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Systemic Hypertension

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Dogs and cats may occasionally suffer from systemic hypertension, which is a higher than normal arterial blood pressure. Blood pressure is evaluated in small animals in nearly the same way that it is in humans. Basically, a cuff is inflated on a limb (or occasionally the tail), and a Doppler probe is used to hear the pulse in an artery. The cuff is situated between the artery and the heart itself. The cuff is inflated until the pulse disappears, and the pressure in the cuff is slowly decreased until the pulse returns. The pressure at which this happens is the systolic arterial blood pressure. Evaluation of the blood pressure is also known as manometry, and the pressure gauge used with the cuff is called a sphyngomanometer. Blood pressure is measured in units called millimeters of mercury (mmHg). The normal systolic arterial blood pressure in dogs and cats is usually between 90-150 mmHg.

Patients that have consistently elevated blood pressure are said to have systemic hypertension. Some small animals are stressed when they come to the veterinarian's office. They may have mildly elevated blood pressure as a result. Known as "white coat syndrome" in people, this occurs as a normal response to stress. The blood pressure may increase to as high as 180 mmHg in very stressed animals. Blood pressure readings consistently above 180 mmHg are consistent with true pathologic systemic hypertension. It is important to try and minimize stress in patients when evaluating the blood pressure. Having the patient wait for a few minutes in a dimly lit room with a calm environment before taking the blood pressure is often helpful. The use of headphones to avoid a startle response from noises generated by the Doppler probe is likewise useful.

High blood pressure may be the result of many different causes. In cats, it's often associated with kidney disease. Dogs suffering from hyperadrenocorticism (Cushing's disease) may also have associated hypertension. Atherosclerosis ("hardening of the arteries"), a common cause of systemic hypertension in people, is fortunately so rare in dogs and cats, that it is virtually nonexistent. In many cases, the exact cause may be undetermined.

Chronic systemic hypertension can have serious and even life-threatening complications. The most serious complication is bleeding into the brain or spinal cord. This may result in abnormal mentation, seizures, paralysis, coma and even death. High blood pressure can also lead to hemorrhages in the retina of the eyes, potentially resulting in retinal detachment and blindness. In some cases, high blood pressure can result in nosebleeds. Chronic systemic hypertension also may worsen kidney disease and can lead to heart muscle thickening and exacerbate congestive heart failure. Bloodwork is used to check for kidney problems, and echocardiography (ultrasound of the heart) may be used to evaluate for the presence of heart disease.

Medical management of systemic hypertension in small animals should be supervised by a veterinarian and monitored with serial blood pressure evaluation. The medications used to lower the blood pressure can

occasionally cause an unsafe drop in the blood pressure, leading to weakness, lethargy, collapse or even fainting (syncope). The most common antihypertensive medications used include ACE-inhibitors and calcium-channel blockers. ACE-inhibitors are drugs that inhibit the activity of an enzyme which normally allows for the constriction of arteries. Calcium-channel blockers will also help the relaxation of constricted arteries. The most commonly used ACE-inhibitors include enalapril (ENACARD®) and benazepril (LOTENSIN®). The most commonly used calcium-channel blocker is amlodipine (NORVASC®). Generally, once a patient is diagnosed with hypertension and started on medications, the blood pressure should be rechecked every 2 weeks until it is under 180 mmHg at the minimum. After that, the blood pressure should be rechecked every 3-6 months. Bloodwork should be monitored at least every 6 months.