Hyperadrenocorticism (Cushing's Disease)

VetTechPrep

Animals exposed to excess cortisol develop the classic set of signs known as Cushing's disease. This PowerPage provides a review of the signs, tests, and treatments associated with canine hyperadrenocorticism, as well as some supplemental information on equine Cushing's. It is highly unlikely that you will see questions about Cushing's in species other than dogs and horses on a board exam, although it can occur infrequently.

Background

1. Cushing's disease is caused by excessive circulating cortisol.
    a. **Cortisol** is produced by the **adrenal gland**(s).
2. Spontaneous disease is caused by either a **pituitary** or an **adrenal mass**. Identical signs can be caused **iatrogenically** in dogs that are on oral or topical steroids.
    a. Most cases are pituitary-dependent.
        i. The pituitary gland secretes ACTH, which signals the adrenals to continue to produce cortisol.
        ii. If a pituitary mass is present, causing excess ACTH release, the negative feedback from adrenal cortisol is ineffective. Cortisol secretion continues and leads to Cushing's.

Clinical Signs

Symptoms of Cushing's disease include the following:

- Increased **urination and drinking** (polyuria and polydipsia or PU/PD)
- **Pot-bellied** appearance
- **Hair loss**
- Calcinosis cutis
- Excessive **panting**
- +/- concurrent hypertension

Laboratory Findings

- Markedly elevated **alkaline phosphatase**
- +/- proteinuria
- Dilute urine (isosthenuria/hyposthenuria)
- Prone to urinary tract infections (urine culture and sensitivity is recommended, to look for subclinical UTI)

Diagnosis and Treatment

Canine Cushing's

Testing: **ACTH stimulation test** or **Low-Dose Dexamethasone Suppression Test**

- The latter may help to differentiate a pituitary cause from an adrenal cause
- There are other tests which may be helpful (urine cortisol:creatinine ratio, endogenous ACTH, high-dose dex. suppression test, abdominal ultrasound)

Treatment of choice is currently **trilostane** (Vetoryl)

- Works by inhibiting steroid synthesis
- Usually does not cause permanent change in the adrenal gland (but is possible)

Other treatment is **mitotane** (Lysodren)

- Destroys part of the adrenal cortex to prevent cortisol production
- Lysodren may cause more side effects and causes permanent changes that could lead to hypoadrenocorticism

Treatment is only recommended in dogs that have clinical disease which warrants therapy. Treatment is not warranted in every dog with an abnormal screening test.

Equine Cushing's

Horses with Cushing's may have **hirsutism** (abnormal long and way haircoat)

- May also have some symptoms discussed for dogs above