

Utilizing Canine Cortisol Measurement in Clinical Practice

presented by Clinician's Brief



with **Nate Chaudoin, DVM**

WATCH THE WEBINAR

Summary

In October of 2022 Nate Chaudoin, DVM along with Clinician's Brief reviewed the role of the adrenal glands, discussed the utility and interpretation of cortisol levels in adrenal dysfunction, and shared expert tips for managing Cushing's and Addison's disease in your canine patients. Below is the outline to the webinar presentation.

Anatomy

- Hypothalamus produces CRH, which stimulates Pituitary gland to produce ACTH, which stimulates the adrenal gland to produce cortisol among other hormones.
- Divided into Medulla and Cortex
 - Medulla produces catecholamines and is part of the central nervous system.
 - Cortex is made up of the Zona Glomerulosa (responsible for aldosterone) Zona Fasciculata (responsible for Cortisol) and Zona Reticularis (responsible for sex hormones).

- Common clinical signs:
 - GI symptoms
 - Waxing/waning illness
 - Lethargy
 - Poor body condition
- Why run a baseline cortisol?
 - Rule out Addison's with normal or increased cortisol
 - Quick and inexpensive in clinic test
 - Guide treatment plan for critical patients
 - Determine if and when to run ACTH stim

Addison's Disease

- Addison's disease (Canine Hypoadrenocorticism)
 - Addison's disease is anatomically classified into:
 - Primary – adrenal – common
 - Secondary – pituitary – rare
 - Tertiary – hypothalamus – undocumented
 - Typical Addison's: hyponatremic, hyperkalemic hypercortisolism
 - Atypical Addison's: eunatremic, eukalemic hypercortisolism

- Interpreting baseline cortisol
 - ≥ 2 mcg/dL: 99% chance the dog is not Addisonian
 - < 2 mcg/dL: not specific, further investigation is required
- ACTH Stimulation Test
 - Measure baseline cortisol
 - Administer ACTH
 - Measure post-ACTH cortisol

- Post-ACTH cortisol < 2 mcg/dL is consistent with Addison's disease
- Type depends on electrolyte status
- Addison's treatment
 - Typical: DOCP + Prednisone or Fludrocortisone +/- Prednisone
 - Atypical: Prednisone
- Monitoring
 - Clinical signs
 - Na/K status
 - PU/PD

Cushing's Disease

- Cushing's disease (Canine HAC)
 - Classifications:
 - Pituitary Dependent Hyperadrenocorticism (PDH)
 - Adrenal Neoplasia (AN)
 - Iatrogenic HAC – exogenous glucocorticoids
 - Common clinical signs
 - PU/PD
 - Polyphagia
 - Pendulous abdomen
 - Panting
 - Alopecia
 - Hepatomegaly
 - Muscle weakness and atrophy
 - Hypertension
 - Obesity
- When should we test for Cushing's?
 - Test when clinical signs present
 - Avoid ALP traps
 - Avoid testing very sick patients due to risk of false positives

- Diagnosing Cushing's
 - LDDST
 - Baseline cortisol
 - .01 mg/kg dexamethasone IV
 - 4- and 8-hour cortisol levels
 - Lack of suppression of cortisol eight hours after IV dexamethasone is consistent with Cushing's, usually > 1.4 mcg/dL.
 - ACTH Stimulation Test
 - Baseline cortisol
 - 5 mcg/kg Cortrosyn IV
 - 1-hour cortisol
 - OR
 - Baseline cortisol
 - 2.2 IU/kg ACTH gel IV
 - 1- and 2-hour cortisol
 - Max 40 IU
- Cushing's treatment
 - Surgical
 - Hypophysectomy
 - Adrenalectomy
 - Medical
 - Trilostane
 - Mitotane
 - I-Deprenyl
- Monitoring Cushing's
 - ACTH stimulation 10-14 days, one month, three months
 - Clinical signs

This program has been approved for 1 hour of continuing education credit in jurisdictions that recognize RACE approval.