University of Prince Edward Island

Faculty of Veterinary Medicine
Summary of Dissertation

Submitted in Partial Fulfilment
of the Requirements for the

DEGREE OF MASTER OF VETERINIARY SCIENCE

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Lower baseline cortisol for hypoadrenocorticism screening in dogs in Atlantic Canada: 50 as the new 55; and neutrophil:lymphocyte ratio as poor screening tool for canine hypoadrenocorticism

Objectives

The purpose of this study was two-fold, first, to determine if a serum baseline cortisol lower than 55nmol/L (2 µg/dL) could be used as a "cut-off" screening value when deciding whether to perform an ACTH stimulation test in dogs. The second purpose of this study was to determine an if the neutrophil:lymphocyte ratio (NLR) can be used as a screening tool for canine hypoadrenocorticism

Animals

306 client-owned dogs

Methods

Retrospective study of dogs at the Atlantic Veterinary College University of Prince Edward Island. Variables were compared between dogs with hypoadrenocorticism (HA) and without hypoadrenocorticism (NHA). Dogs with a blunted ACTH stimulation test result (bNHA) were also assessed.

Results

Dogs with HA had lower pre-cortisol, post-cortisol concentrations, lower Na/K ratio and higher lymphocyte concentrations than NHA dogs ($p < 0.001$). The highest pre-cortisol measurement reported in dogs with confirmed HA was 49.7nmol/L (1.8 µg/dL). A pre-cortisol ROC curve on HA and NHA dogs revealed a Youden index corresponding to a pre-cortisol threshold of 12.1 nmol/L, with a sensitivity of 84.5% (95% CI: 76.1%, 92.9%) and a specificity 90.2% (95% CI: 86.4% - 94.0%). NLR ROC curves for HA and NHA dogs revealed a Youden index corresponding to a NLR ratio threshold of 3.33, with a sensitivity 61.8% (95% CI: 49.1%, 74.6%) and a specificity of 61.5% (95% CI: 54.2% - 68.7%)

Conclusion

Dogs with a baseline cortisol higher than 50 nmol/L (1.8 µg/dL) are unlikely to have hypoadrenocorticism. Neutrophil:lymphocyte ratio (NLR) is not a useful screening tool for canine hypoadrenocorticism.

Publications:

Jelovcic SV and Webb J. Breed Specific Lab Test Results. The RVT Journal. 2024 Jul. Hooi KS, Defarges AM, Jelovcic SV, Bienzle D. Bronchoalveolar lavage hemosiderosis in dogs and cats with respiratory disease. Vet Clin Pathol. 2019 Mar;48(1):42-49. doi: 10.1111/vcp.12698. Epub 2019 Jan 18. PMID: 30657606.

Presentations

"Diabetes Mellitus en perros y gatos [translation from Spanish: Diabetes Mellitus in dogs and cats]". Online seminar for Hospital Clinico Veterinario Universidad de Chile.
July 05 2022

"Labwork Abnormalities: Breed does matter". OVMA Conference. Toronto, Ontario. January 29 2025

Biographical Data

Born in Caracas, Venezuela

A**wards**

2023- George and Margaret Peake Scholarship. Atlantic Veterinary College

2022- Alice Peake Bissett Scholarship. Atlantic Veterinary College

2022- Natasha Memorial Scholarship. Atlantic Veterinary College

2021- Alice Peake Bissett Scholarship. Atlantic Veterinary College

2020- George and Margaret Peake Scholarship. Atlantic Veterinary College

2018- Beloved Friends Prize. Ontario Veterinary College Convocation Award

2018- Dr. Jim Bell Prize. Ontario Veterinary College Convocation Award

2018- Katherine Elizabeth Long D.V.M. Memorial Prize. Ontario Veterinary College Convocation Award

2018- The Prize for Excellence in Veterinary-Client Relations. Ontario Veterinary College Convocation Award

2017- WVC Dr. Jack Walther Leadership Award. Western Veterinary Conference. Las Vegas, Nevada

2014- Barry Fisher Memorial Entrance Scholarship. Ontario Veterinary College