

Clinical Quick Reference: Blood Pressure Screening & Cerebrovascular Risk in Dogs

Canine Neurology | Cardiovascular Medicine

Systemic hypertension is one of the most significant and modifiable risk factors for canine cerebrovascular accidents (CVAs). When blood pressure remains chronically elevated, autoregulation of cerebral blood flow fails, increasing the risk of both ischemic and hemorrhagic stroke.

Stroke Mechanisms

Ischemic Stroke: Sustained hypertension causes small vessel disease via lipohyalinosis and fibrinoid necrosis of arterioles, predisposing to luminal occlusion, thrombosis, and focal hypoxic infarction.

Hemorrhagic Stroke: Chronic pressure weakens cerebral vessel walls, increasing the risk of rupture, intracranial hemorrhage, and elevated ICP.

Minimum Standard of Care

Any dog presenting with acute vestibular signs should receive **both** of the following before discharge. Low-cost steps that identify the conditions most likely to cause repeat events.

- Blood Pressure Measurement
- Senior Blood Panel

Predisposing Conditions—Screen Every 3–6 Months

- Chronic Kidney Disease (CKD)
- Protein-Losing Nephropathy (PLN)
- Hyperadrenocorticism (Cushing's Disease)
- Hypothyroidism (dyslipidemia / atherosclerosis)
- Diabetes Mellitus
- Pheochromocytoma
- Primary Hyperaldosteronism
- Idiopathic (Primary) Hypertension
- Cardiac Disease (high-output states)

Secondary hypertension accounts for many canine cases.

Routine blood pressure screening is the most accessible preventative step against hypertensive Target Organ Damage (TOD) in the brain. Measure at every relevant visit.

Recognizing Neurologic Target Organ Damage — Do Not Wait for a Catastrophic CVA (Cerebrovascular Accident)

- Altered mentation — obtundation, disorientation, stupor
- Vestibular signs — head tilt, spontaneous nystagmus, ataxia
- Acute focal deficits — sudden tetraparesis, facial asymmetry
- Unexplained acute behavioral change or sudden disorientation
- Cluster of transient neurologic episodes preceding a major vascular event
- Seizure activity — new onset, especially middle-aged to older dogs

TOD = Target Organ Damage

ACVIM Diagnostic & Risk Guidelines (Acierno et al., 2018 consensus statement: 5–7 consecutive, consistent readings after acclimatization period; average the values to determine final SBP)

SBP (mmHg)	Classification	TOD Risk	Clinical Action
< 140	Normotensive	Minimal	Routine annual monitoring.
140–159	Borderline Hypertensive	Low	Monitor closely; evaluate for underlying disease.
160–179	Hypertensive	Moderate	Treat if TOD present. Re-evaluate to confirm persistence.
≥ 180	Severely Hypertensive	High — CVA Warning	Immediate intervention. Treat urgently. Stroke risk elevated.

<140

mmHg SBP

Secondary Prevention
Target

Dogs with Confirmed Neurological TOD Require a Tighter Target. Neurological injury from a CVA — including vestibular events, focal deficits, and seizure clusters — constitutes Target Organ Damage. ACVIM 2018 states that the presence of any TOD justifies initiating antihypertensive treatment after a single measurement session rather than waiting for serial confirmation.

The ideal treatment goal for all patients with existing TOD is **SBP < 140 mmHg**. While ≤160 mmHg is the stated minimum acceptable endpoint. The ACVIM panel is explicit that this should not be the stopping point when organ damage is already present.

First-Line Treatment (ACVIM 2018): Amlodipine besylate 0.2–0.4 mg/kg PO q24h — preferred calcium channel blocker (CCB); up to 0.6 mg/kg cautiously. Recheck BP within 1–2 weeks of initiating. **Add ACE inhibitor** (e.g., enalapril 0.5 mg/kg PO q12–24h) for proteinuric patients or concurrent CKD.

Refer to Neurology: Multiple vestibular events, acute focal deficits, or vertical nystagmus. Refer for refractory hypertension, suspected pheochromocytoma, or primary hyperaldosteronism.

Selected Citations & Standards:

1. Acierno, M. J., Brown, S., Coleman, A. E., Jepson, R. E., Papich, M., Stepien, R. L., & Syme, H. M. (2018). ACVIM consensus statement: Guidelines for the identification, evaluation, and management of systemic hypertension in dogs and cats. *Journal of Veterinary Internal Medicine*, 32(6), 1803–1822.
2. Garosi, L. S. (2010). Cerebrovascular disease in dogs and cats. *Veterinary Clinics of North America: Small Animal Practice*, 40(1), 65–79.