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Plavix use in cats

Cardiogenic arterial thromboembolism (CATE) is a devastating and usually fatal clinical condition in cats. Antithrombotic drugs are commonly employed for primary and secondary prevention of CATE although there have been no prospective clinical trials to support such an approach. The aim of this study was to determine if there was a difference in secondary recurrence of CATE between aspirin and clopidogrel (Plavix) over a 1 year study period. Cats were randomly assigned to receive either aspirin (81 mg, PO, q3d) or clopidogrel (18.75 mg, PO, q24h). Clopidogrel was associated with a significant improvement in survival compared to aspirin for the 1 year and total study period. This is the first prospective thromboprophylactic trial in CATE to demonstrate a significant improvement in survival, thereby providing objective clinical guidance for antithrombotic therapy.

D. Hogan et al
ACVIM For Procd, 06:13

Diagnosing feline tooth resorption

Use your eyes, your explorer (the hooky end of your probe), and your radiographs. Use your eyes to watch for gingiva growing up onto the crown of the tooth. This is often a hint for resorption. Also, look for missing teeth. In a cat, a missing tooth is also a hint for resorption until proven otherwise. The most commonly affected tooth is the mandibular third premolar. If this is missing, think resorption! Use the fine hook of your explorer to feel the crown as it connects with the gingival margin. If your explorer catches or feels gritty, be suspicious for resorption. Also, when you are probing teeth, if a focal area bleeds, be suspicious for resorption. Use your radiographs. You cannot adequately treat resorption without radiographs. Look for areas of lucency at the cementoenamel junction as well as subgingival areas where the bone appears to have invaded the root. Ankylosis, lucencies, irregular root surfaces, and a loss of periodontal ligament space can all be evidence for resorption. Put all of this information together... you can have physical evidence of resorption without radiographic evidence and vice versa!

Donnel Hansen, DVM
122nd SD VMA Conf Procd

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Medications given at home for vet visit

When possible, administration of sedative, analgesic, or anti-anxiety medications at home can reduce the stress of a car ride, and decrease the cat's arousal at the time of arrival at the hospital. The goal is to reduce stress with these medications; do not expect overt sedation. At-Home Premedication Options: Gabapentin (~10-20 mg/kg, PO, 60 min before travel/arrival; typically 100 mg per cat) Example: Sprinkle the powder on wet food and add flavor enhancer (FortiFlora). -or- Buprenorphine (0.03 mg/kg, oral transmucosal, 60-90 min before travel/arrival) -or- Alprazolam (0.125 mg, PO, 60-90 minutes before travel/arrival). Caution: Some cats experience paradoxical anxiety and excitement after alprazolam administration. If alprazolam is chosen, this author strongly urges owners to give a dose of alprazolam several days in advance of the veterinary visit in order to assess their cat's response.

Heidi L. Shafford, DVM, PhD, Dip ACVA
North Amer Vet Conf Procd, 01:13

Cachexia and heart disease

The deleterious effects of cachexia have been emerging and recent studies have emphasized the role of body weight and body composition in heart failure. While obesity is a risk factor for development of heart disease in people, obesity may actually be associated with a protective effect once heart failure is present—this has been referred to as the ***obesity paradox.*** A recent large meta-analysis on body condition in people with heart failure concluded that obesity and overweight were associated with lower all-cause and cardiovascular mortality and that underweight patients consistently had a higher risk of death. Given the adverse effects associated with cachexia, the association between obesity and unproved survival in heart failure appears to be due to a lack of cachexia, rather than to the obesity per se. This is likely due to the increased reserve of lean body mass in overweight and obese people. The obesity paradox also has been demonstrated in dogs and cats with heart failure, and recent

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studies in people and cats suggest a "U-shaped" curve with the worst survival for those with the lowest and highest weights. These data emphasize the importance of avoiding weight (and muscle) loss, as well as severe obesity, in small animals with heart failure.

Daniel L. Chan, DVM, Dip ACVECC
19th Int VECCS Symp Procd, Sep 2013

Glargine use in the cat

Glargine can be safely instituted at 0.5 U/kg, BID and serial blood glucose curves should be obtained daily for 3 days either in hospital or at home. When evaluating the blood glucose curve using glargine, it is often more useful to assess pre-insulin glucose concentration rather than the nadir glucose. This author has found it often takes 3-5 days for a good glucose-lowering effect to be seen in the glucose curves, possibly because of the long duration of action and carry-over effect of glargine. Almost all cats will need to have their initial dose reduced within 2 weeks and many will achieve remission within 4 weeks.

Alice M. Wolf, DVM, Dip ACVIM
121st SD VMA Conf Procd

Feline atopy

In this author's practice, medical management was successful in 78.9% of the cats. Systemic glucocorticoids were most commonly used: methylprednisolone acetate (20 mg/cat; 1 to 4 times/year; effective in 100% of cats treated; follow-ups up to 10 years); dexamethasone (0.2 mg/kg, PO, q24h for induction and 0.05 to 0.1 mg/kg, q2-7d for maintenance; effective in 100% of cats treated; follow-ups up to 7 years); prednisone (2 mg/kg, PO, q24h for induction, ≤0.05 mg/kg, q48h for maintenance; effective in 56.3% of cats treated; follow-ups up to 7 years); prednisolone (2 mg/kg, PO, q24h for induction and ≤0.5 mg/kg, q24h for maintenance; effective in 83.7% of cats treated; follow-ups up to 3 years). Annual physical examinations, hemograms, and biochemistry panels detected no significant adverse reactions.

Danny W. Scott, DVM, Dip ACVD
MI VMA Summ Conf Procd, 2013

Feline dermatophytosis and terbinafine

The generic availability of terbinafine has resulted in increased interest for its role in treating feline dermatophytosis. The drug absorption and eventual deposition in the hair follicles (where the infection is located) is important. Initial studies on terbinafine use in cats reported that 30-40 mg/kg were needed for cure; this dose range is currently recommended. In a recent study, 14 days of terbinafine at 34-46 mg/kg, q24h, PO showed a mean concentration of terbinafine of 2.30 ng/mg in hair and a half-life of 1.84 weeks. Of interest was the prolonged persistence of the drug above MIC (~5.3 weeks). This study suggested that terbinafine may be useful for pulse therapy, similar to the week on/week off protocol used with itraconazole. In this author's practice, terbinafine has been used in cats on a week on/week off basis, proving to be an effective oral antifungal along with concurrent topical antifungal rinses (to eliminate the spores on the hair that survived systemic therapy). Confinement and cleaning were part of the treatment program.

Karen Moriello, DVM, Dip ACVD
NAVC Clin Brf, 11:3

Using glargine economically

If glargine (Lantus) is diluted in any way, or injected into the muscle or vein, the microprecipitates are not formed, and the insulin will have a very similar pharmacokinetic profile to regular insulin. In fact, Lantus has been used IV and IM to treat diabetic ketoacidosis under the same dosing protocol as regular insulin. It has been suggested that glargine could be more cost effective than other options for some owners because the same vial used IM or IV for initial treatment of DKA in the clinic could then be sent with the client for SQ administration at home. Cost can be a factor when considering Lantus. Currently, a 10 mL vial of Lantus 100 U/mL costs approximately $150. There are some options for reducing the cost, including buying the 3 mL SoloSTAR pen or by dividing the 10 mL vial into aliquots for dispensing among multiple patients. Although the manufacturer has a labeled discard date of 28 days after the vial is opened, anecdotal reports indicate that Lantus has remained clinically effectively in veterinary patients for longer periods of time when carefully stored and handled.

Dinah G. Jordan, BSPh, RPh, PharmD, DICVP
Music City Vet Conf Procd, 03:13

Treating feline conjunctivitis

In many cases, presumptive *C. felis* infection can be treated with a course of topical antibiotics. Oxytetracycline, erythromycin, and fluoroquinolone formulations provide excellent coverage against *Chlamydophila spp* when administered TID for 2-3 weeks. It is noteworthy that the antibiotics included in neomycin-polymyxin-bacitracin ophthalmic preparations do NOT provide coverage of *Chlamydophila spp.* Recent study has shown that C. felis is harbored in many non-ocular sites (genitourinary tract, gastrointestinal tract) in cats, which can be particularly significant in multi-cat households. Therefore, topical treatment alone may not be sufficient for clearing infection. Oral treatment with both azithromycin and doxycycline have shown efficacy against *C. felis.* Azithromycin dosing in cats is safe and generally easy for cat owners, particularly in multi-cat households. A subsequent study, however, has demonstrated that even a protracted course of azithromycin might not clear *C. felis* effectively. In suspected cases, this author treats affected cats, and their housemates, with azithromycin at 5 mg/kg, PO, twice weekly for 3 weeks. If signs persist or recur, a 3-week course of doxycycline

(10 mg/kg, PO, SID) is prescribed (with precautions regarding risk of esophageal stricture, of course).

Joshua S. Eaton, VMD, Dip ACVO
78th AAHA Conf Procd

Respiratory monitor

Few simple devices help us detect apnea. One such widget is the Breathe Safe Respiratory Monitor (www.store.vetamac.com). Placed between the endotracheal tube and the anesthesia hose, it contains a small microprocessor that beeps with every breath. If your patient fails to breathe for 30 seconds a distinctive apnea alert will sound. It can be reused on multiple patients, of any size, thanks to a long-life lithium battery.

Phil Zeltzman, DVM, Dip ACVS
Vet Pract News, 25:3

Warming the critically ill

When in doubt, *what happens slowly, treat slowly.* Critically ill patients who present to the ER typically have been ill for days, and are often hypothermic on presentation. Re-warming of the patient aggressively should not be performed alone; typically, concurrent therapy (e.g., IV fluid therapy) is simultaneously warranted. In the shocky, critically ill, hypoperfused patient, the patient is attempting to maximize blood flow to "important" organs such as the heart and lungs; the body's priority is not to perfuse less vital organs during shock (e.g., peripheral vasculature, limbs, rectum, pinnae, etc.). By rapidly re-warming hypoperfused patients without initiating simultaneous fluid resuscitation, surface re-warming can pull vital blood flow from important organs to the surface, potentially worsening blood flow to more important organs.

Justine A. Lee, DVM, Dip ACVECC
18th Int VECCS Conf Procd

Necessity of using tonometry

When presented with any patient affected by ocular disease, veterinarians should perform a minimum ophthalmic database (i.e., menace response, direct and consensual pupillary light reflexes, Schirmer tear test, fluorescein stain, IOP measurement). With rare exception (e.g., descemetocele, corneal rupture), measuring IOP is indicated when evaluating *any* red eye, as well as for all painful, cloudy, and/or blind eyes; eyes with fixed and dilated pupils; patients with anisocoria, cataracts, or uveitis; and breeds predisposed to glaucoma. In the authors' opinion, having no reliable means of measuring IOP represents a ***breach in today's practice standards.*** Vision can be easily and rapidly lost as a result of commonly encountered ophthalmic diseases that may affect IOP (e.g., uveitis, glaucoma, lens luxation, cataracts). The ability to accurately diagnose a vision-threatening condition and institute prompt, appropriate therapy for IOP abnormalities is essential when striving to save a patient's vision and preserve ocular comfort.

Kevin S. Donnelly, DVM and Elizabeth A. Giuliano, DVM, MS
NAVC Clin Brf, Oct 2013

Detecting cruciate disease

Serving as the "tell-tale" of disease in the stifle joint, the patella tendon is normally easily discernible on palpation with distinct borders that you can wrap your fingers around. Effusion and fibrosis associated with cruciate disease obscures the palpable borders of the tendon, providing a ***sensitive method for early detection*** of these conditions. Effusion, periarticular fibrosis, and osteophytosis are well-established physiologic responses to cranial cruciate ligament injury. This information can be harnessed and utilized to enhance your physical examination. Specifically, palpate the borders of the patella tendon for any evidence of effusion or capsular fibrosis. Certain breeds—such as the Rottweiler, Mastiff, Labrador Retriever, and Chow Chow—have a high prevalence of cranial cruciate ligament injury affecting both limbs. These patients are at higher risk, implying that this condition isn't purely traumatic, but combines architectural factors with repeated stress.

Randall B. Fitch, MS, DVM, Dip ACVS
78th AAHA Conf Procd

Cooling the hyperthermic patient

Cooling the patient is really important in treating the patient in respiratory distress if they are hyperthermic. Sedation and IV fluids will decrease temperature a few degrees, but if they are in significant distress active cooling must be undertaken. Active cooling usually involves wetting the patient down with water and using a cooler temperature water than the patient. There have been experimental studies looking at the effectiveness of cooling techniques and ***room temperature water is the most practical*** and equally as effective at decreasing temperature than is cold water or ice. This is explained by the reality that when cold water or ice is applied to the skin, vasoconstriction will occur and thus decrease the ability to exchange heat through the skin. Additionally, shivering may occur which will increase heat production. In an acute upper airway crisis where sedation has not improved clinical signs, anesthesia, intubation and active cooling combined yields the best results.

James W. Barr, DVM, Dip ACVECC
SW Vet Symp Procd, 2013

The immunocompromised and pet diet

The main concern regarding diet is the feeding of diets that are at increased risk for being contaminated with pathogens such as *Salmonella.* The main concern is with feeding of raw meat diets, which have been clearly demonstrated to result in an elevated risk of pets shedding *Salmonella* and multi-drug-resistant *E. coli.* Raw meat or eggs should not be fed to pets of immunocompromised individuals because of the risk of ex-

posure to pathogens from feces (or fecal-contaminated surfaces), food bowls, water bowls, or from the mouth of the animal after eating. Raw animal-product-based pet treats such as rawhides and pig ears have been implicated as causes of outbreaks of *salmonellosis* in people. While improvements in manufacturing of these products have been made, immunocompromised people should avoid any contact with raw animal-product-based treats unless they have been treated to remove pathogens (i.e., irradiated). These treats should ***never be purchased from bulk bins,*** where contamination is more likely to occur. While the risks of *Salmonella* exposure are much lower from commercial dry foods, *Salmonella* contamination can occur and it is prudent for immunocompromised individuals to wash their hands after any contact with pet food. Pets should not be fed in the kitchen.

J. Scott Weese, DVM, DVSc, Dip ACVIM
78th AAHA Conf Procd

Distinguishing pain from dysphoria

Any opioid can result in dysphoria, but the behavior (often vocalizing) can be difficult to distinguish from pain. Attempting to console or distract an animal may aid in distinguishing between dysphoria and pain. A rule of thumb is that dysphoric animals are difficult to calm out of their agitated state, and administration of additional opioids does not help this situation, while animals in pain can usually be temporarily distracted or calmed. In humans, pure mu agonists are also known to induce hyperalgesia in some patients, and this counterintuitive phenomenon may also occur occasionally in a dog or cat.

Mark E. Epstein, DVM, Dip ABVP
Vet Med, Oct 2013

Analgesics in birds

Butorphanol – This is currently the most commonly used opioid in this author's practice, and it is administered at a dose of 1–2 mg/kg, IM every 2–3 hours. This drug is commonly used perioperatively and then discontinued. Listed IM doses range from 0.5 to 6 mg/kg. Oral administration of butorphanol is not recommended in birds because it has very low absorption. The following NSAIDs are used by the author. Meloxicam – This drug is available in an oral and injectable formulation which makes dosing fairly simple. Listed doses range from 0.1-2 mg/kg q12-24h. It is typically administered at 0.5 mg/kg, IM or PO, q12–24h in the author's practice. Carprofen – This drug is not available in a liquid formulation for oral administration and so must be compounded. An injectable formulation is available. Listed doses range from 1-10 mg/kg PO, IM, and SQ. The author rarely uses this drug and finds the solution compounded for oral administration is not well accepted by patients. Carprofen may be useful in larger birds such as waterfowl or raptors that could take the tablet form of the drug.

Marcy J. Souza, DVM, MPH, Dip ABVP
AVMA Convention, 2013

Using local anesthetics

Combining lidocaine and bupivacaine is controversial. In theory, combining them would reduce the time of onset and result in long-duration analgesia. However, research does not support this theory. Combining lidocaine and bupivacaine 1) increases the time for onset of action compared with lidocaine alone, 2) dramatically reduces the duration of action compared to bupivacaine alone, and 3) produces additive toxicity. Mixing an opioid with the local anesthetic has been shown to prolong the duration of analgesia in human patients. Although there is no documentation of similar benefits (yet) in veterinary patients, this author routinely now adds either morphine (0.1 mg/kg) or buprenorphine (3 µg/kg) to the local anesthetic volume using the rationale that it will not harm the patient and may prolong the duration of action of the local agent–a real bonus when the pain is expected to be severe. Mixing local anesthetics with sodium bicarbonate helps to decrease the pain of injecting an acidic solution (lidocaine and/or bupivacaine) in awake patients. Add 1 part sodium bicarbonate to 9 parts local anesthetic (e.g.: 0.1 ml bicarb plus 0.9 ml lidocaine) IMMEDIATELY before injection. Precipitation will occur if the mixture of lidocaine and bicarbonate is not used promptly. This author does not add bicarbonate to local anesthetic solutions for use in anesthetized patients. Never add bicarbonate to solutions that will be administered intra-articularly or epidurally because of precipitation and subsequent chemical irritation/inflammation.

Nancy Brock, DVM, Dip ACVAA
SW Vet Symp Procd, Sep 2013

Mammary tumors and obesity

Dogs that are obese may have poorer survival when surgically treated, but the risk of developing breast cancer in obese versus thin dogs was not clearly different, as happens in women. However, one study suggested that dogs fed low fat diets (<39% of dietary calories derived from fat) had a significantly better prognosis for one-year survival after surgical removal of mammary tumors, particularly if also on a high protein diet, than those dogs fed higher fat diets regardless of protein content.

Nicole Ehrhart, VMD, MS, Dip ACVS
North Amer Vet Conf Procd, 01:13

Error Correction. In the November issue, First page, 2nd column, "Steroids for pruritus," line 9, should read "then every-other-day for 10-20 days."