C/E for the one who doesn't have time for C/E

"Pearls" of Veterinary Medicine

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AT A GLANCE

Is Tramadol effective for pain?

The data from this Morris Animal Foundation-funded study shows conclusively that ***tramadol is not an effective drug in treating the pain associated with arthritis in the dog***, despite its common recommendation. This use of tramadol is a classic example of failing to acknowledge and control for bias when evaluating a potential treatment. Tramadol is a serotonin reuptake inhibitor, which can help with mood, and this could account for what some people see as a positive result when giving it. But it also has a history of causing serotonin syndrome, even at small doses and upon the first administration. The problem lies in thinking of tramadol as an analgesic. We do better to think of it as an emotion-modifying drug—at least in those animals that produce the right metabolite. Dogs are extremely variable in their ability to produce that mu-receptor-binding metabolite. Some dogs do, others don't.

Steven Budsberg, DVM, MS, DACVS
DVM News Mag, Jul 2018

Levetiracetam facts,

Fact or fiction? Levetiracetam is an ineffectual solitary agent. Fiction, says this author. Neurologists used to tell people that levetiracetam really didn't work well on its own. However, there's now a lot of evidence suggesting that it does. A study of 19 dogs published in 2017 showed that when levetiracetam was used as a monotherapy, it was as effective as the standard of care as phenobarbital. So, if you reach for levetiracetam as a first-line anticonvulsant, "you're not alone, and it's not a wrong thing to do." **Fact or fiction? Levetiracetam has little hepatic metabolism and the levels are unaffected by phenobarbital.** According to the author, this is also not true. There is some hepatic metabolism of levetiracetam and if you have a dog concurrently on phenobarbital, you may need to bump up the dose of levetiracetam a little bit more. The numbers suggest you'll need to increase the levetiracetam dose by 25% if the dog is on phenobarbital.

Fred Wininger, MD, MS, DACVIM
Vetted, Jun 2018

Preanesthetic anticholinergics, needed?

Historically, routine use of anticholinergic drugs was recommended for most patients requiring general anesthesia. This was due to the effects of older anesthetic agents. Inhalant anesthetic agents, such as ether and cyclopropane, were respiratory tract irritants, resulting in excessive bronchial and salivary secretions. Modern inhalation agents do not have significant irritant effects; therefore ***routine use of anticholinergic drugs is no longer necessary***. Current recommendations are to avoid indiscriminate administration of an anticholinergic drug as a part of the premedication protocol.

Elizabeth A. Martinez, DVM, DACVAA
VMX, 02:18

Do antihistamines effectively control allergic itch?

NO. The recently published guidelines for treatment of canine atopic dermatitis from the International Committee on Allergic Diseases of Animals (ICADA) list antihistamines under "Interventions likely to be of ***little or no benefit to treat acute flares of canine atopic dermatitis*** (AD)." Numerous studies conclude a similar poor response to antihistamines. And yet, antihistamines account for almost 10 percent of all treatments dispensed for pruritus by veterinarians; plus, this does not take into account treatment initiated by owners with over the counter (OTC) antihistamines. While the use of antihistamines may be well-intentioned, not only is the recommendation misleading (because they are largely ineffective), but it also has a potentially significant negative impact on the skin disease, the care of the patient, the owner's perception of the care

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their pet is receiving and the veterinarian-client-patient bond.

Andy Hillier, BVSc, MANZCVS and Dana Liska, DVM, DACVD
WSAVA Clin Brf, 09:17

A novel antimicrobial for wound management

Microemulsified 0.5% Polyhexamethylene Biguanide (PHMB) in petrolatum (Omnicide Gel, steriwebmedical.net) is a novel formulation of an existing antimicrobial compound. Omnicide gel is a stable microemulsion of PHMB in petrolatum and thus maintains its activity, continuously donating active agent to the application site for extended periods of time while maintaining a moist wound environment, preventing tissue desiccation. Omnicide Gel, according to the manufacturer, is guaranteed to remain continuously active for 7 days under a dressing, or when applied topically twice daily without a dressing, even in the presence of exudate. Omnicide Gel appear to be extremely and rapidly effective for incisional infections, without the need for additional antibiotics. Omnicide Gel also appears to be very effective in managing open wounds, cellulitis, and necrosis with wounds healing rapidly. Wound inflammation and healing time appear to significantly decrease compared to conventional management. The lack of mammalian tissue toxicity potentially makes this product an ***ideal antimicrobial for use on all types of wounds***.

Peter Vogel, VMD, DACVS
So Calif VMA Pulse, Jul 2018

Heartworm, cat, use of aspirin

The use of aspirin has been questioned as vascular changes associated with HWI consume platelets, increasing their turnover rate and effectually diminishing the antithrombotic effects of the drug. Conventional doses of aspirin did not prevent angiographically-detected vascular lesions. Dosages of aspirin necessary to produce even limited histological benefit approached the toxic range. However, because therapeutic options are limited; because at conventional doses (40-80 mg, PO, q72h), aspirin is generally harmless, inexpensive, and convenient; and because the quoted studies were based on relatively insensitive estimates of platelet function and pulmonary arterial disease (thereby possibly missing subtle benefits), the author ***continues to advocate aspirin*** for asymptomatic cats with HWI. Aspirin is ***not prescribed*** with concurrent corticosteroid therapy. Since the vast majority of cats are amicrofilaremic, microfilaricidal therapy is unnecessary in this species. Management of other signs of HWD in cats is largely symptomatic.

Clarke Atkins, DVM, DACVIM
Music City Vet Conf, Feb 2018

Allergic otitis

It is reasonably common to have otitis associated with environmental allergy not respond as well to oclacitinib, Cytopoint, or cyclosporine (Atopica) as do the cutaneous manifestations of the disease (i.e. still seeing flares of otitis or continual otitis). Such individuals may have to be maintained on chronic topical steroid therapy to optimize otitis control. The product used most commonly by this author for this purpose is an “in house” formulation of injectable dexamethasone sodium phosphate (4 mg/ml), diluted with saline. This dilution does vary with the degree of inflammation that you are trying to control. The author most commonly uses a 1:1 ratio. However, if inflammation is more severe, this can be increased to 2:1, 3:1 or even full strength dexamethasone. If the patient is prone to secondary Malassezia, a mix of 1% miconazole and dexamethasone is used (4 mg/ml); again, dilutions are 1:1 or 1:2 (for more inflamed ears) or 2:1 if the Malassezia are more problematic. The amount of the solution used per treatment: small dogs— 0.3–0.4 ml; medium sized dogs— 0.5-0.8 ml; large breed dogs—1.0 to 1.2 ml. Frequency of use for any of these solutions (for long term maintenance) is once to twice weekly (no more frequently than twice weekly for long term management).

Rod A.W. Rosychuk DVM, DACVIM
78th CO Vet Conf, 04:17

Diagnosing hypothyroidism in the dog

The high specificity of a combination of low FT4 and high endogenous TSH ***allows a confident diagnosis of hypothyroidism*** in most cases. This approach to diagnosis of hypothyroidism will minimize false positive results. While 7%- 60% of euthyroid sick dogs will have a low T4 concentration, depending on the severity of the disease (the more severe, the more likely to develop a low T4 concentration), fewer will have falsely lowered FT4 levels. Less than 3% of these euthyroid dogs will have both a low FT4 and a high TSH concentration. Several factors like nonthyroidal diseases or medications can lower thyroid hormones (T4, FT4 and T3) concentrations in euthyroid dogs. On the other hand, some dogs with confirmed hypothyroidism may have one or more thyroid function test within reference ranges (TSH and occasionally T4). Therefore, the diagnosis of hypothyroidism in dogs should rely on a clinical diagnosis-including a careful history and physical exam, routine blood test, urinalysis, and exclusion of nonthyroidal illnesses and medications-and thyroid testing. Combining FT4 with TSH will reduce the over diagnosis of hypothyroidism.

Diane Monsein Levitan, VMD, DACVIM
Atl Coast Vet Conf, 10:16

Lyme disease and Lyme nephritis

Lyme disease is ***over diagnosed*** in veterinary medicine. The presence of an antibody titer to *B. burgdorferi* signifies exposure but does not indicate that the organism is causing illness. Asymptomatic animals are often seropositive in endemic areas. The diagnosis of Lyme disease is best made by a combination of clinical signs, seroreactivity, and response to antimicrobial therapy. Treatment with antibiotics is rapidly effective, resolving fever and lameness within 48 hours. Antibiotics effective against borreliosis include tetracyclines and penicillins. Spontaneous recovery from the disease often occurs

without therapy. The routine screenings of pets with the Idexx SNAP test has created the dilemma of whether to further test and/or treat asymptomatic patients. The potential benefit of treatment, prevention of "Lyme nephritis," has not been demonstrated. The suspected renal form of the disease is often fatal and this may play a role in the decision whether to treat asymptomatic patients. There are several vaccines available for use in dogs; their efficacy is uncertain and vaccination is not recommended in nonendemic areas. One justification for vaccination has been that "Lyme nephritis" may be prevented. There is little support for this theory as vaccinated dogs have also developed "Lyme nephritis." It has been suggested that "Lyme nephritis" is an immune-mediated reaction to the presence of Lyme organisms and that vaccination may heighten the immune response in patients with the appropriate genetic susceptibility.

Michael Stone, DVM, DACVIM
MNEVS Conf, 2018

Intra-articular hyaluronic acid for OA

Potential intra-articular therapies include regenerative medicine (platelet rich plasma with or without stem cell treatment), hyaluronic acid (HA), or steroids. HA is a visco-supplementation that restores the physiochemical properties to the joint. From a molecular standpoint it stimulates production of extracellular matrix (ECM) as well as continued production of HA from resident synoviocytes. It will also inhibit inflammatory mediators. It is important to use a product that closely mimics a dog's HA such as Evervisc from Everost (sold through Patterson, pattersonvet.com). Evervisc is about 2 million Daltons in size and is made from a fermentation process rather than rooster combs. Until further research is completed it is not recommended to combine an HA injection with any other drug as this may decrease the molecular weight of the HA or could lessen its efficacy. What has been shown is that approximately ***80% of dogs respond well to HA***, 10% respond fair, and 10% don't respond. The duration of response is about 4-6 months of relief.

David Dycus, DVM, MS, CCRP, DACVS-SA
Music City Vet Conf, Feb 2018

Foam hair curlers as cat mouth gags

Mouth gags are commonly used in anesthetized patients. Unfortunately, opening the mouth of a cat too wide causes decreased blood flow in the maxillary arteries, which are the main blood source for the retinae and brain in the cat. The decreased blood flow secondary to mouth gag use has been implicated in blindness and neurologic deficits. These deficits may resolve, but may be permanent and may result in euthanasia. Advantages of foam hair curlers are they are cheap and don't force the mouth open excessively wide. Their disadvantage is they may not open the mouth wide enough for some procedures in the caudal oral cavity. One can still open the mouth wider - but don't leave it that way too long!

Tamara Grubb, DVM, PhD, DACVAA
Fetch San Diego, 12:07

Fluids for the urethral obstructed cat

Anecdotally, this author has witnessed that clinicians tend to under-resuscitate blocked cats due to their fear of "fluid overload." Concern over fluid overload stems from the fact that the cat's shock organ is the lung and severe UO can cause acute kidney injury/failure. Although possible, fluid overload appears to be uncommon among blocked cats and is typically not fatal. Most cats with *urethral obstruction need and can handle aggressive fluid therapy.* Consider titrated boluses (10-20 ml/kg) of balanced crystalloids for patients with cardiovascular compromise and/or a higher initial rate (40-60ml/hour per cat) for the first 4-6 hours. Be cautious of diagnosing acute renal failure in an under-resuscitated cat, especially in the context of a concentrated urine specific gravity. Once the urine output increases (>0.5ml/kg/hr), fluid therapy may be tailored to the individual patient taking into account diuresis, replacement of dehydration, and ongoing losses from post-obstructive diuresis. It is important to remember that fluid therapy is dynamic and the patient's needs can rapidly change. For example, although rates of 20-30 ml/hour are appropriate for most cats following stabilization, patients that develop post-obstructive diuresis can require rates of 50-100 ml/hour for a short period of time to maintain euvolemia. For this reason, urine output monitoring every 2-4 hours via a closed collection system is recommended, especially in the face of severe metabolic compromise. The author recommends slowly tapering the fluid rate every 2-4 hours while closely monitoring perfusion parameters to prevent iatrogenically perpetuating significant polyuria. Key point; ***Don't under-resuscitate blocked cats in fear of fluid overload***.

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

Helping the geriatric dog

Besides pain management or prescribing other medications as needed, there are many things we can recommend to help pets with mobility issues. A well-fitted and properly supporting harness that remains on the dog most of the day can be incredibly beneficial. These devices also help with owner fatigue from lifting larger dogs. The author's personal favorite is the Help 'Em Up (helpemup.com) harness, which provides an equal distribution of lifting assistance for both male and female dogs. Many other harnesses simply focus on lifting from the abdomen, but this can cause strain on organs and the ilio-psoas muscle, which is often tender.

Mary Gardner, DVM
Vet Pract News, Jul 2018

Dilated cardiomyopathy

DCM that is detected in the subclinical state and is convincingly abnormal should be reversed if possible. All retriever and spaniel dogs, Newfoundlands, shepherds,

collies, and indeed, any non-Doberman, non-Boxer, non-Great Dane dog, should have plasma taurine levels measured to screen for taurine deficiency, regardless of the quality of the dog's diet. Dogs with other features consistent with clinical hypothyroidism, be they cutaneous (bilaterally symmetrical alopecia, rat tail, hyperpigmentation, chronic dermatitis), constitutional (decreased stamina and mental alertness, heat-seeking behavior), or biochemical (e.g., fasting hypercholesterolemia) should have a thyroid profile assessed. Overall, taurine deficiency and clinical hypothyroidism make up a small proportion of DCM cases in dogs, but their reversibility means that identifying these abnormalities is paramount; no amount of palliative treatment with ACE inhibitors, inodilators, or any other medication can be expected to be as effective as addressing a systemic underlying cause of systolic dysfunction. A recent clinical trial demonstrated that on average, Doberman dogs treated with pimobendan (0.3 mg/kg, PO, q12h) had a longer preclinical ("symptom-free") period than did comparable, placebo-treated dogs (718 days vs 441 days, respectively). ACE inhibitors, likewise, have been found to prolong the preclinical period, though such findings have taken place in retrospective trials, which carry inherent bias when attempting to asses treatment effect.

Etienne Côté, DVM, DACVIM
N Amer Vet Conf, 02:17

Chronic bronchial disease in dogs

Vaccination of dogs with chronic bronchial disease (CBD) against *B. bronchiseptica* is indicated for any patient at risk of exposure to populations of dogs. However, it is the author's recommendation that if *B. bronchiseptica vaccination is indicated**, neither** the IN or ORAL vaccine should be used in patients with CBD.* Reason: ALL Intranasal and ORAL *B. bronchiseptica* vaccines contain attenuated (live) bacteria, sometimes in combination with a modified-live parainfluenza virus vaccine (IN). Post-vaccination replication of the vaccine antigen on the respiratory mucosa could infect the respiratory mucosa and actually ***precipitate an acute respiratory event***.

Richard B. Ford, DVM, MS
125th SD VMA Conf, 08:16

The primary indications proBNP in dogs

1) Differentiating cardiac from respiratory disease in coughing dogs. A normal proBNP rules out cardiac disease. A proBNP >1800 pmol/L supports that the clinical signs are due to cardiac disease. 2) Determining onset of congestive heart failure in dogs with valvular heart disease. The rate of progression of valvular heart disease in small breed dogs is variable. A proBNP value of >1500 pmol/L in conjunction with a VHS >12 is predictive of CHF within 3-6 months. These dogs should undergo more frequent monitoring including thoracic radiographs and owner monitoring of resting respiratory rate (normal <30 breaths per minute). 3) Detecting occult dilated cardiomyopathy in Doberman pinschers. A proBNP >735 pmol/L was 92% sensitive and 92% specific for identifying those Dobermans at greatest risk for occult DCM and requiring follow-up diagnostics (Holter/Echo). *The primary indications for proBNP in cats are*: 1) Differentiating cardiac from respiratory disease in symptomatic cats (respiratory signs). A normal BNP rules out cardiac disease. 2) Screening asymptomatic cats with risk factors for heart disease such as murmur, gallop sound, or breed predisposition. A normal BNP rules out heart disease. An increased BNP should be followed by ECG, radiographs, and echocardiogram (the gold standard for evaluation feline cardiac disease). 3) Differentiating cardiac from respiratory disease as the cause of pleural effusion. A BNP >322 pmol/L on pleural fluid supports cardiac disease.

William Saxon, DVM, DACVIM, DACVECC
Music City Vet Conf, 02:18

Shoes for the surgeon

In this profession, shoes matter. This author wears Calzuro shoes (calzuro.com) in the operating room, which were designed with surgeons in mind. These deceptively simple shoes have a small heel to keep the body anatomically correct (which cuts down on fatigue), side ventilation for breath-ability, and massaging bumps to stimulate blood flow. But one of the main reasons the shoes are so attractive is that they can be ***sterilized in an autoclave***. Dansko clogs (dansk.com) are high on the author's list as well, but they can't go in the autoclave.

Jennifer Wardlaw, DVM, MS, DACVS
DVM News Mag, Jul 2018

Acclimation certificates

Acclimation certificates allow airlines to ship dogs and cats when the airline cannot guarantee compliance with animal welfare regulations set forth in the Animal Welfare Act of 1966. This specifically applies to minimum temperature requirements allowed by Title 9, Section 3 of the Code of Federal Regulations which are not commonly guaranteed by airlines. Many veterinarians are hesitant to sign acclimation certificates due to liability concerns. The AVMA recommends the following wording for acclimation certificates to help limit potential liability for the issuing veterinarian: The animal(s) in this shipment appear healthy for transport but need(s) to be maintained at a range of ambient temperatures to which the animal(s) has/have been acclimated, as determined in consultation with the owner/authorized agent to be no lower than _ degrees F for _ minutes and no higher than _ degrees F (not to exceed 85°F) for no longer than __ minutes If the airline refuses a certificate statement due to its inability to guarantee temperatures, veterinarians are not obligated to alter their statement.

Grant Miller, DVM
Cal Vet, Jul-Aug 2018

Using Cerenia pre-operatively

Some practices have now instituted the practice of including an injection of Cerenia administered routinely in the pre-operative period. This author is a strong proponent. Reasons for doing this include: 1) Help prevent post-op vomiting and nausea and decrease chances of aspiration. 2) Adjunctive visceral analgesia. 3) Improved patient comfort in the post-op period. 4) Earlier return to eating, with improved appetite and volume of food consumption. In this setting, Cerenia can be administered anytime in the pre-op period. If morphine or hydromorphone are going to be given as part of the pre-anesthesia sedation and pre-emptive analgesia plan, and the clinician desires to *prevent* vomiting secondary to these emetogenic drugs, Cerenia is administered 45 minutes prior to the emetogenic drugs. The author has seen excellent post anesthesia recovery periods in dogs that have undergone a variety of procedures, including OVH/neuter as well as prolonged anesthesia for dental procedures, major abdominal procedures, etc. This author is also using Cerenia more routinely prior to performing endoscopic procedures. The uniform response is that most patients recover more smoothly, more quietly and are presumably more comfortable overall. Clients of course are very happy when their pet eats earlier than would be otherwise expected. This has represented a gratifying advance in patient care in many ways - - helping our patients be more comfortable is always good.

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

Antibiotic-responsive diarrhea

Metronidazole is frequently used in GI cases but long-term administration and potential side effects that make it less desirable than other options. Further, metronidazole has been shown to cause DNA damage to feline lymphocytes in vitro. A suggested GI dosage for metronidazole in cats and dogs is 7.5 to 10 mg/kg, given orally, twice daily. A commonly used alternative, and the author's first GI antibiotic choice, is tylosin. Tylosin was first reported to be useful for chronic diarrhea in the early 1970s and there has been a recent resurgence in interest and use of the antibiotic. Tylosin is a macrolide, bacteriostatic antibiotic that is currently marketed over the counter for the treatment of respiratory disease in chickens. Tylosin has activity against most gram-positive and gram-negative cocci, gram-positive rods, and *Mycoplasma-,* however, the gram-negative bacteria *Escherichia coli* and *Salmonella* species are intrinsically tylosin- resistant. Tylosin works by transiently changing the GI enteric bacterial population, probably by promoting the growth of beneficial commensal bacteria while suppressing deleterious bacteria or preventing their sporulation. Once tylosin is discontinued, the original bacterial population often returns to its pretreatment state. There is also a suggestion that tylosin may exhibit anti-inflammatory properties. Tylosin appears to have almost no systemic or toxic side effects. The initial ***dose recommendation for tylosin*** in both dogs and cats is 15 mg/kg, orally, twice a day, mixed with the food (has a bitter taste) or given via gelatin capsule. (Note: it comes as a powder and a #3 gelatin capsule holds 130 mg, a #1 capsule holds 240 mg, a #0 capsule holds 345 mg, and #00 capsules hold 430 mg.) For cases that respond, the long-term dose can be reduced to as low as 5 mg/kg/day. Tylosin is effective for most *Clostridium perfringes* and is considered by many to be the treatment of choice for suspected clostridial diarrhea

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

Hypocobalaminemia

Common signs of cobalamin deficiency in dogs and cats include GI signs (e.g., anorexia, weight loss), which often mimic those observed in animals with chronic GI disease; thus, the clinician may not immediately consider cobalamin deficiency as a contributing factor. Patients may have serum cobalamin levels that are low-normal (250-350 ng/L) and still have critically low tissue cobalamin concentrations. In these cases, evaluating ***biomarkers of tissue cobalamin deficiency*** (e.g., methylmalonic acid [MMA], homocysteine) may provide more insight, as these biomarkers often increase with tissue cobalamin deficiency in dogs. Cobalamin therapy should be instituted when serum concentrations fall below 250 ng/L. Additional consideration for supplementation is recommended in patients with a low-normal serum cobalamin (250-350 ng/L) and/or signs of intestinal or pancreatic disease. Hypocobalaminemia secondary to GI disease has anecdotally been thought to require parenteral supplementation of cobalamin until the intestinal or pancreatic disease was appropriately treated because of the inability to absorb cobalamin or produce intrinsic factor, respectively. However, recent research has suggested that oral administration of cobalamin in dogs and cats with chronic enteropathies and dogs with EPI is effective in restoring normal cobalamin concentrations. The prognosis for hypocobalaminemic patients depends largely on the underlying disease process and how the patient responds to treatment of the primary disease. Low cobalamin concentration is associated with shorter survival with some diseases, including EPI and multicentric lymphoma. Lack of recovery for dogs with chronic diarrhea due to inflammatory idiopathic or neoplastic disease may also be more likely when severe hypocobalaminemia (<200 ng/L) is present. The benefit of supplementation in these disease states has not been definitively proven; however, it is recommended to evaluate the patient's serum cobalamin concentration and provide supplementation when hypocobalaminemia is identified. Daily oral cobalamin supplementation or a 6-week course of weekly parenteral supplementation followed by a single injection 30 days later and retesting after 30 days is recommended. Some patients, especially those with EPI or ongoing intestinal disease, may require continued monthly cobalamin supplementation. If resolution of the primary disease cannot be achieved, more frequent cobalamin administration may be required.

Leonard E. Jordan, DVM and M. Katherine Tolbert, DVM, PhD
WSAVMA Clin Brf, Jul 2018