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Research Abstract Program of the 2011 ACVIM Forum

Denver, Colorado, June 15–18, 2011
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** Also see Cardiology abstracts C-13 – C-26 (Thursday, June 16, 2:15 pm – 6:15 pm)

SMALL ANIMAL – HEMATOLOGY**

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BREAK

10:30 am  | HM-5  | Carolyn Gara-Boivin | Use of Calibrated Automated Thrombogram (CAT) For Monitoring Low Molecular Weight Heparin in Healthy Dogs |

Boldface type indicates ACVIM Resident Research Award eligibility.
ID-25  Melissa Beall  Canine Granulocytic Anaplasmosis and Granulocytic Ehrlichiosis - A Field-Based Comparison
ID-26  Jeanne Ficociello  Comparison of Commercially Available Assays for the Amplification of *Ehrlichia canis* and *Anaplasma phagocytophilum* DNA from the Blood of Naturally Infected Dogs
ID-27  Pedro Diniz  Prevalence of Tick-Borne Diseases in the Highlands of Peru
ID-28  Michael Lappin  Prevalence of *Bartonella* Spp. DNA in Blood of Naturally Exposed Cats with and without Imidocloprid Treatment
ID-29  Maria Dolores Tabar  Severity of Clinical Signs and Outcome of Dogs Infected by *Wolbachia*, Microfilaria and *Leishmania*
ID-30  Mary Marcondes  Feline Leishmaniasis in the Municipality of Araçatuba, São Pulo, Brazil
ID-31  Mary Marcondes  *Leishmania chagasi* Infection in Cats with Dermatologic Lesions from an Endemic Area of Visceral Leishmaniasis in Brazil
ID-32  Gavin Olsen  Comparison of Radiographic and Urine Antigen Resolution of Clinical Blastomyoscosis
ID-33  Valeria Scorza  Prevalence of *Giardia* Spp. and *Cryptosporidium* Spp. in Dogs of the United States
ID-34  Sahatchai Tangtrongsup  Intestinal Parasites of Dogs in Chiang Mai, Thailand
ID-35  Donald Martin  Comparison of 2 Methods of Parasite Recovery from Fecal Specimens of Veterinary Patients: Sedimentation/Concentration vs. Fecalyzer

**SMALL ANIMAL - NEPHROLOGY / UROLOGY**

N/U-20  Javier Del Angel-Caraza  Canine Urolithiasis in Mexico
N/U-21  Dinaz Naigamwalla  The Use of a Medetomidine-Based Sedation Protocol to Perform Urohydropropulsion and Cystoscopy in the Dog
N/U-22  Nicole Smee  Effect of Storage, Time, and Temperature on Canine Urine Enzymes
N/U-23  Sara Irom  Interim Evaluation of the Efficacy and Safety of a High Dose Short Duration Enrofloxacin Treatment Regimen for Urinary Tract Infection in Dogs
N/U-24  Thomas Daste  Renal Doppler Resistive Index in Dogs with Degenerative Mitral Valve Disease (DMVD)
N/U-25  Chelsea Sonius  Association between Feline Antibody Responses to Alpha-Enolase and Azotemia in Privately-Owned Cats
N/U-26  Emily Harison  Acute Kidney Injury (AKI) as a Predictor of Mortality in Dogs and Cats
N/U-28  Bernard Schmidt  Evaluation of Normal Serum Concentrations of the Putative Uremic Toxins, Indoxyl and p-Cresyl Sulfate, in Healthy Adult Cats
N/U-29  John Kruger  Expression of 15-Hydroxyprostaglandin Dehydrogenase (PGDH) in Urothelium of Cats with Chronic Idiopathic Cystitis
N/U-30  Katherine Hamon  Variation In Kidney Size in a Population of Cats

**SMALL ANIMAL - NUTRITION / METABOLISM**

NM-8  Valerie Parker  Association Between Body Condition and Survival in Dogs with Acquired Chronic Kidney Disease
NM-9  Shiguang Yu  Dietary Crude Protein of 28.5% Maintains Long-Term Lean Body Mass in Cats with Impaired Kidney Function
NM-10  Shiguang Yu  Dietary Supplementation of Vitamin B12 Improves Vitamin B12 Status in Geriatric Cats
NM-11  John Bauer  Changes in Serum Essential Fatty Acid Profiles in Dog and Cat Diseases
NM-12  Sungjun Noh  Effect of L-Alanyl-L-Glutamine Supplementation in the Treatment of Canine Parvoviral Enteritis
NM-13  Laura Tonkin  In Vitro Effects of Lipid Emulsion on Platelet Function and Thromboelastography in Healthy Dogs

**SMALL ANIMAL - OTHER**

OT-4  Marina Leis  Comparison of a New Intravascular Catheter Insertion Technique Using the EZ-IO G3 Power Driver to a Standard Manual Technique for Intravascular Catheter Insertion in a Feline Cadaver Model
OT-5  Youngjae Lee  Assessment of Feline Bone Mineral Density: Quantitative Computed Tomography
OT-6  Donghoon Lee  Quantitative Assessment of Aging Effects on Cerebral Blood Flow in Normal Dogs: A Perfusion CT Study
OT-7  Archivaldo Reche, Jr.  Inappropriate Urination in Multi-Cat Households: Are They Really Just Behaving Badly?
OT-8  Archivaldo Reche, Jr.  Living Style, Personality, Owner Subjective Life Quality: What Factors Affect Stress Levels in Domestic Cats (*Felis catus*)?

**SMALL ANIMAL - PHARMACOLOGY**

P-7  Kristin Lewis  Pharmacokinetics of Diminazene Diaceturate in Healthy Cats
P-8  Laura Johnston  Determination of Meloxicam Concentration in Synovial Fluid of Inflamed and Non-Inflamed Joints in Dogs
P-9  Kamoltip Thungrat  Trends of Small Animal *Escherichia coli* Antimicrobial Resistance in the United States
P-10  Xiaojian Liu  Comparative In Vitro Activities of Fluoroquinolone Antimicrobials Against *Escherichia coli* Uropathogens
modified diets, traditional Chinese and Western herbs have been recommended, although only one, choreito, has published data. We evaluated 3 commonly used herbal treatments recommended for use in cats with LUTD including (1) Sun Ren Tang, (2) Wei Ling Tang, and (3) Alisma. We hypothesized that these 3 Chinese herbal preparations would induce increased urine volume and decreased urine saturation for calcium oxalate and struvite.

Six healthy, spayed female, adult cats were evaluated in a placebo-controlled, randomized, cross-over design study. Cats were randomly assigned to 1 of 4 treatments including placebo (P), Sun Ren Tang (SRT), Wei Ling Tang (WLT), or Alisma (A). Treatment was for 2 weeks each with a 1 week washout period between treatments. At the end of each treatment period, a 24-hour urine sample was collected using modified litter boxes. Urine volume and biochemistries were measured, and urine saturation for struvite and calcium oxalate was estimated using EQUIL 1.5b. Analysis of Variance (ANOVA) was used to analyze data statistically if distributed normally and Kruskal-Wallis was used to analyze data statistically if data were not distributed normally. A p < 0.05 was considered significant.

Body weights were not different between treatments. No differences were found in 24-hour urinary analtye excretions, 24-hour urine volume, urine pH, or 24-hour urine saturation for calcium oxalate or struvite between treatments (Table).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>A</th>
<th>P</th>
<th>SRT</th>
<th>WLT</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>mL/kg/d</td>
<td>11.0 ± 4.97</td>
<td>11.5 ± 4.95</td>
<td>14.9 ± 9.16</td>
<td>9.30 ± 3.23</td>
<td>0.7</td>
</tr>
<tr>
<td>Protein</td>
<td>mg/dL</td>
<td>0.030</td>
<td>0.022</td>
<td>0.034</td>
<td>0.020</td>
<td>0.8</td>
</tr>
<tr>
<td>struvite</td>
<td>ug/mg creatinine</td>
<td>0.007 (0.048)</td>
<td>0.006 (0.073)</td>
<td>0.087 (0.921)</td>
<td>0.005 (0.058)</td>
<td>0.8</td>
</tr>
<tr>
<td>RSS caox</td>
<td>ug/mg creatinine</td>
<td>3.9 (2.4)</td>
<td>3.6 (2.5)</td>
<td>3.5 (2.6)</td>
<td>5.5 (5.0)</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Results of this study do not support the hypothesis that these 3 Traditional Chinese herbal preparations increase urine volume or decrease urine saturation for calcium oxalate and struvite.

ABSTRACT N-U-20

CANINE UROLITHIASIS IN MEXICO. J Del Ansel Caraza1, CC Pérez-García2, I Diez-Prieto2, MB García-Rodríguez3, IA Quijano Hernández4. 1HOSPITAL VETERINARIO PARA PEQUEÑAS ESPECIES FMVZ-UNIVERSIDAD AUTÓNOMA DEL ESTADO DE MÉXICO. TOLUCA, MÉXICO. 2LABORATORIO DE INVESTIGACIÓN EN UROLITIASIS. UNIVERSIDAD DE LEÓN, ESPAÑA.

Urolithiasis is a multifactorial disease, frequent and recurrent in dogs in the worldwide, in which breed, sex, age, diet, some anatomical abnormalities, urinary tract infection, urine pH and some geographical and hereditary features in the populations studied have been implicated as risk factors. The effective long-term management of urolithiasis depends on identification and control of the pathophysiological mechanisms involved, which, in turn, depend on accurate knowledge of the mineral composition of the uroliths.

The aim of this study was to determine for first occasion the main geographical and hereditary features in the populations of Mexico. The study was developed with 491 dogs with urolithiasis from 25 of the 33 states of the country.

The chemical composition of the uroliths was determined by stereoscopic microscopy, infrared spectroscopy, scanning electron microscopy and X-ray microanalysis.

Urolithiasis affected nearly the same number of males and females; with ages ranging from two months to 15 years with a median age of 5 years. Adult animals were the most affected. Breeds more affected were Schnauzer miniature, Poodle, Dalmatian, Yorkshire terrier, Scottish terrier, Chihuahua and Bichon frisee.

Uroliths were found in the lower urinary tract in 97.74% of the cases. Mineral composition of the uroliths was: Struvite 49.69%, followed by calcium oxalate 26.46%, struvite and carbonate 28.13%, calcium oxalate 7.13%, silica 6.72%, others 20%, mixed 8.15% and compound uroliths 2.44%. Struvite uroliths affected females in most cases, whereas calcium oxalate, purines and silicate uroliths, were mainly observed in males.

Our results are similar to studies developed in other countries and continents, though we found a higher frequency of uroliths containing silicate, either pure, mixed or compounds uroliths (10.79%), in Mexico City the frequency reached 15%. This high frequency may be due to high consumption of silicate in home-made food or in the groundwater derived from aquifers.

Acknowledgments: This work has been partially supported by a project of Walton Foundation in Mexico and the Consejo Nacional de Ciencia y Tecnología (CONACYT) of Mexico.

ABSTRACT N-U-21

THE USE OF A MEDETOMIDINE-BASED SEDATION PROTOCOL TO PERFORM UROHYDROPROPULSION AND CYSTOSCOPY IN THE DOG. IA Webb1, M Rosati, D Naganwadi2, A Delarves1. 1Mississippi-Oklahoma Veterinary Emergency Hospital, Okavli, ON. 2Clinical Studies, Ontario Veterinary College, Guelph, ON.

Urohydropropulsion is a non-invasive method for removing small urocystoliths from the dog, most commonly used in females due to the relatively wider and shorter urethra. This procedure is typically performed under general anesthesia to allow complete relaxation of the urethra, however, anesthesia results in longer procedure times and difficult endotracheal tube stabilization due to the vertical positioning of animals, especially in larger dogs.

The aim of this study was to devise a novel injectable sedation protocol for urohydropropulsion when cystoscopy was not concurrently required. An intravenous catheter was placed, and a combination of medetomidine (10 to 15 μg/kg) and hydromorphone (0.025 to 0.05 μg/kg) was administered, with the addition of ketamine (2 mg/kg IV) in fractious animals; atipamezole (double volume of medetomidine, administered IM) was used as a reversal agent upon procedure completion. This protocol was considered in cardiovascularly healthy, non-diabetic dogs without evidence of urinary obstruction. Monitoring equipment included electrocardiography, blood pressure measurement, and pulse oximetry, and supplemental flowby oxygen was provided.

Two dogs received the proposed sedation protocol in order to perform urohydropropulsion. Dog one was a 3 year old female spayed Shh Tzu cross, and dog 2 was a 2 year old female spayed Standard Poodle. Ultrasonography revealed a double volume of urocystoliths present in both dogs, measuring up to 1 mm in length and 2.3 mm in diameter. Urohydropropulsion was performed and resulted in retrieval of 15 urocystoliths in dog 1, and approximately 20 urocystoliths in dog 2. Repeat ultrasonography revealed no uroliths present after urohydropropulsion in both dogs. The time from administration of sedation to administration of reversal agent was 6 minutes for dog 1, and 8.5 minutes for dog 2. Records were obtained from 3 dogs that had traditional general anesthetic protocols for urohydropropulsion when cystoscopy was not concurrent required. An intravenous catheter was placed, and a combination of medetomidine (10 to 15 μg/kg) and hydromorphone (0.025 to 0.05 μg/kg) was administered, with the addition of ketamine (2 mg/kg IV) in fractious animals; atipamezole (double volume of medetomidine, administered IM) was used as a reversal agent upon procedure completion. This protocol was considered in cardiovascularly healthy, non-diabetic dogs without evidence of urinary obstruction. Monitoring equipment included electrocardiography, blood pressure measurement, and pulse oximetry, and supplemental flowby oxygen was provided.

Subsequent to the use of medetomidine-based sedation protocols for the above dogs, cystoscopy was performed in a 9 year old neutered male Golden Retriever with prostatomegaly. Medetomidine (15 μg/kg IV) and butorphanol (0.3 mg/kg IV) were administered; atipamezole (double volume of medetomidine, administered IM) was used as a reversal agent upon procedure completion. This sedation allowed adequate immobilization for cystoscopy of the urethra and urinary bladder, and endoscopic biopsy of the prostatic urethra and urinary bladder. The time from administration of sedation to administration of reversal agent was 15 minutes for this dog.

In conclusion, a novel sedative protocol for urohydropropulsion is proposed which allows for an appropriate level of sedation along with a short procedure time and rapid recovery. This sedation protocol may also be useful for certain cystoscopic procedures.