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"Pearls" of Veterinary Medicine

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AT A GLANCE

Hyperthyroidism and CKD in the cat

Because it is not always possible to predict which hyperthyroid cats have underlying CKD, this has led to the recommendation that trial treatment with methimazole (or carbimazole) is routinely performed prior to definitive therapy with radioactive iodine. There are a couple of important implications that result from this recommendation: the first is that if azotemia develops following medical treatment, then it would be best to subsequently leave the hyperthyroidism untreated (or at least under-treat it) to maximize renal function. Second is that if the cat develops azotemia, the client should then be counseled against having definitive therapy for their cat's hyperthyroidism due to a poor long-term prognosis. However, evidence exists to suggest that both these ***conjectures are misguided***. Mild to moderate kidney disease alone should never preclude permanent treatment of hyperthyroidism. Research provides evidence that hyperthyroidism may contribute to the development or progression of CKD in cats, suggesting that leaving a hyperthyroid cat untreated (or poorly regulated with methimazole) may be detrimental to long-term kidney function. Treating and curing hyperthyroidism may help to both reverse renal damage and preserve the remaining kidney function.

Mark E. Peterson, DVM, DACVIM
West Vet Conf, 02:15

Emergency management of DKA

Insulin therapy is essential to provide glucose to the starving cells, decrease lipolysis, reverse ketosis and correct the acidemia. While nobody will argue the importance of insulin in treatment of the DKA patient, ***insulin is not the most important*** (or *even preferred treatment)* on presentation. It is typically recommended that insulin therapy be delayed for at least 4-6 hours while fluids are started. Delayed insulin therapy is recommended to prevent rapid glucose and electrolyte shifts without adequate fluid replacement as well as prevent a rapid decease in blood glucose and shift in osmolality causing CNS fluid shifts. When insulin therapy is started, regular, short acting insulin therapy is recommended. Regular insulin is administered either intravenously as a CRI or intramuscular. Subcutaneous insulin therapy is not recommended as dehydration may delay absorption from the subcutaneous space. Once the blood glucose is controlled, ketosis is resolved, and clinical signs improve, notably vomiting, dehydration, and anorexia, subcutaneous insulin can be started.

Garret Pachtinger, DVM, DACVECC
CVC San Diego, 12:15

Safety of long-term use of robenacoxib in cats

Currently in the U.S. there are no NSAIDs approved for long-term use in cats. Long-term use of meloxicam is approved in Europe but is strongly discouraged in the U.S. because of concerns about renal damage. Robenacoxib is currently approved in the U.S. for use of up to three days' duration for postoperative pain. It is reported to have good safety in cats, but there are currently no studies looking at safe usage in cats with OA, until now. In this study, cats were randomly assigned to either a control group that received a placebo or a treatment group. The treatment group was administered 6-mg robenacoxib tablets at a minimum dose of 1 mg/kg, q24h with a dosage range for participants of 1-2.4 mg/kg every 24 hours. At the end of the study, no clinically relevant safety-related differences were found between the placebo and treatment groups. Interestingly, 40 cats were identified as having CKD and randomized, almost evenly, into the placebo (n = 22) and treatment (n= 18) groups. There were no significant differences between the groups for change in blood urea nitrogen and creatinine concentrations during the study. Robenacoxib was ***well-tolerated when given to cats***

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for one month. No clinically detectable evidence of damage to liver, gastrointestinal tract or kidneys was found. Of particular interest is the lack of changes in the CKD group. The weakness of the study was the relatively small number of participants which may not accurately identify the likelihood of rare but serious adverse events. The authors caution that the study has only a 95% power to detect such side effects and that further study is recommended in a larger group to detect such potential rare adverse events.

Michael Nappier, DVM, DABVP
DVM News Mag, Jul 2017

Pain after orthopedic surgery

Eliminate pain as a possible cause of lameness before you consider any other causes. Lack of appropriate pain management is the most common reason patients are reluctant to bear weight after orthopedic surgery. A review of long-term outcomes and prevalence of chronic pain following cranial cruciate ligament repair in dogs found approximately 30% of patients experience chronic pain after these procedures. One must know when to choose appropriate pharmacologic agents, which ones are best for the individual patient, as well as the condition being treated. When appropriate perioperative pain management is utilized and post-operative rehabilitation is pursued without delay, there may be instances when additional pain medications are not necessary. If your patient is non-weight bearing for more than 48 hours after an orthopedic surgery, implement pain management strategies based on current level of evidence and individual patient circumstances.

Leilani Alvarez, DVM, DACVSMR, CVA, CCRT
N Amer Vet Conf, 2017

Resting the gut in the cat

Historically the first principle in the nutritional management of acute gastroenteritis has been no nutrition at all – "rest" the GI tract with a 24-48 hour fast. In addition to diarrhea, nausea and inappetence, the patient was often vomiting upon presentation, adding to the argument against putting anything (i.e. food) down the pet's throat. The potential contribution of acute pancreatic inflammation and the concern over stimulating the pancreas with food also fuels the fasting paradigm. Following the period of fasting, small quantities of a "bland" diet are gradually introduced as we hold our breath hoping the offending etiology has passed. A somewhat more scientific justification for a period of fasting would be the concern over antigen exposure in the gut during a period of inflammation, potentially creating a "food allergy" where previously there had been none. With cats this approach can be problematic. For one thing, a high protein/low carbohydrate diet does not fit the usual definition of a "bland" diet. The canine bland diet contains a small amount of highly digestible protein, a low-fat content, and moderate to large amounts of highly digestible carbohydrate (i.e. white rice). In addition, cats frequently can be anorectic for several days before their owners realize what's (not) happening and present them to the veterinarian, and anorexia in a cat can have much more severe consequences than anorexia in a Labrador Retriever. Not feeding a cat for 24 hours is still considered a viable way to "rest" the GI tract in cases of acute gastroenteritis, but the clinician must be aware of the likelihood that the ***clock on that 24-hour window may well have already run out*** by the time the patient is in your office.

Craig Webb, PhD, DVM, DACVIM
SW Vet Symp, 09:15

Cobalamin, oral or parenteral

Despite reports that have showed equal efficacy of oral and parenteral cobalamin administration in humans, repeated parenteral cobalamin administration is the mainstay for treatment in dogs. The authors indicated that cobalamin injections are more expensive, less convenient to administer, and potentially more painful than is oral cobalamin. This retrospective study evaluated whether oral cobalamin administration can restore normal serum cobalamin in dogs with chronic enteropathies. The authors concluded that oral cobalamin supplementation is effective in normalizing serum cobalamin concentrations in dogs with chronic enteropathies but that further studies evaluating serum versus cellular cobalamin concentrations in dogs treated with oral versus parenteral cobalamin are necessary before recommending oral supplementation.

L. Toresson et al.
NAVC Clin Brf, Jul 2017

Classical music to calm the pet and client

In this study, dog owners who were exposed to classical music while in an examination room were more satisfied with the time spent waiting than dog owners who were not exposed to music while in an examination room. On the basis of subjective ratings by the owners, dogs were less anxious in the examination room than in the waiting room. Thus, placing a pet and its owner ***directly into an examination room*** instead of a waiting room immediately after check-in at the reception desk may help ameliorate pet anxiety during the veterinary visit. Also, playing classical music at a low volume that does not interfere with the physical examination or conversation between the veterinarian and pet owner can be a simple and cost-effective way to improve overall pet owner satisfaction with the veterinary visit and make the clinic or hospital a more pleasant workplace for veterinary staff.

Whitney J. Engler, DVM and Melissa Bain, DVM, MS
JAVMA, Jul 15, 2017

Coughing dog with heart disease

Traditionally, it has been taught that cardiogenic pulmonary edema can cause coughing. Although this is true, this simplification has led clinicians to think immediately of pulmonary edema when a patient coughs and has a heart murmur. This is unfortunate because

a patient that is breathing normally ***almost never has pulmonary edema*** even when that patient is coughing and has a heart murmur. A patient who has cardiogenic pulmonary edema and is coughing is almost always also dyspneic; the cough might stand out to the client, but an attentive veterinarian quickly notices a visibly increased respiratory effort. Failing to assess respiratory effort risks treating a patient for pulmonary edema that is not there initiation of diuretic and other therapies when they are not justified.

Etienne Côté, DVM, DACVIM
West Vet Conf, 2017

Atopy

Despite our focus on the skin, another area that must be seriously considered is the gastrointestinal system. A significant percentage and up to half of the canine atopic dermatitis (CAD) cases from food have gastrointestinal disorders, although they are often mild and not severe enough for the owners to even note them as abnormal. Vomiting and diarrhea are seen in less than 15% of the cases. The most common sign is an ***increased number of bowel movements***. Based on unpublished surveys, three a day is suspect but still can be normal, whereas four or more per day should be considered abnormal. Clinicians and owners often only grade pruritus and skin disease and as a result may miss the improvement from an effective diet trial. Also since G1 signs typically improve faster (2-4 weeks) than skin lesions; observing these other signs allows one to assess the effectiveness of the diet sooner than in dogs with just skin disease as those signs may take longer (4-8 weeks) to improve.

Craig Griffin, DVM, DACVD
CVC San Diego, 12:15

Monitoring thyroid function in treated cat

Levels of T4 should be monitored periodically in cats receiving methimazole. More frequent monitoring (every few weeks to a few months) is best when starting treatment or after a dose adjustment. After the T4 and clinical signs have stabilized, T4 should be checked about every 6 months. The interval between a dose of the drug and blood collection for T4 measurement is not critical. By 48 hours after stopping methimazole, T4 levels will have increased significantly in affected cats. The author's recommend range for T4 in cats receiving methimazole is 15-32 nmol/L (1.2-2.5 µg/dl) which is in the low to mid portion of the normal reference range. A concern in any hyperthyroid cat receiving treatment is the unmasking of renal disease, and it is clear that care should be given to not render the cat hypothyroid. Consequently, this author finds more often that TSH measurements are useful for monitoring treated cats. The thought is that TSH will provide a more integrated evaluation of function of the thyroid axis than a single T4 will. In other words, finding a low normal T4 in a treated cat in conjunction with an elevated TSH would be a clear indicator that the dose of methimazole should be reduced. It is still recommended to reduce methimazole doses if the T4 is low and the TSH is normal (i.e., a low TSH value). The reason is that we would rather error towards underdosing than overdosing.

Robert Kemppainen, DVM, PhD
N Amer Vet Conf, 2017

Benefits of pimobendan in dogs

Pimobendan has been shown to prolong life expectancy in dogs with congestive heart failure (CHF) due to valve disease, if combined with furosemide (and an ACE-inhibitor). Because it reduces left atrial pressure, it should be used as an emergency drug in acute CHF cases (along with oxygen and furosemide). Research has now been completed showing that pimobendan prolongs the preclinical stage of valve disease. Pimobendan acts as positive inotrope (calcium sensitizer) and a vasodilator (PDE III inhibitor). It therefore increases cardiac output without increasing cardiac work. Pimobendan has been shown to ***profoundly prolong life expectancy in dogs with CHF due to dilated cardiomyopathy*** (DCM). It has also been shown to prolong life expectancy if given to dogs with DCM prior to the development of CHF.

Sophy A. Jesty, DVM, DACVIM
AAHA Conf, 2017

Feeding once acute pancreatitis resolved

Once the acute pancreatitis (AP) has been resolved, one has to think about preventing recurrences. The dog's breed, history, serum triglyceride concentrations, and any other risk factors are important to consider. A mixed-breed dog experiencing his/her first episode of AP due to dietary indiscretion could probably resume a regular non-fat-restricted diet after resolution of clinical signs. In contrast, a hypertriglyceridemic English Cocker Spaniel suffering multiple episodes of AP over the course of several years should be ***fed a fat-restricted diet for the rest of his/her life***.

Stanley L. Marks, BVSc, PhD, DACVIM, DACVN
NAVC Supp, Jul 2017

Feeding neonatal kittens

When using a feeding tube of any sort, caloric requirements should be calculated for the neonate. When neonates are 1-3 days old, they usually require 15 kcal ME/100 g body weight. When they are older than 6 days, neonates require 20-25 kcal ME/100 g body weight. As a ***more general rule***, the first week of life, a neonate should be fed 10% to 15% of its body weight as milk replacer. This percentage increases to 20% to 25% from day 7 to 28. It is imperative to perform serial weights in the neonate to ensure that they are gaining weight daily.

Elizabeth Thomovsky, DVM, MS, DACVECC
N Amer Vet Conf, 01:15

How to palpate the feline thyroid gland

If the thyroid is palpable, it is not normal. Place the cat in standing position. Stand behind the cat. To palpate

the right lobe (1) Hold the head with your left hand so the chin is elevated 45 degrees and turned 45 degrees to the left. (2) Place your right index finger in the groove on the right side of the trachea at the level of the larynx. (3) Run your finger down the groove to the thoracic inlet. (4) If you do not feel anything abnormal, repeat, going from cranial to caudal. Switch hands and palpate the left side in a similar fashion. Repeat both sides. When your finger goes on top of the thyroid lobe, you will not feel it. However, when it goes off the caudal pole, you will feel a "pop" or slip as the thyroid lobe move quickly toward the larynx.

Jennifer Olson Lavallee, DVM and Gary D. Norsworthy, DVM,
West Vet Conf, 02:15

Nutritional management of seizures

Ketogenic diets have been used in humans—especially children—to help reduce the incidence and severity of epileptic seizures when drug therapy alone is inadequate. A traditional ketogenic diet is a high-fat, low-carbohydrate, low-protein diet that is designed to force the body to burn fat instead of carbohydrates. When fat replaces carbohydrate as an energy source, the liver converts the fat into fatty acids and ketone bodies, which may act as an alternative energy source. The resultant state of ketosis has been proven to help reduce seizures in children. However, the traditional ketogenic diet used in the management of human epilepsy has yet to be shown to significantly improve seizure control in dogs. Recently, a dietary approach that involves feeding a diet containing medium chain triglyceride (MCT) oil has shown promise in the nutritional management of dogs with epilepsy. In a recent study, a randomized, double-blinded, placebo-controlled, crossover study the author compared a diet with MCT oil to a standardized placebo diet in chronically antiepileptic drugs-treated dogs with idiopathic epilepsy. Dogs were fed either the diet with MCT oil or a placebo diet for three months, then switched to the opposite diet for an additional three months. For the 21 dogs completing the study, the following results were obtained when dogs were fed the diet with MCT oil as an adjunct to veterinary therapy: 71% of dogs showed a reduction in seizure frequency; 48% of dogs showed a ≥50% reduction in seizure frequency; 14% of dogs achieved complete seizure freedom.

Holger Volk, DVM, PGCAP, PhD, DECVN, FHEA, MRCVS
NAVC Clin Brf Supp, Mar 2017

Are grains good or bad in pet food?

Whole grains, rather than being fillers, contribute valuable nutrients including protein, vitamins, minerals, essential fatty acids, and fiber to foods while helping to keep the fat and calories lower than if animal products were used in their place. Even refined grains such as white rice can have beneficial health implications depending on the type of food and the pet. Dogs and cats can ***efficiently digest and use nutrients from grains***. Allergies to grains (and even to animal proteins such as chicken, beef, and dairy) are actually very uncommon in dogs and cats. It is becoming more common in the saturated pet food market for manufacturers to perpetuate myths to sell products and increase market share. Grain-free foods are often an example of this strategy. Many such products merely substitute highly refined starches such as those from potatoes or tapioca in place of grains. These ingredients often provide fewer nutrients and less fiber than whole grains while costing more.

Lisa M. Freeman, DVM, PhD, DACVN
N Amer Vet Conf, 01:15

Chronic diarrhea

This author prefers to use trial therapy as part of the clinical evaluation. Trial therapy involves antiparasitic therapy, dietary food trials, and antibiotic therapy. If these trial therapies fail to resolve the diarrhea, further GI evaluation is indicated. Parasites must always be considered in any dog experiencing chronic GI signs. Often it is difficult to find Giardia cysts on flotation, and hence more accurate ways to diagnose Giardia are by fecal ELISA or IFA staining of spores, both of which are highly sensitive and specific. It is important to know that Giardia can display antimicrobial sensitivity patterns similar to bacteria and therefore it is impossible to predict which anti-Giardia drug will be most effective in an individual dog or cat. The treatment of choice for years has been metronidazole. Currently, metronidazole at a dose of 25 mg/kg, PO, BID, for 7 days is preferred; however, there are many different doses and durations of therapy reported. Other suggested Giardia therapies include fenbendazole or febantel for 5 days. ***High-fiber diets may help lessen re-infection*** when given during the therapy. With treatment failure, one should make sure that *Giardia* is truly the problem and also that subsequent re-contamination is not occurring. Infection with Giardia does not confer immunity. In resistant cases, combined fenbendazole and metronidazole therapy has been suggested. In difficult cases, bathing the animal before therapy and decontaminating the environment using quaternary ammonium compounds is also recommended.

David c. Twedt, DVM, DACVIM
125th SD VMA Conf, 08:16

Exocrine pancreatic insufficiency

Very importantly, the need for support of the dog's owners cannot be overemphasized. EPI is a chronic disease that requires life-long medical and dietary management, and may be associated with ups and downs. The situation can be very challenging and frustrating at times. Owner compliance is obviously a key to prolonged survival. Support groups such as http://www.epi4dogs.com are available and their central role in providing help to owners of dogs with EPI has been recently highlighted.

Frederick P. Gaschen, Dr.med.vet, Dr.habil, DACVIM, DECVIM
N Amer Vet Conf, 2017