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Volume 37 Number 10 January 2019

AT A GLANCE

Using Meloxicam in DJD cats

As opposed to dogs, most cats with DJD do not show lameness because the disease tends to impact the same joints bilaterally. Unless secondary to an injury, owners often don't recognize signs as cats are not limping because DJD is impacting both legs. Use only the 0.5 mg/ml injectable meloxicam and discard the enclosed syringe, replacing it with a 1-ml syringe for accurate dosing to reduce the potential for kidney and liver problems. The author advises giving 0.1 mg/kg the first day, then reducing the dose to 0.05 mg/kg every day or less frequently. This author gives the first dose in the practice, then teaches the owner how to give the lower dose at home. Mark a tuberculin or insulin syringe with a permanent marker so the owner can see where they're supposed to draw the drug up to. The author often tapers the dose and frequency of meloxicam, and has found that many cats are comfortable with low-dose NSAIDs given every other or every third day.

Ilona Rodan, DVM, DABVP
DVM News Magazine, Nov 2018

When to use levetiracetam

It used to be said that levetiracetam would work well for three to six months, and then its efficacy would decline. However, this author says the evidence has not proven this concern true. Some dogs will have a decreased response to the current dosing, but it's probably because of disease progression. If you provide them with a dose escalation, levetiracetam will often work well. This author does not usually use levetiracetam as a first-line agent, but there are certain dogs for which an exception is made. For example, it is used in dogs that have other neurologic deficits, often because they have postictal changes. Also it is used in a geriatric dog that has a seizure and when there's a possibility of a brain tumor. If the author has any suspicion that a dog is not an idiopathic epileptic but it could be, levetiracetam is great.

Fred Wininger, VMD, MS, DACVIM
Vetted, 06:18

Diabetes, feline, diet

The diet formulation is critical in that most dry cat food formulations contain excessive carbohydrates; therefore***, canned cat foods*** and preferably high-protein formulations should be used ***for initial treatment of diabetic cats***. Because weight reduction also decreases insulin resistance, cats should be fed no more than 30 kcal/lb of ideal body weight in two equal meals per day. Initially, caution should be used when changing from dry to canned foods, as insulin requirements may decrease dramatically, and a reduction in insulin dosage may be required. Feeding canned high-fiber or high-protein, low-carbohydrate diets can improve glycemic control. However, cats fed high-protein, low- carbohydrate diets are more likely to no longer require exogenous insulin injections.

Deborah S. Greco, DVM, PhD, DACVIM
Emerald Coast Vet Conf, 07:17

Antibodies towards insulin

There is concern that animals receiving human insulin will develop antibodies resulting in decreased insulin activity and/or effectiveness. Dogs receiving any insulin product that is not derived from pork may make antibodies. However, studies have shown ***those antibodies do not interfere*** with the glucose control. In fact, dogs that made antibodies against insulin had a longer duration of insulin action, which actually enhanced the effect of the

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insulin rather than decreased its efficacy. A recent study in cats showed that 13% developed anti-insulin antibodies; none of the cats showed signs of insulin resistance.

David Bruyette, DVM, DACVIM
New Eng Vet Conf, 09:17

Using apomorphine as an emetic

Although it sounds like an opioid, apomorphine is actually a dopamine agonist, which stimulates dopamine receptors in the CRTZ. Apomorphine is very effective; however, it is most effective (and quicker) if given intravenously. The IV form must be compounded. Alternatively, the author's current institution has a protocol for dissolving powder from a capsule in sterile water and administering the solution safely IV via a 0.22-micron sterilizing syringe filter (protocol available upon request). The author recommends a dose of 0.04 mg/kg, IV which can be safely repeated two more times as long as the animal does not become significantly sedated. The dose for conjunctival administration is 0.25 mg/kg. The powder can be placed directly into the conjunctiva or dissolved in saline first. Once emesis is achieved, the remaining powder may be rinsed away because it is irritating and can perpetuate vomiting or nausea.

Marc Seitz, DVM, DABVP
Music City Vet Conf, 02:17

Subclinical bacteriuria

In many instances, subclinical bacteriuria can and should ***remain untreated*** because infected animals do not show clinical signs, and repeated antimicrobial treatment to eliminate such infections can result in establishment of multidrug resistance. Further, colonization of the urinary tract by nonpathogenic bacteria may act as a barrier to infection by more virulent microorganisms. However, treatment is indicated in patients with evidence of upper urinary tract involvement, which could lead to renal damage with reduced renal function, and in patients with urease-producing infections that could lead to struvite urolithiasis if left untreated.

David E. Senior, BVSc, DACVIM, DECVIM
WSAVA Clinician's Brief, Nov 2018

Atopica use in the cat

Atopica (CsA) is approved for cats in a suspension of 100 mg/ml. Personal note from the author: Some cats drool excessively when given this formulation and may drool out most of the medication! CsA can be made into a flavored suspension by some compounding pharmacies. One colleague reports success using the injectable form, Sandimmune, as an alternative for cats difficult to medicate orally (2.5-5 mg/kg, SQ daily, decreasing the frequency when controlled achieved). Transdermal absorption is erratic and not recommended.

N Amer Vet Conf, 02:17
Trish Ashley DeVore, DVM, DACVD

Writing prescriptions

Issue: Pharmacies may require a Drug Enforcement Administration (DEA) number for non-controlled substances. Mitigation Tip: The DEA discourages practitioners from providing their registration numbers for non-controlled prescriptions. There is no legal requirement for this number if the prescription is for a non-controlled drug. Issue: Pharmacies require a National Provider Identifier (NPI) number. Mitigation Tip: NPI numbers are issued to human physicians for the purpose of Medicare billing. Veterinarians are not qualified to obtain NPI numbers. Pharmacists are not permitted to alter a prescription without prescriber authorization. If a pharmacist alters a prescription, veterinarians are instructed by the (in this case) California Board of Pharmacy to report the pharmacist on the Board of Pharmacy website. The following information deals with California, but could well be true in your state also. Check with your Board. Veterinarians who interact directly with pharmacies either by calling in a prescription on their clients' behalf or by signing authorization forms faxed to them from a pharmacy, ***could be held liable*** if an animal is harmed by an error on the part of the pharmacist. Veterinarians should consider writing out a prescription on their own prescription pad and handing the prescription to the client. The client carries the responsibility of having the prescription filled at a pharmacy of choice.

Grant Miller, DVM
Cal Vet, Nov-Dec 2018

Chronic management of CHF in the cat

The cornerstones of chronic congestive heart failure (CHF) management regardless of the underlying etiology are furosemide (starting dose of 1-2 mg/kg, PO, q12h), clopidogrel (18.75 mg, PO, q24h), and an ACE-inhibitor (enalapril, benazepril; up-titrated to 0.5 mg/kg, PO, q12h). The goals of this combination of medications include preventing pulmonary edema or pleural effusion (furosemide & ACE-inhibitors) thereby improve quality of life, attempting to delay adverse cardiac remodeling influenced by the renin-angiotensin-aldosterone system (ACE-inhibitors), and preventing the often devastating and terminal thromboembolic events (clopidogrel). The routine use of pimobendan in cats with CHF is considered controversial. The decision to use pimobendan is often made on a case-by-case basis and should be aided by echocardiographic findings. Cat owners can often be overwhelmed with the number of medications required to attempt to abate symptoms of cardiac disease (and who can blame them!). The author frequently ***prioritizes medications*** for the owner as listed in descending order (most important to least important): furosemide, clopidogrel, ACE-inhibitor.

Lance C. Visser, DVM, MS, DAXCVIM
24th Int Vet Emergency Critical care Conf, Sep 2018

Diskospondylitis, treatment

Ideally antimicrobial therapy should be based on the culture and sensitivity results, but if these tests are not available, or are negative, then ***empirical treatment*** for the most commonly isolated organism, beta-lactamase producing *Staphylococcus* spp., should be initiated.

Antibiotic therapy with first generation cephalosporin (cephalexin 22 mg/kg, TID) tends to be the antibiotic of choice. Treatment should be at least 6-8 weeks, but may be up to 6 months. Dogs with intense hyperesthesia may require hospitalization, intravenous antibiotics, and analgesia. Dogs should go home on oral antibiotics and NSAID's with strict confinement for the initial 4-6 weeks.

Roger Pettigrew, DVM, DACVIM
So Cal VMA Pulse,, Dec 2018

When to try a furosemide trial

A furosemide trial might be just what you, the doctor, ordered in the following cases. 1) Fragile patients—if you suspect cardiac disease but can't get a cat to the radiograph table without it decompensating, then it's time to try furosemide and an oxygen cage. 2) Inconclusive radiographs (try again after furosemide therapy). 3) While waiting on a radiography consultation 4) Client financial constraints—however, if you go this route, your client needs to know that furosemide dries out respiratory secretions, and it may improve a cough that needs different treatment, so they may be back in a couple of days to get radiographs anyway.

Nicole Culwell, DVM, MS, DACVCVIM
DVM News Mag Supp, Sep 2018

Sharps disposal for your client

It sounds like a simple question I get from a client: "What do I do with the needles I use for my diabetic kitty after I use them?" In large part, it depends on which state you live in, but in some cases the county within the state makes the rules. You, as a veterinarian, know that the rules for disposal for you are quite different from those for clients and their pets. In general, the best recommendation is to use an FDA- approved sharps disposal container. They come in various sizes, including a small travel size. If an FDA-cleared container is not available, you can tell clients to place used sharps in a strong, opaque plastic container, like a laundry detergent or bleach bottle. The container should be leak-resistant, remain upright during use and have a tight-fitting, puncture-resistant lid. When the container is about three-fourths full, clients should seal it with duct tape, and mark it with big, waterproof letters: DO NOT RECYCLE. Some states say put the plastic container in the household trash—don't recycle! Sharps should never be thrown loosely into the trash or toilet. For guidance specific to your state, go to safeneedledisposal.org.

Elizabeth Colleran, DVM, DABVP
Vetted, Nov 2018

Diet-associated DCM

Golden Retrievers have been reported, as a breed, to be susceptible to development of taurine deficiency-associated dilated cardiomyopathy (DCM), leading some to suggest a breed-wide genetic propensity for diet-associated DCM. One of the authors of this paper recently concluded a study evaluating 24 Golden Retrievers with echo-cardiographically confirmed DCM and low plasma or whole blood taurine concentrations that were followed up for 12-24 months after a diet change and the addition of supplemental taurine to their diet. Although the results are still preliminary, all but one dog for which follow-up data were available had ***substantial echocardiographic improvement***. In addition, in all 9 dogs that initially had CHF, the heart failure resolved, and diuretic administration was substantially reduced or safely discontinued. All 24 of these Golden Retrievers were eating boutique, exotic-ingredient and grain-free diets at the time DCM was diagnosed.

Lisa M. Freeman, DVM, PhD et al.
JAVMA, Dec 1, 2018

Stress-induced colitis

Stress-induced colitis is a common observation when animals are hospitalized or boarded at a veterinary clinic. The hypotheses behind stress induced colitis are: bacteria overgrowth and inflammation due to GI stasis, partial immunosuppression in response to the fight or flight response (increased cortisol and catecholamine levels) and excess water within the GI lumen. The best evidence we have for bacteria overgrowth is that most dogs and cats with stress induced colitis quickly improve with oral metronidazole (10-15 mg/kg BID). For stress induced colitis, animals usually overcome the imbalance on their own but if not, some patients may improve with TLC or anxiolytic drugs (e.g. trazodone, alprazolam, acepromazine, gabapentin, etc.) as we target the stress itself. Anxiolytic drugs can be use preemptively to minimize the stress of visiting the veterinary hospital. Another aid is the ***use of probiotics***, which are designed to help manage the "bad" bacteria overgrowth.

Pedro Boscan DVM, MSc, PhD, DACVAA
78th CO Vet Conf, 04:17

Treating DKA subcutaneously

To the author's knowledge, subcutaneous administration of rapid-acting insulin analogs for the treatment of DKA in dogs and cats has not yet been investigated. This treatment may provide an alternative to CRI and IM regular insulin protocols in cats and dogs, and may have advantages when compared to traditional protocols. Results obtained in the author's research laboratory in healthy cats combined with the clinical data obtained in people suggests that a subcutaneous insulin aspart (NovoLog) protocol could be an effective treatment for cats with DKA. This type of intermittent treatment protocol could be a better option for intermediate care wards or veterinary facilities that do not have an intensive care unit or access to numerous intravenous fluid pumps. The ability to use rapid-acting analogs to treat dogs and cats with DKA may be of greater importance in the future if regular insulin becomes unavailable due to decreasing demand for the management of human diabetics.

Jon M. Fletcher, DVM, DACVIM
103rd Wisconsin VMA Conf, Oct 2018

IV vs. SQ fluids

Clinicians who administer subcutaneous fluids should be mindful that in the volume depleted patient who is peripherally vasoconstricted, this fluid will not be made available to the body and will not result in effective rehydration, and least of all any volume expansion. Most of the time, this pouch of fluids will stay in the SQ space or redistribute ventrally. It is the author's preference whenever possible to keep a patient for 1-2 hours of fluid therapy administered IV rather than administer SQ fluids. Since 80% of IV fluids redistribute to the interstitial space in an hour, this is still the ***most effective way to rehydrate***. Some recent literature lends credibility to giving oral electrolyte solutions to dogs with mild to moderate hydration deficits without active vomiting. The author hasn't had much experience with this, but the theory that electrolyte solutions containing both Na+ and glucose are beneficial stands ground, as the GI absorption mechanism that remains intact in patients with diarrhea is the coupled Na+/glucose small intestinal pump. This is not an effective fluid replacement plan in patients in shock, where the GI tract is already underperfused, but may be better or at least equivalent to the subcutaneous route.

Medora Pashmakova, DVM, DACVECC
23rd Int Vet Emergency and Critical Care Symp, 09:17

Animal abuse website

The National Resource Center on the Link between Animal Abuse and Human Violence, or the National Link Coalition, has published a new national directory of agencies that investigate animal abuse. The directory represents more than 6,500 counties, cities and towns across the United States and identifies which agency follows up on reports of suspected animal cruelty, abuse and neglect, according to a release from the coalition. The directory was created in response to laws in 36 states, as well as policies from the AVMA and AAHA, that either require or permit veterinarians to report suspected animal cruelty. The coalition, which focuses on the link between animal abuse and human violence, has the goal of making communities safer by recognizing that animal abuse is often the first link in the chain of family and community violence and may point to co-occurring or future violence. The directory can be found at nationallinkcoalition.org/how-do-i-report-suspected-abuse.

DVM News Mag, 03:18

Silver-coated urinary catheters

Various strategies have been used in human medicine to reduce the incidence of catheter-associated urinary tract infection (CAUTI), including addition of antibacterial coatings to catheter surfaces, such as silver which has antibacterial properties. The authors are unaware of any reported studies in which silver-coated urinary catheters have been evaluated in dogs. The purpose of the study reported here was to determine the effects of a silver-coated versus non-silver-coated silicone urinary catheter on the incidence of catheter-associated bacteriuria (CAB) and CAUTI in dogs requiring urinary bladder catheterization for >24 hours. The results of this study revealed that silver-coated urinary catheters ***provided no clinical benefit*** over standard urinary catheters for the dogs of this study and were associated with earlier development of CAB but not CAUTI.

Adam T. Ogilvie, DVM, DVSc et al.
JAVMA, Nov 15, 2018

Sedation/anesthesia for fractious dogs

Combining different drug classes allows for a dose reduction in all agents, thereby potentially limiting negative adverse effects. Combination 1. Butorphanol at 0.4 mg/kg, IM; Dexmedetomidine at 5 µg/kg, IM; Tiletamine/zolazepam at 3 mg/kg, IM. This combination gives a high level of sedation with mild analgesia. Combination 2. Hydromorphone at 0.1 µg, IM (any opioid can be substituted for hydromorphone based on availability); Dexmedetomidine at 5 µg/kg, IM; Ketamine at 2 mg/kg, IM. This combination gives a higher degree of analgesia with good sedation. Combination 3. Butorphanol at 0.4 mg/kg, IM; Alfaxalone at 2 mg/kg, IM; Midazolam at 0.5 mg/kg, IM. Dissociative anesthetics or alpha-2 agonists are not recommended in patients with questionable cardiac disease or significant comorbidities.

Katherine Bennett, DVM and Christine Egger, DVM, MVSc
WSAVA Clinician's Brief, November 2018

CPR, vasopressors

Both epinephrine and vasopressin are a reasonable choice for all types of cardiac arrest. At the correct dosage, epinephrine acts on both alpha (vasoconstrictor) and beta receptors (inotropic and chronotropic) causing increased intracellular calcium and vascular constriction. An appropriate epinephrine dose regimen is 0.01 mg/kg, IV, every 3-5 minutes. While a higher dose (0.1 mg/kg) of epinephrine initially increases return of spontaneous circulation, this does not improve hospital discharge rate (survival) and is no longer recommended for CPR. Vasopressin is a non-catecholamine vasopressor that acts on peripheral vessels (V1 receptors), decreasing hyperpolarization and increasing intracellular calcium. In comparison to epinephrine, vasopressin has a longer half-life and seems to be a more efficacious vasopressor in a hypoxic, acidotic environment. An appropriate vasopressin dose regimen is 0.8 IU/kg, IV, every 5 minutes.

Andre Shih, DVM, DACVA, DACVECC
Wisconsin VMA Conf, Oct 2018

Health risks for Giardia in cats

It appears that there are specific genotypes of *Giardia* that commonly infect dogs (*G. canis*; Assemblages C and D) and cats *(G. felis*; Assemblage F) but not people. Accordingly, healthy pets are ***not considered significant human health*** risks for HIV infected people by the Centers for Disease Control. Genotyping of feline *Giardia* cases is routinely available in the USA (www.dlab.colostate.edu) if the owner would like to know if the cat is carrying a zoonotic genotype.

Michael R. Lappin, DVM, PhD, DACVIM
Virginia Vet Conf, 02:16

Gastric hypomotility syndrome

Veterinarians should maintain an index of suspicion for this syndrome in dogs with intermittent vomiting and other signs of upper GI disease. Too often this particular disorder is overlooked and therefore the correct therapy may not be instituted as a result of misdiagnosis. The clinical presentation may include a variety of symptoms, the most common of which is vomiting that may be intermittent or more persistent. Dietary management involves feeding divided meals 2 to 4 times a day (less volume per meal) and feeding a restricted fat food (the higher the fat content, the longer it takes the stomach to empty). Pharmacotherapy for gastric hypomotility involves administration of drugs with a gastric prokinetic effect. Currently, the most commonly used drugs in small animal medicine are metoclopramide and cisapride. While cisapride is a superior prokinetic drug, metoclopramide is an effective drug for many patients and is often the first drug selected, with cisapride used as a second choice if metoclopramide is not effective. Other drugs that are sometimes used for prokinesis are low dose erythromycin and the H2-receptor blocker ranitidine (Zantac).

Todd R. Tams, DVM, DACVIM
88th Florida VMA Conf, 04:17

Treating sebaceous adenitis

Mild cases: * Oral omega-3 fatty acid supplementation daily; typically, 180 mg of combined eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) per 5 kg of body weight. * Topical therapy; keratolytic shampoos and emollient rinses; humectants every 2-4 days (Douxo Seborrhea shampoo and spray and Dechra DermAllay shampoo and spray have been used with success). Severe cases: * Oral omega-3 fatty acid supplementation daily—typically, 180 mg of combined EPA and DHA per 5 kg of body weight. * Propylene glycol (50%-70%) spray or water-based moisturizing spray daily (this author typically recommends a 50-50 mixture of water and propylene glycol). * Baby or mineral oil soaks (2-3 hours) followed by bathing to remove excess oil; repeat soaking weekly until condition has improved and then every 2-4 weeks for maintenance.

Judy Seltzer, BVetMed, MRCVS, DACVD
Vetted, Nov 2018

The CO2 cannister

The CO2 chemical adsorbent removes CO2 from the rebreathing system preventing inhalation of this gas by the patient. Before using the rebreathing system, the operator should always confirm that the adsorbent is functional. Some CO2 absorbents have indicators that change color when the absorbent is expended. Most of them, though, return to their original color after their use. The best way to determine if the CO2 absorbent is fresh is to ***crush a couple of granules*** between the fingers. If the granules crumble easily, the CO2 absorbent is fresh, if they are hard it is time to change the CO2 adsorbent. The lifespan of CO2 absorbents varies based on O2 flow rate used, size of the animal, and size and number of canisters (some anesthesia machines have a double canister), but in general it lasts about 6 to 8 hours.

Mike Barletta, DVM, MS, PhD, DACVAA
CVC Kansas City, 08:17

Treatment of IBD

It is estimated that about 30% of the dogs that fail diet and antibiotics will respond to corticosteroids. Generally oral prednisolone, 1-2 mg/kg, q24h, PO is given that is then tapered over an 8-week period. However, the side-effects of glucocorticoids can be marked and this author never tries to exceed a total of 40 mg per day in large breed dogs. Budesonide is a novel glucocorticoid that is reported to have a high first-pass hepatic metabolism and exerts a "local effect" on the intestine with minimal systemic effects. An enteric-coated formulation is used for humans with IBD but a non-enteric coated formulation made by a compounding pharmacy should be used. There is apparent efficacy using budesonide in dogs and cats but the systemic steroid effects are also present and consequently may have no benefit over traditional corticosteroid therapy in most cases. Recommended dose is 1 mg, q24h in cats and toy breeds and up to 2 mg q12h for large breed dogs.

David C. Twedt, DVM, DACVIM
SD VMA Conf, 08:16

Using topical proparacaine for corneal ulcers

This study found that topical ophthalmic application of 0.5% proparacaine HCl (PHCL) did not significantly affect aerobic bacterial culture results for naturally occurring infected corneal ulcers in dogs. Therefore, topical ophthalmic PHCL application could be useful in clinical settings prior to sample collection to relieve patient discomfort and to aid in sample acquisition ***without compromising*** aerobic bacterial culture results.

Katelyn E. Fentiman, DVM et al.
JAVMA, Nov 1, 2018

Preventing surgical site infections

Improper preparation of the surgical site can result in a higher surgical site infection (SSI). Never perform clipping prior to the day of surgery. Ideally, shave the patient only after induction of anesthesia and immediately before surgery. Careful shaving can help lower SSI risk, as microtrauma caused by clippers can give opportunistic bacteria a place to grow. After shaving, vacuum the hair, clean grossly soiled areas, and only then scrub aseptically to prep the patient. A patient's own flora automatically becomes a suspect when a postsurgical infection arises.

Phil Zeltzman, DVM, DACVS
Vet Pract News, 07:18