

## *Do cats and dogs need blood pressure medicine?*

*By George Cuellar, DVM, Diplomate ABVP C/F*

High blood pressure is called hypertension. In the US hypertension is common and affects over 30% of adults over the age of 20. Over 65% of people getting a checkup have the blood pressure taken at the doctor's office. It sounds easy, we put our arms in a cuff and automatically we get numbers like 120/80, hopefully. If we put a cat or dogs arm in the cuff instead would we get an accurate measurement? The answer is, "no" so do not take your pet to the pharmacy or doctor's office and try it. The fact is that cats and dogs do get hypertension, it does cause serious problems, it is rather difficult and intensive to take a blood pressure on pets, and when we find it we always treat it.

There are actually NO symptoms for hypertension in pets or people. This is the biggest problem. Pets can have a profound elevation in BP and act completely fine. Blood pressure is only measured when there is a high index of suspicion and is not part of a regular examination. So, during routine visits for problems like ears, skin, eyes, and GI, consider asking your veterinarian to check the blood pressure.

I guess we should talk about "normal" to start. We mostly measure only systolic pressure in pets. The systolic is the first number in the "120/80", pronounced 120 over 80. The normal systolic pressure for us and for cats and dogs is 120. As early as 10 years ago there was some thinking that hypertension was just not a problem in pets. As we learned how to take blood pressure in dogs and cats, that thinking changed and we know better.

Taking blood pressure in pets requires either an automatic device similar to the in-home devices but made for pets or a Doppler. Automatic devices are not very accurate and are mostly used to monitor surgery so the gold standard is using a Doppler. A Doppler is a machine with a speaker that has a cord with a transducer on the end. When the transducer is placed over an artery it makes a sound with each heart beat as blood is pushed through the artery. The arteries we use to measure blood pressure are under the front or rear paw. They must be clipped first to get access. A gel is applied and then the transducer. A blood pressure cuff is placed above the transducer on the arm or leg. After the transducer is placed correctly the pulse is heard then the cuff is inflated until the pulsing sound stops. The cuff pressure enough to stop the pulsing is the blood pressure. We take three or four measurements each time. Important considerations for accuracy are stress level of the pet, cuff size, and technique. Normal systolic pressure is 120 but we see ranges to 160 that we do not treat. Over 160 (and some are over 220) are usually treated with medicine.

The effects of hypertension can be profound. The major organs affected are the brain, the eyes, and the kidneys. Neurological (brain) signs can include seizures or episodes of collapse. Eye problems include sudden blindness, retinal bleeding, and retinal detachment. What we see here is a preponderance of kidney signs and the most common is protein in the urine. Protein in the urine is abnormal and toxic to the part of the kidney called the tubules. Any protein in the urine needs to be investigated and quantified. A urinalysis tests for all kinds of things in urine from protein, to glucose, to bacteria, to blood, and to white blood cells. There are two parts of a urinalysis: the first is a "dip stick" part with color changes on the strips for abnormalities and second part is the microscopic part to look for sediment. Sediment can be red blood cells, white blood cells, bacteria, and or crystals. If the sediment is negative (there are no cells or bacteria) and the protein is positive 1+, 2+, 3+, or 4+, it is a sign that something is wrong with the kidneys and, if left untreated, can lead to kidney insufficiency and kidney failure.

When we get a result of protein in the urine we do two things immediately: first we take a blood pressure and second we "quantify" the amount of protein in the urine. The dip sticks only have 1+ to 4+ and are crude and inaccurate so we use another test called a urine protein creatinine ratio (UPC). This measures the protein directly and gives us a number. The higher the number is the worse the problem is. We use this number to see how our therapy is going. Anything above 0.5 for a UPC is considered abnormal requiring intervention to prevent kidney damage.

Treatments for hypertension usually involve a drug called amlodipine or an ACE inhibitor drug like enalapril or benazepril. Most medications are started once daily with a recheck of BP in a couple of weeks. If the BP is still above 180, we go up to twice a day medication. If we measure BP again two weeks later and it is still over 180, we start adding other medicines. Controlling and treating blood pressure in pets is very important and somewhat of an art.

We see hypertension mostly in pets over 7 years old. We often recommend taking a blood pressure when we do routine blood tests. We will sometimes take blood pressure in the examination rooms with clients to create less stress for a more accurate result. Most offices charge extra for taking blood pressure and unlike people it is not included in a regular physical examination. We see about 2-3 cases of hypertension a week so this is a real problem for pets. Controlling hypertension with medication is as important for our pets as it is for us and it can prevent some serious problems. It may be that underlying some of the problems we attribute to aging is just untreated hypertension.

I should be able to tell you with confidence what the blood pressures are on my three cats and four dogs but I can't. I am just like most everyone else. I may check the older cats soon. Like many things the only way to know for sure is to check and so consider the next time your pet needs an exam for anything, ask for a BP on your older pets from your veterinarian.

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