Journal of Veterinary Internal Medicine
Open Access

J Vet Intern Med 2015;29:1122–1256

2015 ACVIM Forum Research Abstracts Program

2015 ACVIM Forum Research Abstract Program Indianapolis, Indiana, June 3–6, 2015
Index of Abstracts

Oral Presentations – Thursday, June 4

Bolded type indicates ACVIM Resident Research Award eligibility

Time	#	Presenting Author	Abstract Title
SMALL ANIMAL - CARDIOLOGY**			
9:00 am	C-1	Junseok Lee	Cardaic Specific Calcium Uptake Genes Expressed in Peripheral Blood Effectively Reflect Myocardial Distress Induced By Hemodynamic Change
9:15 am	**C-2**	**Melanie Hezzell**	**Differentiating Cardiac Vs Non-Cardiac Causes of Pleural Effusion in Cats Using Plasma and Pleural Fluid with a Point-of-Care NT-proBNP Test**
9:30 am	**C-3**	**Melanie Hezzell**	**Pre-Specified Escalation of Medical Therapy Reduces Plasma NT-proBNP Concentrations in Dogs with Stable CHF Due to Mitral Valve Disease**
9:45 am	**C-4**	**Autumn Harris**	**Biological Variability of N-Terminal Pro-Brain Natriuretic Peptide in Adult Healthy Cats**
BREAK			
10:30 am	C-5	SeungWoo Jung	Microrna Signaling Networks in a Canine Model of Mitral Regurgitation
10:45 am	C-6	Tatsuyuki Osuga	Effect of Acute Volume Overload on the Left Atrial Phasic Function in Healthy Dogs
11:00 am	C-7	Caio Nogueira Duarte	Doppler Echocardiographic Assessment Of Left Ventricular +Dp/Dt and -Dp/Dt in Dogs with Chronic Mitral Valve Disease
11:15 am	C-8	Bruno Boutet	Clinical Characteristics in 35 Dogs Over 5 Years of Age Diagnosed with Patent Ductus Arteriosus
11:30 am	C-9	Lee Chang-Min	Evaluation of the Correlation Between Serum Homocysteine Concentrations and the Severity of Mitral Valve Disease
11:45 am	C-10	Justin Thomason	Echocardiographic Diagnosis and Outcome of Constrictive Pericardial Disease in Dogs (18 Cases: 2002-2013)
12:00 pm	**C-11**	**Catherine Gunther-Harrington**	**Timolol Ophthalmic Solution for Diastolic Function Testing in Cats: A Pilot Study of Heart Rate and Echocardiographic Effects**
12:15 pm	C-12	Ilaria Spalla	Changes in the Biomechanics of the Left Ventricle in Healthy Young and Adult Great Danes
BREAK			
4:30 pm	C-13	Kelly Flynn	Plasma L-Citrulline Concentrations in L-Arginine-Treated Dogs: A Pilot Study for the Treatment of Pulmonary Hypertension
4:45 pm	C-14	Fernando Rosa	Left Atrial Volume Obtained By Biplane Simpson Method in Healthy Dogs: Body Weight and Body Surface Area

had statistically significant increases at all time points after 15–25 minute. The aerobic RT samples had statistically significant changes in lactate at all time points.

	T0	T15-25	T30-40	T60-70	T120-130
Anaerobic chilled (gold standard)	1.0 (0.7–2.3)	1.1 (0.6–2.5)#	1.2 (0.8–2.6)#	1.2 (0.9–2.6)#	1.2 (0.7–2.8)#
Aerobic chilled	n/a	1.2 (0.9–2.6)	1.3 (0.9–2.7)	1.2 (1.0–2.8)	1.4 (1.1–3.0)
Anaerobic RT	n/a	1.3 (0.9–2.8)	1.5 (1.1–2.9)*	1.8 (0.7–3.4)*	2.4 (2.0–4.3)*
Aerobic RT	n/a	1.3 (1.1–2.8)*	1.6 (1.1–2.9)*	2.0 (0.4–3.5)*	2.6 (2.1–4.7)*

Results are median & range; lactate values in mmol/L. #Statistically significant versus T0. *Statistically significant versus anaerobic chilled (gold standard) at same time point.

The percent change from the initial T0 lactate was then calculated at all time points & storage conditions.

	T0	T15-25	T30-40	T60-70	T120-130
Anaerobic chilled (gold standard)		8.4 ± 12.3%	12.1 ± 11.5%	19.5 ± 12.5%	25.3 ± 17.9%
Aerobic chilled	n/a	16.0 ± 8.6%	23.7 ± 14.2%	27.2 ± 11.9%	37.0 ± 15.5%
Anaerobic RT	n/a	28.1 ± 10.7%	44.9 ± 16.9%	73.9 ± 28.0%	134.5 ± 43.2%
Aerobic RT	n/a	36.3 ± 14.6%	54.0 ± 21.7%	86.4 ± 39.7%	161.4 ± 58.3%

Results support analyzing lactate samples immediately. Findings indicate that time, temperature and storage conditions all cause significant changes in lactate. If lactate analysis is delayed, anaerobic chilled samples should be analyzed within 70 minutes, and aerobic chilled samples should be analyzed within 25 minutes. Aerobic RT & anaerobic RT sample storage should be avoided. Clinicians should be aware that pre-analytical factors including storage time and sampling handling may cause changes in lactate values.

OT09

ACUTE PHASE PROTEIN CONCENTRATIONS IN CATS WITH URINARY TRACT OBSTRUCTION. Elizabeth Schmidt[1], Milica Filipovic[2], Jelena Francuski[2], Nenad Andric[2], Luciano Barbosa[1], Mary Waterston[3], David Eckersall[3]. [1]São Paulo State University, Botucatu/SP, Brazil, [2]University of Belgrade, Belgrade, Serbia, [3]University of Glasgow, Glasgow/UK, UK

The aim of this study was to determine if cats with urinary obstruction have an inflammatory acute phase response. For that, the concentrations of haptoglobin (HP) and serum amyloid A (SAA) were determined in cats with clinically urinary tract obstruction at the time of diagnosis. Thirty-four cats were included in the study. The animals were between 6 months to 15 years old. Cats were assigned to groups according to clinical signs, hemogram and urinalysis. 16 cats showed clinical signs of urinary tract obstruction and 18 cats were clinically healthy control cats. The HP serum concentrations were measured via haemoglobin binding assay modified for automation on an ABX Pentra Analyser (Horiba Medical, Montpellier, France). SAA concentrations were determined using LAT Eiken Chemical Co. (Japan) modified for automation on ABX Pentra Analyser. The HP concentrations in the control group ranged from 2.02 to 4.12 g/L (median 3.08 g/L) and SAA concentrations in this group were all <5 mg/L. In the clinically obstructed cats the HP concentrations ranged from 2.5 to 6.04 g/L (median 4.04 g/L), SAA concentrations ranged from <5 to 228.5 mg/L (median <5 mg/L), white blood cells (WBC) ranged from 7100 to 24,200/μL (median 12,195/μL) and neutrophils ranged from 5760 to 18,030/μL (median 11,320/μL). All these parameters were significantly higher ($P < 0.05$) when compared to the clinically healthy cats. The increases seen in HP and SAA values were accompanied by increases in WBC and neutrophils in the clinically obstructed cats demonstrating an acute phase response in cats with urinary tract obstruction. However, there was no correlation between HP and WBC indicating that these analytes respond with differing dynamics to urinary obstruction and that measurement of acute phase protein could add value to the diagnostic regime for this condition in cats.

OT10

MONOCLONAL ANTIBODIES SPECIFIC TO SERUM AMILOID A FROM DIFFERENT SPECIES. Karina Seferian[1], Valentina Podoprigora[1], Stanislav Kozlovsky[1], Olga Kolosova[1], Alexander Kogan[2], Alexey Katrukha[1]. [1]HyTest OY, Turku, Finland, [2]School of Biology, Moscow State University, Moscow, Russia

Serum amyloid A (SAA) is a major acute phase protein in many species. SAA has been reported to be a sensitive biomarker of inflammation in dogs, cats, and horses. The high level of identity between SAA from different species allows measurement of canine, feline and equine SAA using the same immunoassay. The aim of this study was to select antibodies with cross-reactivity for canine, feline and equine SAA from the panel of murine monoclonal antibodies (mAbs) developed against either human or canine SAA. The study also included development of recombinant species-specific calibrators for SAA immunoassays.

Recombinant canine, feline and equine SAA were expressed in E. coli. Cross-reactivity of antibodies (41 different mAbs) was tested with recombinant and endogenous SAAs. Among tested antibodies, 6 mAbs recognized recombinant and endogenous SAAs from all three species in direct ELISA and Western blotting studies. These 6 mAbs were further evaluated in sandwich ELISA.

In sandwich ELISA strong non-specific binding of SAAs to the polystyrene surface (Costar 96-well plates) was observed. The same problem has earlier been reported for human SAA as well. Optimization of the plate blocking protocol and washing and dilution buffers helped to reduce the non-specific binding of SAA to the plate surface. Various mAb combinations were tested with serum samples from healthy animals and animals with acute inflammation using an optimized sandwich ELISA protocol. One mAb combination was selected which recognized SAA from canine, feline and equine serum with high sensitivity.

In conclusion, monoclonal antibodies described in the present study can be used for the development of an immunoassay applicable for the SAA measurements in blood of three major companion animal species.