Dogs with persistent disease were randomly identified with the profile of postoperative plasma ACTH and cortisol values. Postoperative plasma concentrations were measured for the occurrence of hyperadrenocorticism. It was concluded that postoperative measurement of plasma concentrations of ACTH, cortisol and cortisone was easy and performed well for early postoperative evaluation of long-term outcome after transphenoidal hypophysectomy in dogs with PDH.

ABSTRACT #22


The diagnosis of primary hyperaldosteronism in cats is currently based on the ratio between the plasma aldosterone concentration and plasma renin activity, i.e., an elevated aldosterone to renin ratio (ARR). Since the ARR has a number of disadvantages, a more practical diagnostic parameter would be the aldosterone to creatinine ratio (UACR). We therefore aimed: 1) to establish a reference range for the normal urinary aldosterone to creatinine ratio (UACR) in cats; 2) to investigate whether oral flucorticocone acetate can be used to suppress aldosterone secretion in healthy cats.

Morning urine samples from 42 healthy cats were collected for the determination of the basal UACR. Inclusion criteria were the inability of physical and routine laboratory examination, a systemic arterial blood pressure <160/110 mm Hg, and an ARR below the upper limit of the reference range. Successively, flucorticocone acetate was administered to 16 healthy cats and one cat with primary hyperaldosteronism, in an oral dosage of 0.05 mg/kg BW BID for four consecutive days. The following morning, urine was collected for the UACR after oral flucorticocone acetate administration.

Basal UACRs ranged from 1.8-52.3*10^-10 and non-parametric analysis revealed that the reference range for the basal UACR was <65.6*10^-10. Oral administration of flucorticocone acetate caused a reduction in UACR of more than 40% and resulted in a UACR <6*10^-10 in all 16 healthy cats. In the cat with primary hyperaldosteronism, the basal UACR and the UACR after flucorticocone acetate administration were 32*10^-10 and 36*10^-10, respectively.

The results of this study suggest that determination of the UACR, in combination with a flucorticocone suppression test, may be used to diagnose primary hyperaldosteronism in cats. Dose finding studies and inclusion of more cats with primary hyperaldosteronism are warranted.

ABSTRACT #23

EVALUATION OF THYROID FUNCTION WITH RECOMBINANT HUMAN THYROID STIMULATING HORMONE AND SCINTIGRAPHY IN HEALTHY CATS. I. van Hoek1, K. Peremans2, E. Vandenbroucke1, 1Department of Medicine and Clinical Biology of Small Animals, 2Department of Medical Imaging of Domestic Animals, Faculty of Veterinary Medicine, Ghent University, Belgium.

Studies in humans with nodular goiter have demonstrated that administration of recombinant human Thyroid Stimulating Hormone (rTSH) increases the uptake of radioactive iodine in the thyroid. This results in lower therapeutic doses needed and less irradiation to extra-thyroidal tissue in the thyroid. We investigated whether rTSH in hyperthyroid cats as in humans would enhance the uptake of radioactive iodine in the thyroid gland of healthy cats. Six healthy euthyroid female cats, with an age of 2 years, a bodyweight of 4.7 ±1.4 kg (mean±SD) kg and showing no abnormalities on clinical examination, blood- and urine-tests were included. A perchectane scan was performed on day 1. Two mCi perchectane was injected IV and static images were acquired 30 minutes after injection under anaesthesia (8 mg/kg Propofol IV until effect). Regions of interest (ROI) were drawn manually to calculate the thyroid/salivary gland (T/S) uptake ratio in both thyroid lobes. On day 3 0.025 mg rTSH (Thyrogen®, Genzyme corporation, the Netherlands) was injected IV. Six hours later the perchectane scan was repeated as on day 1. Two bloodsamples were taken from the jugular vein by venipuncture, before injection of the rTSH and the perchectane scan respectively. Serum was collected after centrifugation, aliquoted and frozen at -20°C until radioactivity had decayed for measurement of total T4 (TT4, nmo/l). Results were expressed as mean±SD. Based on a fixed effects model, serum TT4 concentration increased significantly (P<0.001) from 0 hours (19.1±4.6) to 6 hours (54.2±5.9) after rTSH administration. T/S uptake ratio was analysed by a mixed model with cat and lobe as random effects and rTSH administration, side (left or right) and their interaction as fixed effects. There was a significant effect of rTSH administration (P=0.001) and of side (P=0.039) with a non-significant interaction (P=0.925). In the left (right) lobe, T/S uptake ratio increased from baseline to 2 hours (0.97±0.07) to 1.27±0.07 (1.13±0.07) from 0 to 6 hours after rTSH administration. Pearson correlation coefficient between difference in serum TT4 concentration and T/S uptake ratio before and after rTSH administration was -0.278 and not significantly different from 0 (P=0.29).

ABSTRACT #24

EFFECT OF BREED ON BODY COMPOSITION IN DOGS. L. Jeunette1, F. Aquino2, A. Platt1, T. Callahan2, M. Peterson3, D. Greco1. The Animal Medical Center, New York, NY; Affinity-Purpose, Barcelona, Spain.

Recently, breed diversity has been characterised by comparison of genetic material from various breeds of dogs to the wolf (Ostrander et al, 2004). Dual X-ray absorptionmetry (DEXA) methodology to estimate body composition has been validated in dogs by comparison with chemical analysis and is considered to be a reference method. The first objective of this clinical study was to assess the effect of breed on percentage body fat mass (measured by DEXA) in dogs. Breeds (Siberian Husky, Greyhound, Standard Poodle, Dachshund, Rottweiler) were chosen based on their relationship to the wolf (asian, herders, steppers, mastiffs). The second objective was to compare results of body fat obtained by DEXA analysis with results obtained by bioelectrical impedance (BIA), and morphometric analysis in these dogs. Healthy client-owned dogs of selected breeds that were sedated or anasthetized for unrelated reason were enrolled in the study (N=17, 5 Greyhounds, 3 Standard Poodles, 4 Siberian Huskies, 2 Dachshunds, 3 Rottweilers). Firstly, body weight (BW) was recorded and a body condition score (BCS) was given to each patient according to the 9-point scale (Lafamme et al, 1997), to assess subjectively the degree of leanness/obesity. Then, various morphometric measurements were taken as described by Mawby et al (2004) and used in equations to estimate body fat. Secondly, each anesthetised patient was submitted to a DEXA scan (Lunar DPX-alpha system, Lunar corp, Madison WI) and to bioelectrical impedance analysis (BIA) (RLJ systems, Clinton MI), using electrodes in 3 different positions: on the two left legs (Left hemispheres), on the right legs (right hemispheres), on the two front legs (Front hemispheres). Data were normally distributed and were submitted to a univariate and multivariate analysis of variance and correlations were calculated. Differences were considered statistically significant at P<0.05.

In the univariate analysis of variance, DEXA fat mass significantly differed between breeds. For a same mean BCS, Greyhound had significantly less fat than Poodle, Rottweiler, Dachshund and Husky. When including the BCS and breed effects together in the multivariate analysis of variance, the differences between breeds still tend to be significant. In this study, no significant correlation was observed between percentage fat (by DEXA) and BCS, BW, percentage body fat estimated by BIA, or by morphometric equations. BCS correlated with percentage fat (by DEXA) in Greyhound and Poodle but not in Rottweilers or Huskies. Percentage fat (by BIA) correlated with DEXA fat in Huskies and Rottweilers. Body mass index tended to correlate with DEXA fat in large dogs (Greyhound, Husky and Rottweiler) but not in Poodles.

In conclusion, the Greyhound breed is significantly leaner than other breeds of dogs for the same BCS. However, it seems that the current morphometric equations are not adapted to the different breed morphology. Development of breed specific BCS and equations could be envisaged in the future.

ABSTRACT #25

ACUTE PHASE PROTEIN CONCENTRATIONS IN DOGS WITH HYPERCORTICOSISM, DIABETES MELLITUS AND HYPOTHYROIDISIM. E. Ercaus, E. Mercuri, A. Mazz, F. Famigli-Bergamini, F. Gentilini. Veterinary Clinical Department, University of Bologna, Italy.
The purpose of this study was to determine the concentrations of Haptoglobin (Hp), C-reactive protein (CRP) and Fibrinogen (Fib) in dogs with spontaneous hypercortisolism (HCT), diabetes mellitus (DM) and hypothyroidism. Stored (−20°C) serum (Hp, CRP or fibrinogen) samples were obtained for the study from 25 clinically healthy dogs, 7 dogs with DM, 7 with HCT and 7 with hypothyroidism were analyzed. All samples were obtained from new clients and dogs before starting the therapy for the specific endocrinopathy. Reference ranges for APPs were previously obtained in a population of 25 clinically healthy dogs. CRP and Hp were measured using human immunoturbidimetric assays validated in our laboratory for the dog, as previously reported. CRP concentrations (reference range 0–0.5 mg/dL) were between 0.01 and 1.63 (median 0.01; abnormal in 14.5% of cases), between 0.01 and 11.60 (median 1.03; abnormal in 62.5% of cases), and between 0.01 and 9.82 (median 0.01; abnormal in 42.9% of cases) in HCT, DM and hypothyroid dogs respectively. Hp concentrations (reference range 20–140 mg/dL) were between 0 and 590 (median 276; abnormal in 82.9% of cases), between 61 and 367 (median 152; abnormal in 62.5% of cases), and between 2 and 242 (median 109; abnormal in 42.9% of cases) in HCT, DM and hypothyroid dogs respectively. APP concentrations were significantly lower (p<0.001) in HCT compared to DM dogs. APP concentrations were significantly higher in HCT compared to DM (p<0.001) and hypothyroidism (p=0.005). Fib was higher in dogs with hypothyroidism compared to dogs with DM but not statistically significant (p=0.05). Only 5 dogs with HCT had a mild increase of CRP, 2 had also a severe pyoderma, 2 concomitant DM and ketaoidiasis and 1 concomitant mediastinal tumour and haemolytic anaemia. In these cases, we consider the increase of CRP inadequate when compared to the expected acute phase response. The high concentrations of Hp in dogs with HCT has previously been reported and our results are comparable to those reported in the literature. Lack of exact knowledge regarding the inflammatory/infectious status of each dog is the main limitation of this study. In conclusion, APPs were high in a large number of dogs with endocrinopathies and this is probably due to the high incidence of concomitant infectious diseases. CRP is low in dogs with HCT and, like Hp, in this endocrinopathy should be considered a poor marker of the acute phase response. Further studies are required to assess whether serum Hp and CRP could be useful for the diagnostic protocol of dogs with HCT.

ABSTRACT #27

EFFECT OF THYROXINE SUPPLEMENTATION ON GLOMERULAR FILTRATION RATE IN HYPOTHYROID DOGS. K. Commeret, H. P. Leftzberge, G. Benchechoune, S. Daminet. 1Department of Small Animal Medicine and Clinical Biology, Ghent University, Merelbeke, Belgium; 2Department of Clinical Sciences, National Veterinary School of Toulouse, Toulouse, France; 3Internal Medicine Unit, National Veterinary School of Alfort, Maisons-Alfort, France.

Glomerular filtration rate (GFR) is decreased in human hypothyroid patients, but information about kidney function in canine hypothyroidism is lacking. The objective of this study was to assess GFR in hypothyroid dogs, prior to substitution therapy and after reestablishment of a euthyroid state. Hypothyroid dogs (n=12) with a mediated abnormalities on renal ultrasonography and urinalysis were included. Blood pressure measurement and exogenous serum creatinine clearance (ECC) test were performed before treatment (t0), 1 month (t1, n=14) and 6 months (t6, n=11) after supplementing levothyroxine (20 μg/kg/d) PO at t1. At t6, response to therapy was monitored by measurement of serum total thyroxine and thyrotropin. If thyroid treatment needed to be adjusted, it was reassessed after one month.

Statistical analysis was performed using a general linear model, results were expressed as mean±SD.

Age at t0 was 6.2±2.1 years, body weight decreased (p<0.01) from 35.2±15.4 kg at t0 to 27±14 kg at t6. 6 dogs remained normotensive throughout the study. Basal serum creatinine also decreased (p<0.05) from 0.23±0.17 mg/dL at t0 to 0.15±0.16 mg/dL at t6. 10 dogs had an increase in serum urea nitrogen (p<0.01), the corresponding values were 19.6±11.6, 21.5±4.3 and 20.2±0.4 mg/L/min/kg, respectively. Decreased GFR was observed in hypothyroid dogs. However reestablishment of a euthyroid state increased GFR significantly.

ABSTRACT #28

GLUTAMIC ACID DECARBOXYLASE-65 (GAD65) AUTOANTIBODY STATUS AND MHC CLASS II POLYMORPHISM IN 100 DIABETIC DOGS. L.J. Davison, M.R. Christie, A. Holder1, 2, L.J. Kennedy, 4 A. Barnes, 4 M.E. Herriage, 3 W.E. Ollier, 3 B. Catchpole1, 3 Dep Vet Medicine, University of Cambridge, UK; 1Division of Reproduction and Endocrinology, King's College London, UK; 2Dept PID, Royal Veterinary College, London, UK; 3Centre for Integrated Genomic Research, University of Manchester, UK; 4Mammalian Immunogenetics Research Group, University of Liverpool, UK.

Previous work has demonstrated an association between certain Major Histocompatibility Complex (MHC) Class II alleles and susceptibility to canine diabetes mellitus (DM). Additionally, a pilot study has provided preliminary evidence that some diabetic dogs have circulating autoantibodies to glutamic acid dehydrogenase-65 (GAD65), a pancreatic beta cell protein and important autoantigen in human DM. Such findings imply that autoimmunity might play a role in canine DM; however the correlation between canine MHC haplotype and autoantibody status has not been investigated in dogs. The current study was designed to determine the prevalence of GAD65 autoantibodies in a large cohort of diabetic dogs for whom no other underlying cause of DM was obvious. In addition, the study aimed to test the hypothesis that dogs with GAD65 autoantibodies would share one or more of the canine MHC Class II haplotypes associated with increased DM risk.

The previously described canine GAD65 autoantibody assay was refined by cloning the canine GAD65 gene into the pVAX expression vector, to improve in-vitro transcription / translation of 5's mitogenically radio-labelled GAD65 from plasmid DNA. Sera from canine diabetic patients (n=100) and normoglycaemic control patients (n=45) were screened for GAD65 autoantibodies by radioimmuno-precipitation. Diabetic patients who were under 6 months old, female entire, or had a known history of pancreatitis were excluded, since autoimmune pancreatic destruction was thought to be an unlikely underlying cause of DM in these dogs. DNA was also isolated from the canine diabetic blood samples and genotyped at the Dog Leucocyte Antigen (DLA)-DRB, DQB and DQA loci using a sequence-based approach. Serum samples were considered positive for GAD65 autoantibodies if their reactivity was greater than the mean ± 2 standard deviations of the controls tested.