



Collection of Commentaries on Veterinary, Medical, & Related Literature

UROLOGY

Comparison of Urine Protein-to-Creatinine Ratio in Urine Samples Collected by Cystocentesis versus Free Catch in Dogs

Beatrice L, Nizi F, Callegari D, et al.

Journal of the American Veterinary Medical Association 2010; 236:1221-1224.



Critical Points

- This study collected urine samples from 115 dogs; each dog had a sample taken by both cystocentesis and free-catch collection. The UPCr results from the 2 collection methods were compared.
- Of the 81 dogs (that remained in the study after those with evidence of inflammation were excluded), 75 (92.6%) had UPCrs from both samples that were classified in the same proteinuria category.
- Free-catch collection has high reliability and is easy to collect, which should encourage practitioners to use this as a quantitative assessment of proteinuria.
- However, LUTI may affect UPCr results, and LUTI is more likely to be observed in free-catch collection results.

This study assessed whether urine protein:creatinine ratios (UPCRs) determined from urine samples obtained by cystocentesis versus free catch provided similar results. Paired urine samples (230) were collected from 115 client-owned dogs. Samples with evidence of active inflammation (microscopic hematuria, pyuria, and/or bacteriuria) were excluded from further evaluation ($n = 34$). The correlation between UPCr in 81 samples collected by the 2 methods was strong ($r^2 = 0.90$); of 81 dogs, 75 (92.6%) had UPCrs from both samples that fell into the same proteinuria category (normal = UPCr < 0.2; borderline = UPCr between 0.2 – 0.5; abnormal = UPCr > 0.5). The high reliability of the UPCr from free-catch urine, along with the ease of collection, should increase the use of this quantitative assessment of proteinuria. It is important to remember, however, that lower urinary tract inflammation (LUTI) may affect UPCr test results and that LUTI is more likely to be observed in free-catch versus cystocentesis urine samples.

Gregory Grauer, DVM, MS, Diplomate ACVIM (Small Animal Internal Medicine), Kansas State University

GENETICS & CARDIOLOGY

Genome-Wide Association Identifies a Deletion in the 3' Untranslated Region of Striatin in a Canine Model of Arrhythmogenic Right Ventricular Cardiomyopathy

Meurs KM, Mauceli E, Lahmers S, et al.

Human Genetics 2010; 128:315-324.

This study, published by a group of veterinarians in a human genetics journal, reported on a mutation in boxer dogs with arrhythmogenic right ventricular cardiomyopathy (ARVC). ARVC, formerly called boxer cardiomyopathy, is a leading cause of ventricular arrhythmias, fainting, heart failure, and sudden death in this breed. The identified mutation involves the gene that encodes striatin, an important component of heart muscle cells. This breakthrough study is the first to identify a gene abnormality for this particular disease. Based on the results of this work, a genetic test for this mutation in boxer dogs is now available through the Veterinary Cardiac Genetics Laboratory at North Carolina State University College of Veterinary Medicine. For further information on this test, visit cvm.ncsu.edu/vhc/csds/vcgl/boxer-arvc.html. I recommend testing young boxer dogs prior to breeding as well as older boxer dogs with clinical signs of possible ARVC (arrhythmias, fainting, heart failure).

This study identified a gene abnormality for ARVC; the identified mutation involves the gene that encodes striatin, an important component of heart muscle cells. Based on the results of this study, a genetic test that identifies this mutation in boxer dogs is available through the NCSU Veterinary Cardiac Genetics Laboratory.

Critical Points

- ARVC is the leading cause of ventricular arrhythmias, fainting, heart failure, and sudden death in boxer dogs.
- This study identified a gene abnormality for ARVC; the identified mutation involves the gene that encodes striatin, an important component of heart muscle cells.
- Based on the results of this study, a genetic test that identifies this mutation in boxer dogs is available through the NCSU Veterinary Cardiac Genetics Laboratory.
- Dr. Oyama recommends testing young boxer dogs prior to breeding and older boxer dogs demonstrating clinical signs of ARVC.

Mark Oyama, DVM, Diplomate ACVIM (Cardiology), University of Pennsylvania



GASTROINTESTINAL ONCOLOGY

Ultrasonographic Evaluation of the Muscularis Propria in Cats with Diffuse Small Intestinal Lymphoma or Inflammatory Bowel Disease

Zwingenberger AL, Marks SL, Baker TW, Moore PF.

Journal of Veterinary Internal Medicine 2010; 24(2):289-292.

Previous ultrasound studies have highlighted the importance of the finding of intestinal layering loss in diagnosing focal intestinal neoplasia. However, diagnosis of diffuse infiltrative neoplasia remains a challenge, with surgical biopsies being the gold standard. In this recent study, 142 cats with (1) full-thickness gastrointestinal biopsies and (2) abdominal ultrasound with no mass noted were retrospectively evaluated to correlate ultrasound findings with underlying disease processes. Thickening of the muscularis propria layer was significantly correlated with lymphoma (30/62 cats with lymphoma) compared to 7/56 normal cats and 1/24 with inflammatory bowel disease (IBD). Additionally, while mesenteric lymphadenopathy was associated with both lymphoma and IBD, thickened muscularis with mesenteric lymphadenopathy was strongly correlated with lymphoma; ¼ of cats with lymphoma had these findings compared to only 1 each of normal and IBD cats. No longer is the lack of layering loss most consistent with IBD; an intestine with normal layering but thickened muscularis layer, especially with concurrent lymphadenopathy, has now been shown to be more often associated with neoplasia than IBD. While these findings do not provide a definitive diagnosis, they allow for honest discussions with pet owners on likely differentials and further testing or therapies based on this information.

Critical Points

- Diagnosis of diffuse infiltrative neoplasia has been challenging, with surgical biopsies being the gold standard.
- Full-thickness GI biopsies and abdominal ultrasounds (without masses present) from 142 cats were retrospectively evaluated to correlate ultrasound findings with underlying disease processes.
- Thickening of the muscularis propria layer, especially with mesenteric lymphadenopathy, was strongly correlated with lymphoma, and this study found these findings to be more often associated with neoplasia than IBD.
- While these findings do not provide a definitive diagnosis, they can help determine differentials, further diagnostics, and treatment.

Laura Garrett, DVM, Diplomate ACVIM (Oncology), University of Illinois

PHYSICAL REHABILITATION

Daily Controlled Physiotherapy Increases Survival Time in Dogs with Suspected Degenerative Myelopathy

Kathamann I, Cizinauskas S, Doherr MG, et al.

Journal of Veterinary Internal Medicine 2006; 20:927-932.

This study examined the effects of daily physical therapy for 22 dogs diagnosed with degenerative myelopathy, with a focus on survival time and quality of life. Twelve different



Critical Points

- Twenty-two dogs with degenerative myelopathy received daily physical therapy to determine its effect on survival time and quality of life.
- Various physical therapy modalities were used; dogs that received intense physical therapy had the longest mean survival time (255 days), followed by dogs that received moderate physical therapy (130 days) and those that received no therapy (55 days).
- Dogs with severe neurologic deficits that received intense physical therapy also had increased survival times.
- The study demonstrated that physical therapy may be very beneficial for dogs with degenerative myelopathy.

breeds received varying degrees of physical therapy, including active exercise, passive exercises, massage, aquatic therapy, and soft tissue protection. Dogs that received intense physical therapy had a longer survival time (mean, 255 days) than those that received moderate physical therapy (mean, 130 days) or no therapy (mean, 55 days). In addition, dogs with severe neurologic deficits that received intense physical therapy also had increased survival times. Physical therapy has often been suggested for dogs with degenerative myelopathy; this study suggested a positive outcome for the dogs with this diagnosis that received physical therapy.

Debbie Gross Saunders, DPT, MSPT, OCS, CCRP, Diplomate ABPTS, Wizard of Paws Physical Rehabilitation for Animals, LLC, Colchester, Connecticut



PRACTICE DEVELOPMENT

The Care and Feeding of High-Potential Employees

Grossman RJ.
HR Magazine 2011; 56(8):34-39.

A 2010 Corporate Leadership Council survey found that more than 25% of high-potential employees in U.S. businesses are planning to change jobs within the next 12 months. This is a troubling number for the employers

surveyed, who identify their best employees by performance, responsibility, and fit with the job, but said their organizations are ineffective at managing and retaining those same employees.

It is more than paychecks, benefits, and opportunities that drive top talent to stay with or leave an organization. This study identified 14 different methods of retention (see **The Top 14 Strategies to Retain High-Potential Employees**), which begins the first day of employment by indicating to the new employee that he/she is integral to the business and then including the employee in the planning process for his/her development within the organization. Meshing high-potential employees with mentors will provide leadership and support as the employee finds a place within the business culture where he/she can thrive.

Sheila Grosdidier, RVT, PHR, Veterinary Management Consultation, Inc, Evergreen, Colorado

Critical Points

- Adaptability was identified as the primary skill to success and high performance by 68% of the respondents to the American Management Association's survey on developing successful global leaders.
- Retaining high performance employees begins with having a strong assessment system in place to ensure the right employees are hired.
- Make learning and advancement a never-ending process for high-potential employees, which keeps them engaged and challenged by their work experiences.
- However, do not push employees into positions that they are not ready to fill. Fairly assigning responsibilities to qualified employees results in job satisfaction and employee retention.
- Smart businesses keep and develop their top talent.

Top 14 Strategies to Retain High-Potential Employees

1. Tell employees they are special.
2. Align individual and company needs during a consultative process.
3. Delegate real responsibility.
4. Be flexible.
5. Show them they matter.
6. Tap effective mentors.
7. Foster visibility.
8. Make learning and advancement seem never-ending.
9. Focus on developing the attributes leaders are bound to need.
10. Give managers assessment tools they need and will use for selection.
11. Use a comprehensive systematic approach.
12. Put assessment to the transparency test.
13. Part on friendly terms.
14. Get buy-in from top leaders.



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THERIOGENOLOGY

Questionnaire-Based Survey of Parturition in the Queen

Musters J, deGier J, Kooistra HS, Okkens AC.
Theriogenology 2011; 75(9):1596-1601.

For this study, 197 questionnaires were sent to breeders of purebred cats. The questionnaires collected data on parameters associated with parturition progress and the completed survey represented 29 breeds. Parturition parameters evaluated included age and parity of the queen, gestation length, overall parturition length, time between expulsion of kittens for a given queen, presentation, and litter size.

Median gestation length, calculated from day of first breeding to queening, was

65.3 ± 2.2 days, with a range of 57 to 72 days. This correlated with results from other studies. Length of gestation varied with litter size; smaller litters were carried longer. Median time between kitten births was 30 min, with 97% born with no interval longer than 100 min. Median litter size was 4 kittens and did vary somewhat by breed, with cobby-type queens having slightly larger litters than oriental-type queens. Mean birth weight decreased as litter size increased. Thirty-one percent of kittens were born in a posterior presentation.

Margaret V. Root Kustritz, DVM, PhD, Diplomate ACT,
University of Minnesota

**Critical Points**

- Gestation of greater than 72 days in queens warrants veterinary intervention.
- Length of time between kittens should not exceed 100 minutes; if a client reports that no subsequent kitten has been passed for 1 to 1.5 H, the queen should be seen by a veterinarian.
- Posterior presentation (hindlimbs and tail presenting to the birth canal) is normal in queens.

EXOTICS & ENDOCRINOLOGY

**Extralabel Use of Cabergoline in the Treatment of a Pituitary Adenoma in a Rat**

Mayer J, Sato A, Kuipel M, et al.

Journal of the American Veterinary Medical Association 2011; 239(5):656-660.

Pituitary adenomas are common neoplasms in older rats; prevalence in certain strains of laboratory rats older than 2 years is over 80%. In most cases, pituitary adenomas are prolactin-producing. Clinical signs vary and include central vestibular disease, proprioceptive deficits, ataxia, stumbling, and visual deficits.

In this report, a 2-year-old rat was presented for apparent blindness and behavioral change. Magnetic resonance imaging (MRI) revealed a large mass present in the region of the pituitary gland. Treatment was initiated with cabergoline, 0.6 mg/kg PO Q 72 H, which was obtained from a compounding pharmacist. Cabergoline is a dopamine-receptor agonist used to treat prolactinomas in humans; it has been demonstrated to decrease prolactin secretion and prolactinoma growth in rats with pituitary adenomas.

Improvement in clinical signs was seen within 3 days, and repeat MRI revealed the tumor had been reduced to 41% of its original volume. Clinical signs resolved completely until the rat's condition worsened 8.5 months post initiation of treatment. MRI demonstrated an increase in tumor volume of 61% compared with tumor size in the second MRI study. Euthanasia, necropsy, and histopathology confirmed pituitary adenoma.

Angela M. Lennox, DVM, Diplomate ABVP (Avian), Avian and Exotic Animal Clinic of Indianapolis

Critical Points

- Pituitary adenomas are common in rats, and many adenomas produce prolactin.
- Clinical signs may include behavioral changes, blindness, and vestibular disease.
- Cabergoline has been demonstrated to decrease prolactin secretion and prolactinoma growth in rats with pituitary adenomas.
- This study demonstrated temporary regression of a pituitary adenoma in a rat in response to cabergoline administration at 0.6 mg/kg PO Q 72 H.



OPHTHALMOLOGY & DERMATOLOGY

Allergic Conjunctivitis and Conjunctival Provocation Tests in Atopic Dogs

Lourenco-Martins AM, Delgado E, Neto I, et al.
Veterinary Ophthalmology 2011; 14(4):248-256.

This article from the Technical University of Lisbon (Portugal) veterinary teaching hospital evaluated 60 canine patients with atopy to determine how many patients exhibited ocular signs of allergy along with their systemic atopy signs. In addition, conjunctival provocation tests (CPTs) (as are beginning

to be performed in human allergy patients) were performed to determine whether administration of 2 types of dust mite allergens triggers ocular signs of allergy. The most common finding was that periocular and ocular signs of allergy were present in 60% of cases with conjunctival hyperemia (90%). There was a significant difference in CPT response between test and control groups. The conclusion was that many canine patients with atopy that present to a dermatologist would benefit from a complete ophthalmic examination.

Kenneth Abrams, DVM, Diplomate ACVO, Veterinary Ophthalmology Services, Warwick, Rhode Island

Critical Points

- Canine allergic dermatitis patients have a 60% chance of demonstrating ocular signs.
- Conjunctival hyperemia (90% of patients), pruritus (73%), and chemosis (73%) were the most common ocular signs seen in atopic patients.
- CPT was positive for dust mites in a majority of atopic patients but not in the control group.
- Canine atopic patients should have a complete ophthalmic examination to evaluate whether local treatment is needed.

NUTRITION & ENDOCRINOLOGY

Controlled Level of Dietary Iodine Normalizes Serum Total Thyroxine in Cats with Naturally Occurring Hyperthyroidism

Yu S, Wedekind KJ, Burris PA, et al.
Journal of Veterinary Internal Medicine 2011; 25:683-684 (abstract).

Fourteen cats with hyperthyroidism (confirmed by serum total thyroxine [TT4]; reference range, > 10–55 nmol/L) were divided into 2 groups. Group 1 was fed an iodine-reduced dry food (0.17

ppm iodine) and group 2 was fed a commercial dry food (1.9 ppm iodine). After 6 weeks, group 2 was switched to a second iodine-reduced dry food (0.32 ppm iodine), while group 1 remained on the original iodine-reduced food. All cats had free access to their food and deionized water. TT4 was assessed initially; at baseline; and during weeks 3, 6, and 12. Group 1 cats had become euthyroid at baseline and maintained euthyroidism throughout the 12-week study; group 2 cats became euthyroid 3 weeks after food change and remained euthyroid throughout the rest of the study (baseline on commercial food, TT4 = 72 + 12 nmol/L, versus 43 + 9 and 40 + 6 after 3 and 12 weeks on the second iodine (0.32 ppm) food, respectively). These results suggest that dietary iodine at or below 0.32 ppm is an effective treatment for cats with naturally occurring hyperthyroidism.



Critical Points

- Fourteen cats with hyperthyroidism were divided into 2 groups: group 1 began receiving an iodine-reduced (0.17 ppm) dry food and group 2 a commercial dry food (1.9 ppm iodine).
- Six weeks into the study, group 2 was switched to a second iodine-reduced (0.32 ppm) dry food while group 1 continued to receive the original iodine-reduced dry food.
- Group 1 became euthyroid at baseline (when they began receiving an iodine-reduced food) and maintained euthyroidism through study end; group 2 became euthyroid 3 weeks after food change (from commercial to iodine-reduced food) and then maintained euthyroidism through study end.
- This study suggests that a reduced-iodine diet (at or below 0.32 ppm) is an effective treatment for cats with naturally occurring hyperthyroidism.

Gregory Grauer, DVM, MS, Diplomate ACVIM (Small Animal Internal Medicine), Kansas State University



ANESTHESIA

Comparison of Two Anesthetic Protocols for Feline Blood Donation

Killos MB, Graham LF, Lee J.

Veterinary Anaesthesia and Analgesia 2010; 37:230-239.

This study compared the hemodynamic effects of anesthesia using injectable versus inhalational methods in cats during blood donation. The injectable protocol used IM ketamine, midazolam, and butorphanol; the inhalational protocol used sevoflurane in oxygen. It was noted that both protocols demonstrated potential for severe hypotension; 84% of cats using inhalational anesthetic and 42% of those using injectable anesthetics experienced hypotension during the donation process. The injectable anesthetic protocol was associated with hyperthermia and a slower return to normal behavior compared with cats that received inhaled anesthetic. The authors recommended that feline blood donors should be monitored for hypotension with fluid support available if needed during anesthetized blood donations.

Joel D. Ray, Jr, DVM, MS, Mississippi State University

Critical Points

- The hemodynamic effects of 2 anesthesia protocols for feline blood donation—injectable and inhalational—were compared.
- The injectable protocol used a ketamine/midazolam/butorphanol combination; the inhalational protocol used sevoflurane in oxygen.
- Both protocols demonstrated the potential for severe hypotension; the injectable protocol was also associated with hyperthermia and a slower return to normal behavior than cats that received the inhalational protocol.
- The authors recommend monitoring patients for hypotension during anesthetized blood donations and having fluid support available in case a patient requires support to combat severe hypotension.

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often address this lack of accomplishment by focusing their efforts on “solutions,” such as conducting diversity training programs and recruiting a diverse workforce (both exemplary initial measures).

However, the real solution is to implement diversity into the overall business strategy of a practice, company or organization. The key is not to look at diversity as an inconvenience, but instead position it as a valuable resource waiting to be tapped.

Creating an organizational work culture that is inclusive, higher performing, and sustainable can be a formidable task. It requires:

- Changes to policies, practices, and programs that shape people’s behavior within the veterinary practice or company/organization
- New methods for defining and measuring success
- New ways of thinking about and working with people, individually and collectively, inside and outside the practice or company/organization.

In short, it requires a total system change and embracing diversity as an asset.

What educational opportunities pertaining to diversity are available in veterinary medicine?

Generally speaking, until recently, educational opportunities addressing diversity in the veterinary profession (with the notable exception of the Iverson Bell Symposium, a biennial event hosted by the Association of American Veterinary Medical Colleges)

ranged somewhere between inchoate and desultory. This situation stood in stark contrast to the remarkably varied and sophisticated opportunities available in the human medical and dental professions.

Recently, educational opportunities pertaining to diversity are part of the sessions/symposiums offered at veterinary conventions/conferences (notably the AVMA Annual Convention) and the curriculum of some colleges of veterinary medicine. The AVMA must be commended for the institutionalization of the Annual Diversity Symposium, and for providing ongoing leadership in the cause of equality and inclusion.

Due to the hard work and courage of some remarkable leaders in the veterinary profession, I feel that the momentum for this transition is now in place. But the system as a whole is similar to the proverbial aircraft carrier that cannot change direction as easily as a small speedboat. However, solid progress is being made.

Tell us about the most memorable moment of your career?

In 2001, I was invited to appear in the Public Broadcasting System (PBS) television series, *Nature*, entitled “Dogs: The Early Years,” filmed in New York City. Addressing a national audience on the subject of veterinary medicine provided me with one of the most thrilling moments of my life. For an African American veterinarian, the first person in any generation of my family to attend college, this was the pinnacle of my professional achievement.

You can read a brief biography of Dr. Morse at avma.org/awards/bios/morse_evan.asp. ■