Veterinary Diagnostic Investigation and Consultation
21327 Providencia Street
Woodland Hills, CA 91364
P 877-902-8342 | F 877-825-6831
DaveBruyette@veterinarydiagnosticinvestigation.com
www.veterinarydiagnosticinvestigation.com

VDIC Case # 070-2014
February 10th, 2014
VDIC Consultant: David Bruyette, DVM, DACVIM

Referral Information:

A 10 year old MC Cocker Spaniel presented to the RDVM for evaluation of severe polyuria and polydipsia (pu/pd) of 3 months duration.

Physical Examination:

On physical examination no significant abnormalities were detected with the exception of mild hepatomegaly. The skin and hair coat appeared to be normal.

Initial Diagnostic Tests:

Previous laboratory work-up was unremarkable with the exception of a urine specific gravity of 1.010. A CBC and chemistry panel were within normal limits. A urine culture was positive for E. coli and the pet was treated with Baytril (enrofloxacin) at 5 mg/kg once daily for 10 days. No change in the pu/pd was observed. An ACTH stimulation test was performed. The resting cortisol was 2.7 ug/dl with a 1 hour post cortisol of 14.8 ug/dl. These results were considered normal for the laboratory. (Data on file at VDIC; Case # 070-2014)

VDIC Initial Assessment:

Hyperadrenocorticism (HAC) is still considered to be the most likely differential diagnosis for the pu/pd despite the previously normal ACTH stimulation test given the signalment, history and clinical signs.

Suggested Plan:

Diagnostic: A low dose dexamethasone suppression test (LDDS) should performed following the intravenous administration of 0.01 mg/kg of dexamethasone.

Therapeutic: Pending test results

Follow-Up Information:

February 18th, 2014:

Results of LDDS: The resting cortisol was 5.1 ug/dl (normal 1.4 - 5.0 ug/dl) with a 4 and 8 hour post of 1.2 ug/dl and 4.6 ug/dl, respectively. The elevated 8 hour cortisol (normal less than 1.4 ug/dl) in combination with greater than 50% suppression in cortisol concentrations seen at 4 hours, was diagnostic of pituitary dependent hyperadrenocorticism.

Final Assessment:

Pituitary dependent hyperadrenocorticism (PDH).

Treatment Plan:

Treatment options were discussed with the RDVM and treatment with Vetoryl (trilostane) was recommended starting with 2 mg/kg PO qD in the morning. The owner should be instructed to give the medication with food to enhance gastrointestinal absorption and to monitor the animal's water consumption, urination, appetite, activity level and to observe for any adverse reactions such as vomiting and diarrhea. A recheck examination consisting of a physical examination and an ACTH stimulation test with monitoring of electrolytes should be scheduled 10 days following the start of the medication.

Case Follow-Up:

March 4th, 2014:

At the time of the recheck examination the owners reported a marked reduction in the pu/pd. An ACTH stimulation test was performed 4 hours post administration of the Vetoryl. Determination of electrolytes with an in-house chemistry analyzer was performed and the Na and K concentrations were within normal limits (WNL). The pre and post ACTH cortisol concentrations were 2.2 and 5.4 ug/dl respectively, indicating adequate adrenal suppression.

Together with the observed improvement in clinical signs, the current dose of trilostane should continue and the pet scheduled for a recheck examination in 4 weeks.

April 16th, 2014:

During the subsequent recheck examination, the owners reported that the pet was more active and that water consumption and urinations were normal. A morning urine sample collected by the owner showed a specific gravity of 1.028. Electrolytes were again normal. The pre and post cortisol concentrations were 1.4 and 4.8 ug/dl respectively, indicating continued adequate adrenal suppression. The dose of trilostane should be maintained and the pet scheduled for a recheck examination in 3 months.

July 10th, 2014 and October 4th, 2014:

Three and 6 months later the pet continues to be clinically normal. One episode of vomiting and diarrhea had occurred at 4 1⁄2 months, which responded to the use of bland diet. The clinical signs resolved in 24 hours and no adjustments were made in the treatment protocol. At the 3 and 6 month recheck examinations, electrolyte concentrations are within normal limits and the post ACTH cortisol concentrations were less than 4.2 and 5.0 ug/dl respectively. The dose of trilostane should be maintained and the pet scheduled for a recheck examination in 3-4 months.

Prognosis:

The prognosis for PDH in dogs undergoing treatment is excellent. Average life expectancy is 26 months with 80-85% of patients showing a good to excellent response to treatment. Long term complications include an expanding pituitary tumor which occurs in approximately 10% of cases and if hypercortisolism is not controlled, diabetes mellitus, hypertension, and pancreatitis may develop.

Notes for RDVM:

October 5th, 2014:

Three questions from RDVM regarding lack of other clinical signs of Cushing's disease (only pu/pd), a normal initial ACTH stimulation test and the finding of a normal serum alkaline phosphatase (ALP) on the initial laboratory work:

Response from David Bruyette, DVM, DACVIM: This case illustrates several important points regarding Cushing's disease and its treatment with Vetoryl. Up to 20% of dogs will not have an elevated ALP in response to either exogenous or endogenous steroid excess likely due to lack of the gene encoding for the steroid induceable isoenyme.

Polyuria and polydipsia may be the only clinical sign. Dermatologic abnormalities such as a bilaterally symmetric endocrine alopecia, pyoderma, etc., need not be present.

Up to 15-20% of dogs with hyperadrenocorticism will have a normal ACTH stimulation test upon initial evaluation of the pituitary-adrenal axis. So when faced with a patient with strong clinical signs and a normal ACTH stimulation test it is recommended that the next step be a LDDS to establish a diagnosis or to rule out the existence of HAC. Conversely, up 10% of dogs will have an initially normal LDDS so if the LDDS is used as the initial screening test and a normal test result is obtained, the next step would be an ACTH stimulation test. Lastly, the target hormonal goal for the ACTH stimulation test is felt to be a post ACTH cortisol of < 9.1 ug/dl. Together with improvement in clinical signs this level of adrenal suppression would indicate appropriate dosing with Vetoryl. In our hands, up to 80% of patients will obtain clinical and hormonal improvement with once daily dosing.