatly understood, but should be controlled.

### **How is it diagnosed?**

Hypertension should be suspected in any older 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. We use a pediatric blood pressure cuff in a manner very similar to the way human blood pressure is taken. We take the pressure on your cat's rear leg.

### **What is involved in treatment?**

The most commonly used drug is amlodipine (generic) which is Norvasc. **Daily** oral medication is required to control high blood pressure. **This is not a cure.** If you stop giving the medication as prescribed, the blood pressure can rise up into the abnormal and potentially dangerous high range again. The medication is a very small pill available at our office, as well as any human pharmacy. This medication can be made into a liquid by an outside compounding pharmacy for those who find liquid easier to administer. Rechecking blood pressure once medication is started, and then at regular intervals dictated by your veterinarian, is extremely important. This is the only way to know whether or not the medication is working, and if adjustments to the dose of medication are necessary.

### **What is the 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 conditions aggressively. Hyperthyroidism is

curable, but hypertrophic cardiomyopathy and kidney failure are not. However, even those can be managed successfully in most cats for many years, with excellent quality of life.

If the cat has blindness due to detached retinas, a medical emergency exists. Blood pressure must be lowered quickly in order to regain vision. If the retinas remain detached for more than a day or two, 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.

When controlled, hypertension has an excellent prognosis. Continued monitoring with blood and urine samples is important to rule out concurrent disease contributing to hypertension.

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This client information sheet is based on material written by Ernest E. Ward Jr., DVM.  
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