



Classification

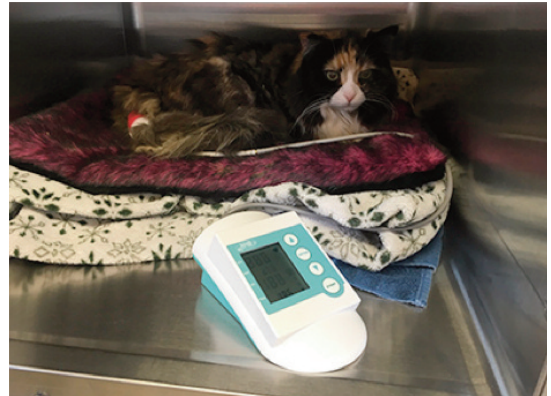
Systemic hypertension is defined as a sustained increase in systolic blood pressure (SBP) and is categorized as idiopathic, secondary, or situational.

Idiopathic Hypertension

- Persistent pathological hypertension in the absence of any identifiable underlying causes
- Accounts for approximately 13%-20% of cases in cats
- Need to rule out underlying conditions
 - Increased BP may induce polyuria (pressure diuresis), producing a low urine specific gravity (USG) <1.030, making it difficult to rule out kidney disease as an underlying cause
 - Approximately 12% of nonazotemic, nonhyperthyroid cats were hypertensive in one study
 - In another study, 7% of 133 apparently healthy, initially normotensive cats >9 years developed idiopathic hypertension

Secondary Hypertension

- Persistent pathological hypertension concurrent with a disease or condition known to cause hypertension OR hypertension associated with the administration of a therapeutic agent or ingestion of a toxic substance known to cause increased BP
- **Hypertension may persist even after effective treatment of the primary condition is initiated**
- If primary condition is resolved by therapeutic intervention, institute serial follow-up evaluations
- **Cats often have more than one condition, so complete evaluation for other causes is necessary**
- **Chronic Kidney Disease (CKD)**
 - Most common condition associated with hypertension
 - **Azotemia has been reported in up to 75% of hypertensive cats**
 - Between 19%-65% of cats with CKD have been found to be hypertensive
 - **Prevalence and severity of hypertension does not appear to be related to severity of CKD**
 - Cats with congenital kidney insufficiency may have normal serum creatinine and BUN levels but decreased USG
 - Exact pathogenesis is not completely understood
- **Hyperthyroidism**
 - Hypertension has been documented in 10%-23% of cats with hyperthyroidism at the time of diagnosis
 - Not uncommon for hyperthyroid cats to have concurrent CKD
 - **Approximately 25% of hyperthyroid cats normotensive at diagnosis become hypertensive after treatment of their condition**
 - Pathophysiology of hyperthyroid induced hypertension is poorly understood
 - Hyperthyroid cats should have their BP closely monitored before, during, and after treatment
- **Diabetes Mellitus (DM)**
 - **Severe hypertension in cats with DM is uncommon:**
 - Prevalence rate of 0%-15%
 - Often confounded by concurrent conditions, such as CKD
 - **Important to look for comorbidities in cats with DM if hypertension is identified**





Classification continued

Secondary Hypertension continued

- **Primary Hyperaldosteronism (PHA)**
 - **Uncommon condition in cats**
 - PHA is an excess production of aldosterone independent of its regulator, angiotensin II
 - Typically due to an adrenal tumor
 - Hypertension is present in 50%-100% of cats with PHA
 - PHA may be underdiagnosed, mistaken for CKD
 - **Low serum potassium levels, weakness, polyuria (PU)/polydipsia (PD), and hypertension unresponsive to therapy should prompt further investigation**
 - Clinical findings serving as clues: low potassium levels, PU/PD, ocular changes
 - Blood pressure, potassium levels difficult to regulate with conventional therapy
- **Pheochromocytoma**
 - **Rare tumor in cats**
 - Excessive circulating catecholamine levels
 - Sustained or paroxysmal bouts of hypertension
- **Hyperadrenocorticism (HAC)**
 - **Uncommon condition in cats**
 - Prevalence of hypertension reported to be 19%
- **Medications Associated with Hypertension**
 - Erythropoiesis-stimulating agents
 - Phenylpropanolamine
 - Ephedrine
 - Chronic high-dose sodium chloride
 - **Albuterol intoxication**

Situational Hypertension

- BP increase that occurs during in-practice measurement in an otherwise normotensive individual
- Caused by autonomic nervous system alterations resulting from excitement or anxiety on higher centers of the central nervous system (CNS)
- Resolves under conditions that decrease or eliminate the physiologic stimulus
- Can lead to an erroneous diagnosis of pathologic systemic hypertension – there is no justification to treat situational hypertension in cats
- There are many situations that may induce situational hypertension resulting in falsely elevated BP readings, including:
 - Acute situational (iatrogenic hypertension)
 - Anxious cats more prone
 - Trip to practice
 - Pain
 - Hospitalization
 - Intravenous fluid therapy
 - Hospitalization in same ward as dogs, ward with lights on all the time
 - Handling by staff who wear heavy scents, scrubs smelling of dogs
 - Prolonged hospital stays
 - Too frequent handling, disturbing unnecessarily when resting
 - Chronic situational
 - Generally stressed cats – behavioral
 - Pain – osteoarthritis (OA), periodontal disease, systemic disease

Confirm hypertension with repeat BP measurements at a separate visit prior to starting medical therapy except in emergent situations where there is clear evidence of ocular or neurological target organ damage (TOD). Use minimal, gentle Cat Friendly handling (visit catvets.com/interaction) in a calm, quiet environment to reduce situational hypertension.



Classification continued

Categorization

Categorization of hypertension ideally includes:

- Complete and thorough history including diet, medication, and supplements
- Complete physical examination including ophthalmic exam
- Repeatable BP levels (note type of BP device, cuff size, limb used – see BP Assessment Form in the digital toolkit)
- Complete blood count (CBC), chemistry profile, Symmetric Dimethylarginine (SDMA), Total T4, Free T4
- Urinalysis, urine culture, urine protein creatinine ratio (UPCR)

Additional diagnostic tests may be considered:

- Thoracic radiographs
- Abdominal radiographs
- Echocardiogram
- Electrocardiogram
- Abdominal ultrasound
- Potentially ACTH stimulation test, aldosterone level