



### Classification

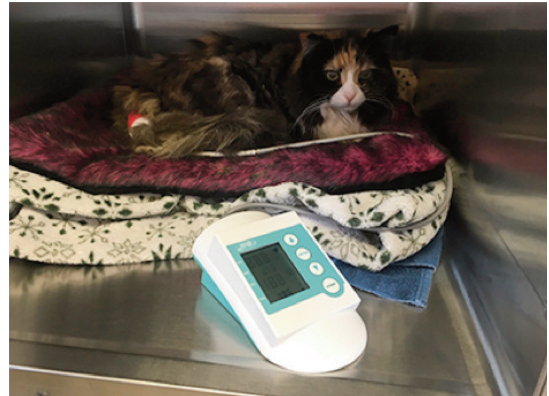
Systemic hypertension is defined as a sustained increase in systolic blood pressure (SBP) and is categorized as idiopathic, secondary, or situational.

#### 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 Feline-Friendly handling ([visit cattvets.com/handling](http://visit.cattvets.com/handling)) 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