

Investigation of Serum Copeptin Concentrations in Diabetic Dogs

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Background: Copeptin is a peptide product of pre-provasopressin released simultaneously from the pituitary gland along with ADH (anti-diuretic hormone). Copeptin is a biomarker in serum that parallels ADH concentrations. Water balance in diabetic dogs is an important factor but the role and response of ADH is unknown. Our goal is to investigate the pathology and physiology of diabetes by exploring more about copeptin.

Hypothesis/Objectives: To validate a commercial ELISA for measurement of canine copeptin in serum.

Animals: Banked serum samples from diabetic and non-diabetic dogs presented to us from the Kansas State University College of Veterinary Medicine.

Methods: Diabetic and non-diabetic dog serum was analyzed with owner's consent. A canine copeptin competitive ELISA from MyBioSource was used and the manufacturer instructions were followed. Samples were frozen at -20°C then thawed at 4°C before analysis. We used a computer-controlled spectrophotometric plate reader (EPOCH Biotek) at a wavelength of 450nm to analyze the ELISA and a 4-PL standard curve was created to view the linearity of standard concentrations.

Results: Our results revealed the diabetic serum contained a higher concentration of copeptin compared to the non-diabetic serum; successfully validating the ELISA. The limit of detection was 50 pg/mL with an inter-assay CV at 12% and an intra-assay CV at 14%. Linearity was determined by diluting samples into 1:2 and 1:4 dilution.

Conclusion: The validation of the ELISA gives us a resource to use for further studies in diabetic dogs and its relationship to copeptin.