

## What's happening in internal medicine?

The arena of internal medicine is constantly evolving, with new insights into the diagnosis and treatment of disease being discovered. Following are highlights from the 2011 American College of Veterinary Internal Medicine (ACVIM) Forum, which took place in Denver, Colo.

### ATYPICAL CUSHING'S— IS IT REAL?

We've all heard the term, but is atypical hyperadrenocorticism real? This syndrome refers to dogs with clinical signs and laboratory abnormalities suggestive of hyperadrenocorticism but with normal cortisol concentrations after low-dose dexamethasone suppression (LDDS) and ACTH testing.

In her presentation, "Atypical canine hyperadrenocorticism: Is it real?" Dr. Ellen Behrend from Auburn University's College of Veterinary Medicine presented evidence for and against the existence of this sex-hormone-mediated disease, comparing research from the standpoint of bilaterally symmetric alopecia, sex hormone assays, and response to treatment.<sup>1</sup> Overall, her findings elucidate the lack of specificity of sex hormone assays since nonadrenal illness can also elevate these hormones. Additionally, some patients demonstrate clinical response to treatment with drugs such as mitotane and trilostane despite an increase in sex hormone concentrations, so other mediators such as enzymes or growth factors may also play a role. While atypical Cushing's may exist as a syndrome, much more research is still needed to understand this disease entity.

#### REFERENCE

1. Behrend EN. Atypical canine hyperadrenocorticism: Is it real? Presented at the Annual Meeting of the American College of Veterinary Internal Medicine; June 2011.

### CIPROFLOXACIN UROLITHIASIS

The increasing extralabel use of ciprofloxacin in cats and dogs has brought to light an interesting dilemma that, until now, has been described in people but not in veterinary patients. A review of the data between January 2001 and December 2009 at the Minnesota Urolith Center identified the presence of ciprofloxacin in the uroliths of 58 dogs.<sup>1</sup> The uroliths were composed of 100% ciprofloxacin in 10 dogs; mixed uroliths containing ciprofloxacin were identified in six dogs, a shell of ciprofloxacin was observed in 21 dogs, and ciprofloxacin surface crystals were identified in 21 dogs. While these uroliths may still be considered rare, it is important to be aware of this potential adverse effect of ciprofloxacin use in dogs.

#### REFERENCE

1. Lulich JP, Osborne CA, Cokley A, et al. Ciprofloxacin urolithiasis: A newly recognized disease in dogs (session abst). *J Vet Intern Med* 2011;25(3):747.

### REAL-TIME PCR TO DIAGNOSE DISTEMPER IN DOGS



A diagnosis of distemper in our canine patients is often made more difficult by the inability of molecular diagnostic tests to differentiate infection from vaccination.

Recent research compared the viral load of infected vs. vaccinated dogs using real-time PCR.<sup>1</sup> Respiratory mucosal swabs were obtained within the first three weeks of vaccination in healthy dogs as well as from acutely infected dogs. Viral loads were measured, and cutoff values were established to help differentiate between the two populations. Acutely infected dogs were found to have viral loads significantly higher than the cutoff values for vaccinated dogs, indicating quantitative real-time PCR may help discriminate vaccine vs. infection in the clinical setting.

#### REFERENCE

1. Leutenegger CM, Crawford C, Levy J, et al. Canine distemper virus quantification by real-time PCR allows to differentiate vaccine virus interference and wild-type infection (session abst). *J Vet Intern Med* 2011;25(3):754.

### SUBCUTANEOUS LEVETIRACETAM FOR EPILEPSY

Parenteral levetiracetam (Keppra—UCB) rapidly reaches therapeutic concentrations in dogs if given intravenously or intramuscularly. A research abstract presenting data from four healthy dogs showed that subcutaneous administration of levetiracetam exceeded the therapeutic range within 15 minutes of administration and remained elevated for at least seven hours.<sup>1</sup> The drug was well-tolerated, and no adverse events were noted. Further research is warranted, but subcutaneous levetiracetam may provide an alternative to both clinical and at-home emergency management of epilepsy.

#### REFERENCE

1. Hardy BT, Patterson EE, Cloyd JM. Subcutaneous administration of levetiracetam in healthy dogs (abst). *J Vet Intern Med* 2011;25(3):741.

These "Presentation Recap" summaries were contributed by Jennifer L. Garcia, DVM, DACVIM, a veterinary internal medicine consultant in Houston, Texas.

## QUESTIONING METHIMAZOLE TRIALS

For years, conventional wisdom has been to perform a methimazole trial in cats in which hyperthyroidism has been newly diagnosed to evaluate the impact of a euthyroid state on renal function. In his presentation, "Treatment of hyperthyroidism and concurrent renal disease: Is the 'Tapazole trial' necessary?" Dr. Mark Peterson of the Animal Endocrine Clinic in New York questioned this practice, however, because instituting treatment of the thyroid condition is needed regardless of a patient's renal status.<sup>1</sup>

Hyperthyroidism itself has long-term deleterious effects on renal function, and research cited by Dr. Peterson has shown that the survival of cats that do develop azotemia after treatment for hyperthyroidism is no shorter than for those whose renal function remains stable.<sup>2</sup> For those patients that do develop azotemia after their hyperthyroid state is corrected, the renal disease is not severe or life-threatening and usually stabilizes within the first month of therapy.<sup>3,4</sup>

### REFERENCES

1. Peterson ME, Treatment of hyperthyroidism and concurrent renal disease: Is the "tapazole trial" necessary? Presented at the Annual Meeting of the American College of Veterinary Internal Medicine; June 2011.
2. Wakeling J, Rob C, Elliott J, et al. Survival of hyperthyroid cats is not affected by post-treatment azotemia (abst.) *J Vet Intern Med* 2006;20:1523.
3. Syme HM. Cardiovascular and renal manifestations of hyperthyroidism. *Vet Clin North Am Small Anim Pract* 2007;37(4):723-743.
4. Boag AK, Neiger R, Slater L, et al. Changes in the glomerular filtration rate of 27 cats with hyperthyroidism after treatment with radioactive iodine. *Vet Rec* 2007;161(21):711-715.

## PROBIOTICS AND KIDNEY DISEASE

Probiotics seem to be the latest buzzword in human and veterinary medicine, but how much evidence is there to support their use in veterinary patients? Few veterinary studies exist, and fewer still have been randomized, controlled clinical trials. Studies have focused primarily on intestinal microflora in healthy dogs, but these supplements are widely used in animals with a variety of illnesses in a clinical setting.

In a presentation by Dr. David J. Polzin of the University of California-Davis, the use of probiotics specifically in patients with chronic renal disease was discussed.<sup>1</sup> Selected species of bacteria have been developed with the intent of using them to attenuate uremia. These include *Streptococcus thermophilus*, *Lactobacillus acidophilus*, and *Bifidobacterium* species.

Preliminary studies, cited by Dr. Polzin, that evaluated rats and miniature pigs with renal disease have shown that probiotics may attenuate azotemia, and preliminary observational data in dogs and cats with renal disease suggests that these supplements improve quality of life and may reduce blood urea nitrogen and creatinine concentrations. Probiotics likely have a role in the treatment of renal disease, but when and how to use these agents still requires further study.

### REFERENCE

1. Polzin DJ. Probiotic therapy of chronic kidney disease. Presented at the Annual Meeting of the American College of Veterinary Internal Medicine; June 2011.

## RESTRICTING DIETARY IODINE TO TREAT FELINE HYPERTHYROIDISM

Three research abstracts presented at the ACVIM Forum evaluated the effect of dietary iodine content on feline hyperthyroidism.<sup>1-3</sup> All studies were conducted in cats with naturally occurring hyperthyroidism, and treatment consisted solely of dietary restriction of iodine at various concentrations.

Researchers found that iodine restriction alone achieved euthyroidism in 80% to 90% of cats, and this state was maintained throughout follow-up without other medical intervention (range of follow-up was 10 months to three years in some cases). While larger-scale studies are still warranted, this is promising evidence that feline hyperthyroidism may be managed with dietary iodine restriction.

### REFERENCES

1. Melendez LM, Yamka RM, Forrester DS, et al. Titration of dietary iodine for reducing serum thyroxine concentrations in newly diagnosed hyperthyroid cats (abst). *J Vet Intern Med* 2011;25(3):683.
2. Melendez LD, Yamka RM, Burris PA. Titration of dietary iodine for maintaining normal serum thyroxine concentrations in hyperthyroid cats (abst). *J Vet Intern Med* 2011;25(3):683.
3. Yu S, Wedekind KJ, Burris PA, et al. Controlled level of dietary iodine normalizes serum total thyroxine in cats with naturally occurring hyperthyroidism (abst). *J Vet Intern Med* 2011;25(3):683-684.

