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

"Pearls" of Veterinary Medicine

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Merry Christmas and Happy New year to all our subscribers: Bill and Sharon Collins

Transferring patient to an ER

Question: If a colleague uses a CRI and wants to transfer the patient to the ER overnight, is it legal to transfer the IV bag so the client doesn't have to pay for a "fresh" one? It may sound like a generous idea, but you cannot legally "give" any practice any scheduled drug, and certainly not schedule II drugs. It is for your use in your practice only. Regardless, this author would certainly advise against it. You do not want those drugs at risk for diversion. In fact, many ERs decline to use IV product of any kind (with drugs inside or not) sent along with the patient. ERs and referral practices should be suspicious of product that they do not prepare themselves.

Phil Zeltzman, DVM, Dip ACVS
Vet Pract News, 25:5

Treating hypovolemic shock

Rapid fluid administration is the mainstay of therapy. Isotonic crystalloid fluids (e.g., lactated Ringer's solution, Normosol-R, Plasma-Lyte A, 0.9% saline) are often used initially. Shock doses of fluids are 90 mL/kg for dogs and 44-60 mL/kg for cats. The entire shock dose is not administered initially; instead, 0.25-0.33 of the calculated shock dose is administered as rapidly as possible, usually over 10-15 minutes, followed by patient reassessment (e.g., heart rate, capillary refill time, mucous membrane color, core body temperature, blood pressure). In dogs, a ***simple method to calculate*** one-quarter shock volume is to take the patient's weight in pounds and add a zero, indicating the amount of fluid in milliliters to administer as a bolus over 10 to 15 minutes.

Garret E. Pachtinger, VMD, Dip ACVECC
Clin Brf, Oct 2014

Good news! New formatting has allowed 25 more lines of text.

Valueable Information Inside

CPR

Basic Life Support should be initiated as quickly as possible following diagnosis of CPA using the Circulation, Airway, Breathing (CAB) concept. ***Circulation should be addressed first***, as ventilation will be ineffective if there is no cardiac output. Patients with CPA have no forward blood flow out of the heart and no delivery of oxygen to the tissues. The initial goals of chest compressions are to provide (1) pulmonary blood flow for oxygen uptake and CO2 elimination, and (2) tissue perfusion for oxygen delivery to restore cellular metabolic activity. Experimental evidence suggests that even well-executed external chest compressions produce at best 30% of normal cardiac output, making proper technique critical. Chest compressions should be done with the dog or cat in lateral recumbency with a compression depth of 1/3-1/2 the width of the chest at a rate of 100-120 compressions per minute regardless of size or species. Use of aids to ensure correct compression rate, such as a metronome or a song with the correct tempo (e.g., "Staying Alive") is recommended. Leaning on the chest between compressions must be avoided to allow full elastic recoil. Chest compressions should be delivered without interruption in cycles of 2 minutes, and a new compressor should take over after each cycle to reduce the effect of rescuer fatigue. Any interruption in compressions should be as short as possible, as it takes approximately 60 seconds of continuous chest compressions before coronary perfusion pressure reaches its maximum.

Daniel J. Fletcher, PhD, DVM, Dip ACVECC
20th Int VECCS Conf, 2014

Gabapentin for chronic pain

Although no research manuscripts are available regarding the use of gabapentin in dogs and cats for the treatment of chronic pain, many practitioners are using the drug for control of various pain syndromes. The dosage generally ranges from 1-10 mg/kg, PO, BID-TID, but dosages as high as 50 mg/kg have been anecdotally reported.

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Generally, gabapentin therapy is initiated at 3-5 mg/kg, PO, BID and dosages increased as necessary. The most common side effect is sedation and the dose should be reduced in those patients. Gradually increasing the dose overtime generally eliminates the chance of sedation. If the patient is to be removed from gabapentin therapy (e.g., the patient is 'cured' or the gabapentin is not working), the drug should be gradually withdrawn over a period of 1-3 weeks (depending on the duration of therapy) to prevent rebound hyperalgesia. Gabapentin has a variety of uses in chronic pain and scenarios for addition of gabapentin should include: a) Anytime pain may be 'neuropathic'. b) All patients with painful backs/necks that present in moderate to severe pain. c) All patients with painful backs/necks that have not resolved with NSAIDs or steroids. d) All patients post back/neck surgery. e) Any patient with difficult to diagnose, difficult to characterize pain. f) Any patient with known nerve damage.

Tamara Grubb, DVM, PhD, Dip ACVAA
New Eng Vet Conf, 09:13

Measuring blood loss in exotics

Applying pressure to a bleeding vessel prevents blood from escaping while allowing the patient's clotting mechanisms time to create a clot. The hemorrhage that is created from a skin incision or a transected vessel within a muscle is a good example of bleeding that can often be stopped by gentle pressure. Most surgeons use sterile gauze squares or cotton tip applicators to assist with hemostasis. It is important to have knowledge of a patient's blood volume, acceptable amount of blood loss, and the potential volume of blood contained within each of the hemostatic agents utilized in surgery. For example, a cotton tip applicator holds about 0.1 cc of blood, a 2x2 gauze holds 3-5 cc, a traditional 4x4 sponge holds about 10 cc, a 4x4 with a radiopaque strip commonly holds 10-20 cc, and a traditional laparotomy sponge can hold up to 100 cc of blood. As an example, a healthy 1 kg ferret under anesthesia can safely lose 10 cc of blood, which is equivalent to 100 fully saturated cotton tip applicators or a single saturated 4x4 sponge.

Steve J. Mehler, DVM, Dip ACVS
20th Int VECCS Conf, 2014

New DEA waste disposal options

Drug Enforcement Administration regulations implemented Oct. 9 now allow veterinary clients to relinquish unwanted and outdated animal drugs through take-back events, via return mail, and at designated collection locations. Disposal options for veterinarians were also expanded to include on-site destruction and easier means for returns, recalls, and reverse distribution. To find updates on regulatory changes, go to the AVMA microsite "Waste Disposal by Veterinary Practices: What Goes Where?" at www.avma.org/wastedisposal. This members-only resource provides pages on topics such as Drug and Chemical Disposal and Federal Regulation of Waste Disposal.

JAVMA, Nov 1, 2014

Diabetic ketoacidosis

Insulin therapy should wait to be instituted until the patient has been stabilized cardiovascularly. This may require a few hours of fluid therapy. This will hopefully prevent hypotension secondary to water shifting from the intravascular space (as the glucose concentration in the blood decreases) to the intracellular space (as glucose moves intracellularly). It has been shown that human DKA patients have no detrimental effect when insulin therapy is delayed up to 17 hours post presentation. Delaying insulin therapy will also allow for electrolyte abnormalities such as hypokalemia to be addressed, as insulin therapy will only worsen them. Regular crystalline insulin should be administered either by giving it IM or as a CRI. Regular insulin can be administered IM at a dose of 0.2 units/kg, initially (or 0.5 units/cat), followed by 0.1 units/kg, every hour. This is continued until the glucose concentration reaches ≤300 mg/dl, then regular insulin can be given IM at 0.25-0.5 units/kg, every 4-6 hours. Regular insulin should not initially be administered SQ because if the patient is very dehydrated, it will not reliably absorb it from the SQ tissues. It can be switched over to SQ dosing once the hydration status has been corrected, and may require every 6-8 hour dosing. Alternatively, a recent study looked at the ***use of glargine*** given IM in combination with SQ or IM alone and found it to be an acceptable protocol in 15 cats. However there were significant electrolyte abnormalities that occurred in the majority of these cats and it is difficult to ascertain from the study as to why they occurred.

Lori S. Waddell, DVM, Dip ACVECC
20th Int VECCS Symp, 2014

Treating feline lymphoma IP

In this study, cats with malignant lymphoma were treated with an intraperitoneal (IP) chemotherapeutic protocol of cyclophosphamide, vincristine, and prednisolone (IP-COP). The IV (COP) protocol has been proven effective, but many cats resist restraint and IV administration. IP administration was evaluated for efficacy and safety with the goal of improving clinician safety and reducing patient stress. Using the IP-COP protocol, complete remission rate was achieved in 76.9% of the patients. Achieving complete remission was essential for long-term survival and second treatments had poor efficacy. Most adverse effects were considered mild; none was related specifically to IP administration. IP route for COP chemotherapy administration was deemed safe and effective. Further studies are suggested using pharmacokinetics to assess serum levels of drugs following IV vs. IP administration. The IP injection was done with the cat scruffed, in vertical position, and with one assistant supporting/holding the rear legs on the table. This protocol was effective. *Comment by an oncologist*. "Most of my patients may be more displeased with chemotherapy when held in this position for 30-40 seconds than when scruffed in lateral recumbency while using the medial saphenous vein for IV injections (which takes <40 seconds in the average cat)." I always tell students

that the medial saphenous vein and a 25G butterfly are the best friends of the feline oncologist!"

C. Guillermo Couto, DVM, Dip ACVIM
Clin Brf, Aug 2014

Sedating the obstructed cat

An intravenous catheter is placed and sedation for urethral retropulsion to alleviate the obstruction is high priority in all cases. Most cases can be treated without gas anesthesia if the right combination of anesthetic protocol is used. While lab work should be performed, it is not necessary to await those results before starting the unblocking procedure. While different protocols are used, the author here uses a multi-modal analgesia approach with buprenorphine 0.02 mg/kg, midazolam 0.3 mg/kg or diazepam 0.4 mg/kg, and ketamine 4-7 mg/kg, IV. If the patient is too fractious to handle, then the above cocktail can be given mixed IM (excluding diazepam as that drug should not be used other than IV administration). If the patient is not sufficiently anesthetized with the above protocol, one can either intubate and place on gas inhalant and/or use propofol 2 mg/kg, IV to effect (Caution when using propofol as apnea is a common side effect and can lead to respiratory arrest, so those cats should be intubated and closely monitored).

Megan Kaplan-Morales, DVM, Dip ACVECC
20th Int VECCS Conf

Small bowel disease in cats

Results of this study suggested that cats with clinical signs of chronic small bowel disease (CSBD) should undergo detailed diagnostic testing because they are likely to have clinically important, diagnosable, treatable disease. Clinical signs of small bowel disease, especially weight loss and chronic or recurrent vomiting, are extremely common in cats. These signs ***should not be considered a normal condition*** and should not be ignored, regardless of common explanations given by owners, and cats with these signs should undergo appropriate diagnostic testing. Vomiting of hair balls can be a physiologic response to swallowing hair. However, vomiting >2 times/mo justifies an ultrasonographic examination for the detection of small bowel thickening. It is suspected that hypomotility of the small bowel as a result of CSBD will prevent proper movement of hair through the bowel and thus predispose to hair ball formation.

Gary D. Norsworthy, DVM, Dip ABVP
JAVMA, 243:10

Ingestion of ant and roach baits

Ant and roach baits are common objects found in households. They are also referred to as hotels, traps, or stations. The insecticides used most commonly in these baits are sulfluramid, fipronil, avermectin, boric acid, and hydramethylnon, all of which are of low mammalian toxicity and present in very low concentrations within the baits. The baits also contain inert ingredients such as peanut butter, breadcrumbs, fats and sugar to attract the insects; these agents are also sometimes attractive to pets. Exposures of pets to these types of ant baits ***usually do not require decontamination or treatment***. Most often, if signs are seen at all, they are mild in nature and self-limiting and consist of vomiting attributed to the inert ingredient rather than the active ingredient. Ingestion of multiple avermectin-based ant baits in a small dog, or ingestion of single ant baits containing arsenic trioxide (rarely available) would be cause for decontamination and monitoring.

Tina Wismer, DVM, Dip ABVT
WI WMA Conf, 10:13

Maropitant for preanesthesia vomiting

In this study, administration of maropitant to dogs at least 15 minutes before hydromorphone significantly decreased the incidence of vomiting or retching during the first 30 minutes after hydromorphone administration, compared with that for dogs that did not receive maropitant prior to hydromorphone. However, maropitant had to be administered at least 60 minutes before hydromorphone to significantly decrease signs of nausea. Thus, for dogs in which the avoidance of vomiting and signs of nausea is imperative, maropitant should be administered one hour prior to an opioid analgesic. The antiemetic, antinausea, and adjunct analgesic properties of maropitant make it an attractive alternative for inclusion in veterinary preanesthetic protocols. The dose of maropitant used was 1 mg/kg, SQ.

Bonnie L. Hay Kraus, DVM
JAVMA, Nov 1, 2014

Antibiotics for feline stomatitis

After a stomatitis patient has extractions, don't label that patient as refractory to treatment too soon. Remember, this is a chronic disease, and chronic diseases take time to fully resolve. During the process of extractions, we are removing the naturally occurring plaque-retentive surfaces (the teeth) and replacing them with a temporary plaque-retentive surface (the sutures). Until these sutures fully dissolve, residual inflammation will be likely. Until the inflammation subsides, medical therapy will be necessary. Options vary regarding use of perioperative antibiotics for stomatitis patients. If the patient has significant concurrent illness or suspected secondary bacterial infection, this author will give an intraoperative dose of ampicillin at 22 mg/kg, IV, and possibly even a 7-day course of oral postoperative antibiotics such as amoxicillin-clavulanate or clindamycin.

John Lewis, VMD, FAVD, Dip AVDC
Vet Pract News, Oct 2014

Feline viral rhinitis

Feline viral rhinitis with or without secondary bacterial infection can be recurrent. There are no consistently effective primary therapies. This author generally only uses the following therapies if chronic disease is present. Lysine at 250-500 mg, PO, BID may be helpful in some cats and has been shown to be safe but should be given

as a dose, not fed with food. Lysine has been shown to be ineffective for prevention of upper respiratory tract infections in two separate shelter studies and so should probably not be used for this purpose.

Michael Lappin, DVM, PhD, Dip ACVIM
2014 Am Assoc Feline Pract Conf

Feline eosinophilic granuloma complex

Most EGC cats appear clinically well; if they show signs, other disease problems should be investigated. Systemic glucocorticoids are often used with good response, but high doses may be needed. Depot corticosteroids should be avoided. ***Cyclosporine is very effective*** at doses ranging from 3.6-13.3 mg/kg, q24h. If good response is seen after 4 weeks, treatment can be tapered to alternate day and then twice weekly therapy. Concerns about toxoplasmosis and cyclosporine appear to be minimal at doses <7.5 mg/kg, q24h. Chlorambucil has been used in cases refractory to steroid treatment. Anecdotal reports suggest that interferon omega can be effective and well tolerated in some cats with EGG lesions.

L. Buckley and T. Nuttall
Clin Brief, 11:3

Yeast otitis

There are several "home remedies" for yeast infections. Flushing ears with a solution of white vinegar-water (1:2) may be effective for mild cases. Vinegar may cause irritation in the ear if the mix is greater than 1 part vinegar to 2 parts water. At this author's university hospital, a 1% clotrimazole plus 0.1% dexamethasone in polyethylene glycol solution formulated by the pharmacy is used. It is very effective, when combined with control of the primary factors or otitis externa. Systemic administration of an antifungal agent is indicated when the patient refuses to allow topical therapy, when the client is unable to medicate the ear for other reasons, when the ear is hyperplastic so as to prevent medication from distributing deep into the ear canal, or when there are concurrent yeast infections of the skin. Ketoconazole or fluconazole (5 mg/kg, PO, once daily, for 30 days) are excellent antifungal agents. Systemic therapy is not recommended as the sole treatment for yeast otitis.

James O. Noxon, DVM, Dip ACVIM
AVMA Conf, 2014

Arthrocentesis technique

Patients should be sedated, as arthrocentesis is painful. Suggested sedation protocols—Dexmedetomidine, 0.5 mg/ml, 2.7 µg/kg (0.1 ml/40 lb); butorphanol, 10 mg/ml, 0.055 mg/kg, IV (0.1 ml/40 lb); If additional analgesia is needed, hydromorphone at 0.1 mg/kg, IV can be administered. Because the primary complication of arthrocentesis—albeit rare—is infection, hair should be clipped over the joint and the skin aseptically prepared. The joint space should be palpated; sterile gloves are necessary. The needle should be inserted into the joint and negative pressure gently applied to the syringe. If no joint fluid can be obtained, rotating or twisting the needle 90° and repeating aspiration are indicated. After fluid has been collected, the needle hub should be grasped with hemostatic forceps and the syringe removed, after which the needle should be removed from the joint; this technique can help prevent blood from entering the syringe as the needle is withdrawn. A drop of joint fluid should be placed on a glass slide and spread gently with another glass slide. If bacterial culture is indicated based on cytologic findings, joint fluid should be expelled into a culture tube (culture medium). If there is insufficient fluid for culture, a small volume of sterile saline can be aspirated into the syringe after the glass slides have been prepared; this fluid can be submitted for culture.

Daniel A. Degner, DVM, Dip ACVS
Clin Brief, Aug 2014

Demodex in the cat

The diagnosis of D*emodex gatoi* infection is much more difficult than diagnosing *D. cati*; or any other follicular Demodex mite infection. In the latter situation, the mite is always there because its follicular habitat prevents the animal from licking/scratching it off. *D. gatoi* lives in the surface keratin layer and is easily licked off. Fecal floatations are probably more accurate a diagnostic test than the skin scraping. Since the parasite is a surface organism, the scotch tape or scalpel techniques can be used to identify the mite. Sampling must be done in areas where there is minimal trauma. The best area is in the transition zone from normal to abnormal. In some cases, the best place to scrape is another cat in the household who isn't so itchy. In some cases, especially those with the most chronic histories, the mite cannot be demonstrated and response to treatment makes the diagnosis. Systemic ivermectins or avermectins may or may not be effective in curing this infection because of the mites' surface localization. The application of Frontline will reduce the cat's pruritus but may not eradicate the mite because of issues with the surface translocation of the active ingredient, fipronil. The spray may perform better. Currently, the only product with ***consistent efficacy is lime sulfur*** applied weekly for 3 to 6 weeks.

William Miller Jr., VMD, Dip ACVD
Gulf-Atl Vet Conf, 10:13

A useful app

Compendium of Veterinary Products: A resource for pharmaceuticals, vaccines, diagnostics, supplements, and medicated feeds used by U.S. veterinarians.

Vet Pract News, Jul 2014

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