Informing the profession since 1981

A digest of practical and clinically relevant information from this month's journals and proceedings

THE CAPSULE REPORT® On Animals

Small Animal/Exotic Edition

Our 30th Year

Volume 30, Number 2 **May 2011**

A new emergency vascular access

The EZ-IO (vidacare.com) system provides a new technique for performing intraosseous catheterization. The technique is ideally used for the short term until alternate vascular access is available. EZ-IO is marketed as an emergency intraosseous infusion system for critically ill humans in the pre-hospital setting (e.g., battlefield, ambulance) or for in-hospital emergency resuscitation. It is reported to have excellent efficacy and serves as a bridge from initial stabilization to central line placement in critically ill people. The EZ-IO infusion system includes a handheld, battery-powered drill, and a styleted needle with a cutting tip for rapid intraosseous access. Although these catheters are marketed for single use, they can be sterilized via an autoclave; the authors have reused them up to 4 times without adverse procedural effects. The authors suggest using the greater tubercle of the humerus or the tibial tuberosity for the EZ-IO system. Drug doses for IO administration are the same as IV dosages.

Steven L. Marks, BVSc and Rita Hanel, DVM
NAVC Clin Brf, Nov 2010

INSIDE THIS ISSUE

Urethral obstruction, an alternative approach

Treatment of urethral obstruction in male cats may involve considerable expense, and as a result, some affected cats may be euthanized because of financial restraints of the owners. These authors devised a protocol for managing urethral obstruction in male cats without urethral catheterization. Treatment included acepromazine at 0.25 mg, IM or 2.5 mg, PO, q8h; buprenorphine at 0.075 mg, PO, q8h; medetomidine at 0.1 mg, IM, q24h; and decompressive cystocentesis and SQ fluids as needed. Cats were placed in a quiet, dark environment to minimize stress. Treatment was successful in 11 of 15 cats. This low cost protocol could serve as an alternative to euthanasia.

Edward S. Cooper, VMD, MS, Dip ACVECC et al.
JAVMA, Dec 1, 2010

Music therapy

For those times when everyone in the practice—doctors, techs and patients—are feeling crabby and out of sorts, a non-toxic solution may be at hand. It takes effect almost immediately, and the entire room seems to settle down to a balanced state of calm. What is it? Music therapy for dogs. Called "Through a Dog's Ear" (www.throughadogsear.com) and based on psychoacoustic research, this new compilation of music therapy has dogs not barking, but resting. The science of music therapy is slowly advancing into the veterinary profession. Observers readily find that listeners' breathing normalizes, ambient noise subsides and all of a sudden life seems more livable.

Narda Robinson, DVM
Vet Pract News, 20:4

Cobalamin and GI disease in the cat

Cobalamin (vitamin B_{12}) is traditionally used as an appetite stimulant; studies have shown that a significant percentage of cats with chronic gastrointestinal disease have low serum levels of this substance, including animals with inflammatory bowel disease, intestinal lymphoma, cholangiohepatitis, and pancreatitis. Replenishing a cat's cobalamin level may not only be of direct benefit but may also help improve the effectiveness of other treatments. In some cases, cobalamin supplementation may preclude the use of immunosuppressive therapy in cats with inflammatory bowel disease alone, and it should certainly be considered as a potentially important component of therapy for cats with involvement of multiple organ systems. The reported regimen for cats is a 250 µg subcutaneous injection given once a week for 6 weeks, followed by 1 injection every 2 weeks for 6 weeks, then monthly (indefinitely).

Craig B. Webb, DVM, PhD, Dip ACVIM
NAVC Clin Brf, 5:11

Diabetic remission with glargine

The results of this study support the hypothesis that when administered to newly diagnosed diabetic cats, glargine insulin (vs. PZI and Lente) results in a higher rate of short-term diabetic remission than do other insulin types. This study also demonstrated a higher rate of remission with glargine insulin than previously reported. Glargine insulin was administered in this study twice daily

The Capsule Report® is published monthly for active people interested in current topics and trends in veterinary medicine.

which may explain this increased remission success but also allowed the authors to conclude that a dosage of 0.25-0.5 IU/kg, twice a day is safe and efficient at attaining glycemic control.

R.D. Marshall et al.
Vet Med, 105:9

Pregnancy test kit for cats

Results of this study indicate that a commercially available point-of-care relaxin test kit designed for use in dogs (Synbiotics) can be used to reliably detect pregnancy in cats on or after day 29 of gestation. The test provides a feasible method to confirm a clinical impression of pregnancy or may allow clinicians to diagnose pregnancy when other methods are unavailable or impractical. In particular, if breeding dates are known, the predictive value and convenience of the relaxin test make it an excellent option for diagnosis of pregnancy in cats. However, in cases where breeding dates are unknown or where multiple dates are possible, interpretation of negative test results becomes more complex and the clinician must interpret the test results accordingly in the context of the patient's history.

Brian A. DiGangi, DVM et al.
JAVMA, Dec 1, 2010

Pemphigus foliaceus and azathioprine

Azathioprine is the medication most commonly used to manage canine pemphigus foliaceus when lesions do not respond to glucocorticoid monotherapy. In these cases, lesions worsen or stay the same with glucocorticoids or signs relapse with lower dosages of glucocorticoids. Adding azathioprine in a dog with pemphigus foliaceus can then reduce the need for systemic glucocorticoids and potentially enable discontinuation of the glucocorticoid. Azathioprine is commonly started at 2-2.5 mg/kg/day, PO in dogs with pemphigus foliaceus. If azathioprine is being used with glucocorticoids to manage pemphigus foliaceus signs, do not reduce the dose or frequency of glucocorticoids immediately after starting azathioprine since azathioprine can take weeks to have an effect. In the authors' experience, hepatotoxicosis is the most common side effect. Complete blood counts and serum chemistry profiles must be performed regularly while a patient is receiving azathioprine, usually every 2-3 weeks during initial therapy.

Kathy C. Tater, DVM, Dip ACVD and Thierry Olivry, DrVet, PhD
Vet Med, 105:1

Treating a sick Lyme dog

What is a rational approach to a sick dog suspected of having Lyme disease? If the clinical signs are classic and the result of the Lyme test (SNAP test or Western blot) is positive for infection, then the additional recommended tests include: Complete blood count and serum biochemical profile. Urinalysis to assess for proteinuria (this is very important). Determine possible coinfections based on region (e.g., anaplasmosis, Rocky Mountain spotted fever, babesiosis). After testing, treat with doxycycline (10 mg/kg, q24h) for 1 month. This dose is considered the standard of care and has been shown to be sufficient in treating clinical disease; however, it is not based on extensive experimental dosage studies in dogs. If the clinical signs resolve within a day or two of therapy, as expected, and do not recur during or soon after stopping therapy, it is reasonable to assume that the dog did have Lyme disease. Response to therapy alone does not prove Lyme as an etiologic agent—coinfection, response to the nonantimicrobial properties of doxycycline, and coincidental improvement are all possible. In such circumstances, Lyme disease is a reasonable diagnosis. However, if the clinical signs are not classic and the signs do not resolve within a day or two of therapy, or if they return during or soon after cessation of therapy, the clinician should assume that this is not Lyme disease. A thorough workup should then be aggressively pursued.

Richard E. Goldstein, DVM, Dip ACVIM
NAVC Clin Brf, 8:5

Reading the pet food label

DMB (dry matter basis) means the amount of a particular ingredient expressed as a percent of the total solids in the can or bag, if the food's moisture is removed. Understanding DMB allows comparison of dry and canned food, with their different moisture content, in a fair way. Dry kibble has about 10% moisture. This means that the rest of the ingredients constitute 90% of the food. To remove the moisture and reduce the contents to only the dry matter in the food, we perform a simple calculation. If the protein listed on the kibble label is 25% we divide that 25% by .9 (the mathematical equivalent of 90%), to get 27.8%. So, a dry kibble with 10% moisture and 25% protein has 27.8% protein on a dry matter basis. You can perform this calculation on all of the nutrients listed on the label.

Elizabeth Hodgkins, DVM
Vet Pract News, 19:10

Immune-mediated hemolytic anemia (IMHA)

Hyperbilirubinemia is seen secondary to RBC destruction and is a common finding in (IMHA). A dog with a regenerative anemia and an elevated bilirubin concentration would be a prime suspect for hemolytic anemia. Clumping (agglutination) of antibody-covered RBCs is a common finding in patients with IMHA. A rapid confirmation of this can be done in-house with a saline agglutination test (SAT). To perform this test, place one drop of EDTA blood on a slide, and add one drop of saline solution (2 drops for a cat). The purpose of the saline is to disperse any rouleaux formation as well as inflammatory proteins that may cause pseudoagglutination. Rock the slide gently back and forth for

1-2 minutes looking for evidence of clumping. This should be visible to the naked eye but occasionally may require a peek under the microscope. The purpose of a Coombs test is to detect the presence of erythrocyte-bound immunoglobulin. If the SAT result is positive, you have already determined that these immunoglobulins are present so a Coombs test is unnecessary. If the SAT result is negative, consider performing a Coombs test, but remember that this test is not highly sensitive or specific, so it will still need to be evaluated in light of the other laboratory findings and clinical signs. In most cases, if you have a patient with a strongly regenerative anemia, an elevated bilirubin concentration, and a positive SAT result or spherocytosis, you have enough to diagnose IMHA and begin therapy.

Jennifer L. Garcia, DVM, Dip ACVIM
Vet Med, 105:9

Topical analgesia

Topical anesthetic creams can be applied to shaved skin to provide analgesia for venipuncture, large-bore catheter placement, bone marrow aspiration, or a variety of other critical care procedures. The two commercially available agents are an over-the-counter liposome-encapsulated formulation of lidocaine (L-M-X:Ferndale Lab) and a prescription-only mixture of lidocaine and prilocaine (EMLA Cream:AstraZeneca). Another topical technique is the use of lidocaine patches (Lidoderm 5%, Endo Pharm), which are marketed for alleviating postherpetic neuralgia pain in human patients. Systemic uptake is low in cats, and this technique can provide a good wound analgesia.

Sheilah A. Robertson, BVMS, PhD, MRCVS
Vet Clin N Amer, 38:6

NSAIDs guidelines in cats

The International Society of Feline Medicine (ISFM) and the American Association of Feline Practitioners (AAFP) recently published a set of guidelines for the long-term use of nonsteroidal anti-inflammatory drugs (NSAIDs) in cats. The guidelines, based on the most current research and the panel members' knowledge and experience, identify several key points. The guidelines were compiled and published for the benefit of practitioners and their feline patients. To download a PDF of the guidelines, visit www.isfm.net. To avoid potential complications with NSAID therapy, veterinarians and owners should work together to achieve the lowest effective dose, recognizing that this dose is likely to change. Achieving this may require temporary withdrawal of the drug or reduced frequency of administration to best assess efficacy. However, reducing the daily dose while following the manufacturer's recommended dose frequency is encouraged.

A.H. Sparks et al.
Vet Med, Nov 2010

Clinical features of canine demodicosis

Localized demodicosis occurs as one to a few lesions, generally in one body area. It usually occurs in young dogs between the ages of 3-12 months. Clinically, it may present in squamous or pustular forms. Squamous lesions are well-circumscribed, erythematous, scaly areas of alopecia, usually on the head or extremities. The pustular variant is similar, but the presence of secondary infection results in the formation of pustules, crusts, and/or collarette lesions. The prognosis for localized demodicosis is good, with over 90% of individuals undergoing spontaneous remission within weeks. Diagnosis is confirmed by identification of mites (adults or immature forms) from a deep skin scraping. Once mites are identified from scraping lesional skin, skin scraping other areas of the body is necessary to rule out generalized demodicosis. If a good deep skin scrape is done (to level of capillary oozing), it is a reliable test in most instances. Exceptions include the Shar Pei dog, where biopsy may be necessary to rule out demodicosis. Treatment of localized demodicosis is typically unnecessary. If the pustular form is present, treatment with systemic antibiotics and antibacterial topical therapy are indicated. Specific anti-mite treatment is unnecessary. Generalized treatment does not prevent generalized disease, as this is already genetically determined. Good health maintenance is the best treatment option. Corticosteroids should be avoided.

Randall C. Thomas, DVM, Dip ACVD
Cent Fl Acad Vet Derm, 05:09

Upper airway obstruction, sedation

Since stress and excitement exacerbate respiratory distress, sedatives play an important role in management of these patients. Calming the animal decreases the respiratory drive and therefore partially relieves the obstruction of the airway. If possible, the animal should be placed in a quiet environment and handling kept to a minimum. High doses of sedatives can result in decreased blood pressure if hypovolemia is present. Similarly, excessive decreases in respiratory drive can sometimes precipitate respiratory arrest. Narcotics can sometimes cause panting which should be avoided if possible. If any sedative is to be administered, preparations should be made to deal with a respiratory or cardiac arrest, should it occur. The most effective and first line sedative in this population is usually acepromazine, administered in much lower doses than usual (start with 0.01 mg/kg, IV; repeat if needed every 10 minutes up to a total dose of 0.05 mg/kg, IV). Acepromazine, even if given IV, has a slow onset of action and will require at least 10 minutes to reach its full effect. If acepromazine alone does not provide enough sedation, the addition of diazepam (0.25-0.5 mg/kg, IV) and/or butorphanol (0.2-0.5 mg/kg, IV) will often have an excellent calming effect. If sedation does not result

in an improvement in the patient's condition within 20-30 minutes, general anesthesia may be required.

Lesley G. King, MVB, Dip ACVECC
8th PA VMA Spr Conf Procd

Diabetic remission and diet in cats

Diet is one of the understated factors in reported remission rates among cats with DM. This becomes obvious when reviewing studies reported to date. Switching diabetic cats that are already being treated with insulin to a low-carbohydrate, high-protein diet can have a significant influence on the likelihood of remission. This is true in as many as 50% of afflicted cats. The bottom line is that cats are metabolically adapted to consume primarily protein and fat, and diets high in carbohydrate appear to be unfavorable. It has been shown that using a low-carbohydrate, high-protein diet results in better clinical control and increased rates of diabetic remission. According to data from the University of Zurich, remission rates are 15%-25% when diets with variable compositions are fed whereas the remission rates increase above 50% when high-protein low-carbohydrate diets are employed.

Edward C. Feldman, DVM, Dip ACVIM
West Vet Conf Procd, 02:10

Analgesia for aortic thromboembolism

The ischemic neuromyopathy that results from aortic thromboembolism is extremely painful, so pain control is a priority. Most cats require an opioid to achieve adequate pain control. Hydromorphone (0.1 mg/kg, IV, every 2 to 4 hours), buprenorphine (0.02 mg/kg, IV, every 6 to 8 hours), and fentanyl (2-3 µg/kg, IV bolus, followed by 2-3 µg/kg/hr continuous-rate infusion) are good choices. Butorphanol (0.2-0.4 mg/kg, IV, IM, or SQ) provides minimal analgesia but does have some sedative and anxiolytic effects.

Timothy Koors, DVM and H. Cecilia Marshall, DVM
Vet Med, Nov 2010

Treatment of asthma

Short-acting beta-agonists are the preferred brochodilator in the setting of acute severe asthma exacerbations. The author's preferred drug and route is albuterol via inhalation. A standard albuterol multidose inhaler (MDI) discharges between 90-100 micrograms per discharge. The MDI can be discharged once or twice into a spacer chamber (e.g. AeroKat Feline Aerosol Chamber) and the patient allowed to inhale it over the course of 10 seconds. This can be repeated every 30 minutes for several (< 4) hours initially. Alternatively, terbutaline can be used but is not preferred. Methylxanthines such as aminophylline are largely out of favor in human asthma management, but may still have a role as adjunct therapies in feline asthma. Oxygen supplementation can be essential, but is not as straight-forward as it might first appear. Pure oxygen supplementation to human asthmatics is associated with several problems such as increased hypercapnia. Thirty percent oxygen is often sufficient to prevent severe hypoxemia, but the required FIO2 is best titrated to clinical signs and pulse oximeter readings when available. Another crucial aspect of supplemental oxygen is that it be humidified and not dry gas. Compressed oxygen is both very dry and very cold. Breathing cold, dry gas can lead to mast cell degranulation in the airways and is best avoided.

Matt Mellema, DVM, PhD
12th UC Davis SVECCS Symposium

Keys to success for detection of Malassezia

If regular glass slides are used, the sample must be forcefully smeared on the slide for good adherence. The greater the amount of the sample that adheres to the slide, the better your chances are of having a significant and accurate test. The cotton swab technique or use of clear acetate tape may allow better access to small skin folds, such as in the webbing of small feet or in perivulvar and perianal areas. Heat fixation is not synonymous with "cooking"! Don't overheat the slide. Organisms are clearer under examination using high dry (40X) objectives (400X total magnification) when a drop of immersion oil is placed on the slide and then a cover slip applied. 1000X magnification also works well. Slides can be dried using a commercial hair dryer (for people), however these can generate excessive heat that will damage the slide. Use only the hair drier that has a button or switch to turn off the heating coil while continuing to blow cool air.

James O. Noxon, DVM, Dip ACVIM
Wa St VMA Conf Procd, 06:08

Pet loss hotlines

217-244-2273 or 877-394-2273 (CARE); staffed by U Illinois veterinary students; Sunday, Tuesday, Thursday, 7:00 pm to 9:00 pm, Central time; www.cvm,uiuc.edu/CARE. 509-335-5704, Washington St U CVM; staffed during the semester on Monday through Thursday, 6:30 pm to 9:00 pm, and Saturday, 1:00 pm to 3:00 pm, Pacific time; www.vetmed.wsu.edu/PLHL.

Comp, 31:11

Best approach for treating OA

The ideal approach is a multimodal one. One treatment alone is unlikely to be fully effective. Rather, a combination of treatments helps make patients more comfortable and relieves signs. A good multimodal approach would entail NSAIDs for anti-inflammatory properties; analgesics for pain; nutraceuticals for comfort and to preserve cartilage; proper nutrition, for example, an omega-3-based diet; weight control or weight loss, and physical therapy.

Ronald McLaughlin, DVM, DVSc, Dip ACVS
DVM, Dec 2010