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Prevention of hip dysplasia

The purpose of this study was to identify housing- and exercise-related risk factors associated with the development of hip dysplasia (HD) as determined by radiographic evaluation in Newfoundlands, Labrador Retrievers, Leonbergers, and Irish Wolfhounds in Norway. Results showed that puppies walking on stairs from birth to 3 months of age had an increased risk of developing HD. Factors associated with a decreased risk of developing HD included off-leash exercise from birth to 3 months of age, birth during the spring and summer, and birth on a farm. Significant clustering of dogs with HD was detected within litters. The results indicated that *puppies <3 months old should not be allowed access to stairs,* but should be allowed outdoor exercise on soft ground in moderately rough terrain to decrease the risk for developing radiographically detectable HD. These findings could be used as practical recommendations for the prevention of HD in Newfoundlands, Labrador Retrievers, Leonbergers, and Irish Wolfhounds.

Randi I. Krontveit, DVM et al.
Am J Vet Res, Jun 2012

INSIDE THIS ISSUE

Compounded insulin?

The use of compounded insulin products is highly controversial. The perceived advantages of compounded insulin are lower cost, greater availability, a wide range of concentrations, and great customer service. That being said, there has been strong resistance to their use from veterinary specialists, who recommend against their use. (Anecdotally, these specialists have had problems with these products.) An extensive study involving evaluation on a monthly basis of 12 compounded PZI insulin products and one from a manufacturer was conducted to help put an end to the speculation about these insulin products. Two vials from each batch were sent for testing every two months for four months (one blinded, one original). Many of the compounded products were found to have low potency, extremely high inter-lot variability, incorrect pH, free insulin in the supernatant, and incorrect zinc content. These findings support those specialists that recommend that compounded insulin should not be used.

J. Catharine Scott-Moncrieff, MA, Vet MB, MS, Dip ACVIM
Vet Med, 106:12

Gabapentin analgesia in the cat

Gabapentin, which inhibits not only neuropathic pain but also pain associated with inflammation, has been used with some success in cats with lumbar nerve root entrapment due to fractures or degenerative disk changes. The author has also had success using it (3 mg/kg, PO, q12h) to relieve pain associated with feline osteoarthritis. The author has also successfully treated a cat with osteoarthritis pain and chronic liver disease with a combination of gabapentin (3 mg/kg, PO, q12h) and meloxicam (0.1 mg, PO, Q 4 days). The listed dose of gabapentin is 2.5-5 mg/kg, PO, q12h.

Wendy Baltzer, DVM, PhD, Dip ACVS
NAVC Clin Brf, 8:9

Zonisamide for seizures

The half life of zonisamide is reported as 12-24 hours with a steady state achieved in <7 days. Appropriate starting dose is still contentious, although most investigators will use 8 mg/kg PO, BID if zonisamide is being used as a stand alone agent. Lower doses may be acceptable in some dogs or may be needed if zonisamide is being used as an add on therapy. Many dogs on phenobarbital that are also provided zonisamide will require high zonisamide doses to enter therapeutic range due to p450 up-regulation. Although much of the veterinary data available concerns the use of zonisamide as an add on, it is increasingly being used as a first line drug due to the limited number adverse events reported, reduced need for monitoring compared to more traditional options, and perceived efficacy. Adverse events reported include: sedation, KCS, ataxia, vomiting and polyarthropathy (??).

Jonathan M. Levine, DVM
SW Vet Symp Procd, 09:09

Feline otitis

When bacteria or yeast are perpetuating factors in feline otitis, systemic medications should be used even if the middle ear is not involved. This is absolutely contradictory to the author's approach to canine otitis. Cats rarely get bacteria or yeast infections except for iatro-

genic causes and those associated with ear masses. A good empiric selection of an antibiotic for the cat would include clindamycin or amoxicillin with clavulanate at standard package dosage. Although first generation cephalosporin drugs are very useful in the dog, cats tend to vomit and become anorexic with these products. High dosages of enrofloxacin should be avoided due to blindness that has occurred in some cats. However, marbofloxacin may be indicated for usage only if based upon culture and sensitivity. Itraconazole is the recommended treatment for severe yeast otitis in the cat. The recommended dosage is 10 mg/kg, once daily until a remission is reached. This drug is not licensed for use in the cat and is very expensive. Anorexia and or vomiting may occur. Ketoconazole should be avoided in cats due to hepatopathy.

Robert A. Kennis, DVM, MS, Dip ACVD
Cent Vet Conf West Procd, 10:07

Helpful hints for hospice care

If hematuria causes extreme blood loss, mix a 1% solution of formalin with a vial of topical ear solution that contains DMSO (Synotic Otic). Instill into the bladder with a urinary catheter. Keep the mixture in the bladder for 10-15 minutes; then void and flush out the clots. This palliative procedure may reduce hematuria for 7-10 days. For one desperate, low-budget case, this author dispensed injectable atropine to help a Great Dane suffering from relentless vomiting and salivation. Provide liquid tears q6h if using atropine in this fashion, especially in breeds susceptible to KCS. For refractory pain, use NSAIDs to start. Other protocols include the following. Injectable buprenorphine for cats (0.3 ml, PO, q8-12h). Injectable nalbuphine, PO, also offers good pain control without typical sedation effects—Dogs: 0.5-1 mg/kg, SQ, q3-4h; Cats: 0.2-0.5 mg/kg, SQ, q3-5h or 1 part nalbuphine to 9 parts sterile water, 0.1 ml, PO, q3-5h. Nalbuphine PO is inexpensive and not under controlled substance regulation. It may be of great value when added to NSAIDs for pain control.

Alice E. Villalobos, DVM
NAVC Clin Brf, 7:5

General guidelines for the vomiting cat

NPO for 12-24 hours; once vomiting ceases, slowly introduce small amounts of water. Begin feeding with small, frequent meals of a highly digestible, low-fat diet for several days. Slowly transition the cat back to its regular maintenance food. Cats with serious clinical disease should be hospitalized and undergo diagnostic. Administer SQ or IV fluid therapy using crystalloids. Electrolyte imbalances should be treated specifically. Use antiemetics to control vomiting. Indications include patients which cannot rest and/or require correction of dehydration, electrolytes, and acid-base imbalances. Routine empiric use of antiemetics is discouraged since therapy may mask more serious GI disease, such as intestinal obstruction. Maropitant, 1 mg/kg, SQ or 2-8 mg/kg, PO, q24h, may be used. Metoclopramide, 0.2-0.5 mg/kg, IM or SQ, q8h, may be used. This drug is a dopamine antagonist and also provides central and peripheral (promotility) antiemetic actions. Chlorpromazine, 0.1-0.5 mg/kg, IM or SQ q8-24h, may be used. Phenothiazines are potent centrally-acting antiemetics. Their alpha-antagonist actions may cause hypotension; avoid using this drug in epileptic animals since it may exacerbate seizures.

Albert E. Jergens, DVM, PhD, Dip ACVIM
120th SD VMA Conf Procd

Pain control, end-of-life, cat

Because of concern about possible effects on renal function, the general recommendation is to avoid NSAIDs in patients with renal disease. Having said this, at this stage of life, as long as the client has been fully informed about the risk, quality of life without arthritic pain may well be preferable to a painful, risk-free existence. The clinical signs of arthritis include weight loss, anorexia, depression, urinating outside the litter box, poor grooming, and lameness. Having used it for over 6 years in older cats and given that most older cats have some degree of renal insufficiency, this author feels comfortable after describing the risks and possible signs of problems to dispense meloxicam (1 drop/cat, every 2-3, days PO) for ongoing use. In addition to analgesics, nutraceuticals and chondroprotectants, such as glucosamine and chondroitin sulfate, play a role in the management of degenerative joint disease. For more information on these topics, you can refer to the International Veterinary Academy of Pain Management at: http://www.cvmbs.colostate.edu/ivapm and if you are interested in learning more about acupuncture, IVAS (the International Veterinary Acupuncture Society) has their website at: http://www.ivas.org.

Margie Scherk, DVM, Dip ABVP
78th AAHA Conf Procd

A trick for giving meds in food

Prepare 3 pieces of a tasty food to wrap around the medication. This might be a 1" piece of hot dog, a piece of soft cheese, or bread, or some other moldable food that the dog does NOT get any other time. If the pet is "finicky" do this just before the next meal, and if possible do not leave any food down, so the pet is hunger motivated. Give the first piece of food without a pill. Some pets will "check it out" carefully. Let the pet SEE the 3rd, but give the SECOND (which contains the med). Immediately give the 3rd so that the pet has to swallow the 2nd piece (with the med) rapidly.

Rolan Tripp, DVM
125th IL VMA Conf Procd

Dextrose IV fluids

Dextrose solutions are hyperosmolar, and they cause skin necrosis or sloughing when given subcutaneously. By the way, dextrose solutions

such as D5W are not a good choice as replacement fluids. In fact, you can kill a patient by giving a large amount of D5W. Once the glucose has been absorbed, we are left with free water, which is distributed to the various fluid compartments. That water is absorbed by all cells, which can lead to intracellular edema. When it happens in the brain, it can be a deadly proposition. Dextrose in IV fluids provides an insignificant amount of calories, which is definitely not enough to sustain a patient's energy requirements.

Dr. Sean Smarick
Vet Pract News, Feb 2012

Treating xylitol toxicity

In dogs ingesting >0.5 g/kg of xylitol, a bolus of dextrose followed by dextrose infusion may help protect the liver by helping it to restore depleted energy stores from metabolizing the xylitol. In addition, liver protectants and antioxidants such as n-acetylcysteine (140-280 mg/kg, followed by 70 mg/kg, q6h, PO/IV), SamE (17-20 mg/kg/day, PO), silymarin (20-50 mg/kg,/day, PO), and vitamin E (100-400 IU, q12h, PO) may be useful because the liver damage may also be due to oxidative damage to the liver; these drugs can be used in combination. If coagulopathy develops, plasma transfusions should be given. Prognosis for uncomplicated hypoglycemia is good with prompt treatment. The prognosis for acute hepatic failure, especially if hyperphosphatemia develops, is guarded to poor.

Eric K. Dunayer, VMD, MS, Dip ABT & ABVT
NAVC Clin Brf, 5:8

Puppy class myth

"Puppies shouldn't go to puppy classes until they have had all of their shots." The critical period for socialization in dogs lasts from the 4th to the 14th week of life. During this time, dogs learn about their environment, other dogs, and people. Poorly socialized dogs are more likely to exhibit behaviors that make them unsuitable as a pet and result in relinquishment to an animal shelter or euthanasia. Thus, the likelihood of death due to poor socialization is greater than the likelihood of illness or death due to contagious disease—as long as the puppy class is managed properly. All puppy classes should: Only mix puppies of similar age; Require that all puppies have their first vaccination several days before the beginning of the class; and be held on an indoor surface that can be sanitized. Clean all puppy waste immediately and disinfect the soiled area. Do not allow any puppies into the class that show signs of illness. Proper early socialization can save a dog's life and is the best way to ensure that the owner ends up with pet that is well adjusted and a joy to live with for many years.

Valarie V, Tynes, DVM, Dip ACVB
Vet Med, 106:7

Dexrazoxane for doxorubicin extravasation

To date, use of dexrazoxane in the management of doxorubicin extravasation has not been reported in dogs. Treatment was successful in 3 of 4 patients. The most effective dosage and timing of administration are unknown; however, there is evidence to suggest that administration within 6 hours after the event is warranted. Further studies are needed to confirm efficacy and to optimize use of this drug in the prevention and treatment of anthracycline extravasation injury in veterinary patients. A central venous catheter was placed via the left jugular vein, and dexrazoxane (Zinecard:Pfizer) was administered at 500 mg/m2 (750 mg/dose) over 15 minutes. A total of 3 doses were administered at 3, 24, and 48 hours after extravasation. Tissue cooling was continued every 2-6 hours for 21 days. Additionally, 90% DMSO ointment was applied topically to the site every 8 hours for 14 days. Erythema developed at the site initially and resolved within 48 hours afterward. Erythema was noted again 6 days later but resolved. The authors believe *its use should be strongly considered* in veterinary patients that develop this potentially devastating complication of anthracycline administration.

Rachel O. Venable, DVM et al.
JAVMA, Feb 1, 2012

Managing Malassezia dermatitis

1) Bathe the patient 3 times weekly using an anti-yeast shampoo. Lather, allow to sit for ten minutes, then rinse. Use cool water for bathing (heat exacerbates pruritus). Towel dry (no blow dryers since they may also exacerbate the pruritus). After 3 weeks, reduce frequency to twice weekly. After an additional 2 weeks, bathe weekly. If the animal is exceptionally greasy, a benzoyl peroxide or selenium sulfide shampoo may be alternated with the antifungal shampoo. 2) Use sprays, towelettes, or pledgets to spot treat difficult areas, such as interdigital areas (top and bottom), lip folds, periocular areas, and perianal areas. This may be done daily or 2-3 times a week. Note: the sprays work well for claw fold infections or to treat interdigital or perianal infections. 3) In cases where systemic medications are warranted: ketoconazole (dogs) or itraconazole (cats) is given at 5 mg/k, PO, daily for 21 -30 days. Ketoconazole should be given with food to enhance absorption. KEY POINT: Once an animal has a yeast infection, it is very likely that it will continue to have yeast "problems," especially if a primary (i.e., underlying) condition is not found. Anti-yeast therapy should NEVER be completely discontinued. It may be phased back (e.g., bathing once every 7-10 days or towelettes only 1-2 times a week), but if completely stopped, it is likely that the yeast infection will recur.

James O. Noxon, DVM, Dip ACVIM
120th SD VMA Conf Procd

Epilepsy in birds

Idiopathic epilepsy can occur in birds, especially mynahs and red-lored amazons. Diagnosis is one of exclusion. Complete blood work should be performed, including CBC, serum biochemistries, bile acids, lead and zinc levels, and protein electrophoresis. Treatment for acute seizures is with IV or IM diazepam at 0.5-1.0 mg/kg. Long term treatment is with phenobarbital elixir at 1-5 mg/kg, twice daily. Phenobarbital levels should be evaluated twice yearly and compared with therapeutic levels for mammals. The author has had successful outcome with serum phenobarbital levels less than that of the therapeutic range for mammals.

James K. Morrisey, DVM, Dip ABVP
NY St VMA Conf Procd, 10:08

Animals that bite humans

Dogs, cats, and ferrets: Rabies virus is excreted in the saliva of infected dogs, cats, and ferrets during illness or for only a few days before illness or death. Regardless of rabies vaccination status, a healthy dog, cat, or ferret that exposes a person should be confined and observed daily for 10 days from the time of the exposure; administration of rabies vaccine to the animal is not recommended during the observation period to avoid confusing signs of rabies with rare adverse reactions. Any illness in the animal should be reported immediately to the local health department. Such animals should be evaluated by a veterinarian at the first sign of illness during confinement. If signs suggestive of rabies develop, the animal should be euthanized and the head submitted for testing. Any stray or unwanted dog, cat, or ferret that exposes a person may be euthanized immediately and the head submitted for rabies examination.

JAVMA, 239:5

Dosing of lidocaine patches

Lidocaine patches appear to be safe for use in dogs and cats when applied for 3-5 days. Adverse effects can include local redness or irritation at the patch site, but systemic toxicosis is unlikely due to minimal systemic absorption; however, toxicosis may occur with ingestion of the patch by the animal. Plasma lidocaine concentrations following patch application remain low and reach steady state after 12-60 hours. The patches are not controlled by the DEA. Dosing, using a 10 X 14 cm lidocaine patch: 3-5 lb—1/6 to $^1/_4$ of the patch; 6-10 lb—$^1/_2$ of patch; 11-20 lb—1 patch; 21-40 lb—2 patches; 41-60 lb—2.5 to 3 patches; 61-100 lb—3 to 4 patches.

C.M. Egger, DVM, MVSc, CVA, CVH, Dip ACVA
GA VMA Sum Conf Procd, 05:09

Effects of ketamine-diazepam in cats

Chemical restraint is commonly used to obtain jugular blood samples from cats, but there is little information on the effects, if any, sedation might have on results of clinicopathologic testing. Results of this study involving 42 cats in which blood samples were obtained just prior to and just after IV injection of ketamine-diazepam suggested that sedation resulted in significant changes in results of most hematologic, biochemical, and coagulation tests, but that the observed changes were low enough that they likely were not of clinical relevance. Results, therefore, suggest that IV administration of a low dose of ketamine-diazepam could be used for chemical restraint when collecting blood samples for clinicopathologic testing in cats.

Brice S. Reynolds, DVM et al.
JAVMA, Feb 1, 2012

Polyps in cats

Presently, there are two main treatment options for removal of inflammatory (nasopharyngeal) polyps: traction avulsion and surgery usually by a ventral bulla osteotomy. Traction avulsion is believed to have a higher recurrence rate. Though studies have not been done the recurrence rate may be affected by how the avulsion occurs and post avulsion treatment with systemic glucocorticoids. When the ear canal contains the mass it is important to grasp the mass far down the stalk and try not to tear it into pieces but keep the mass intact. Twisting the base while applying slow even traction is helpful to remove the mass intact. After removal oral triamcinolone 0.1-0.2 mg/kg for 4 days, then taper to every-other-day is prescribed as well as topical ear drops with glucocorticoids, usually dexamethasone 0.1% and antimicrobials selected based on cytologic findings.

Craig E. Griffin, DVM, Dip ACVD
Cent Vet Conf San Diego Procd, 11:10

Suturing the abdominal wall

The ability of tissues to hold sutures without tearing depends on the tissue's strength (collagen density) and the orientation of collagen fibrils. Skin and fascia are strong, whereas muscle and fat are weak. Peritoneum heals rapidly across the incision and does not contribute to wound strength, therefore closure of this layer is not beneficial. Experimental and clinical studies in dogs suggest that suturing peritoneum may increase the incidence of postoperative intraabdominal adhesions. NOTE—Make sure to incorporate fascia in the linea closure. Because the holding layer of abdominal incisions is collagen dense fascia rather than muscle, dehiscence is common if the rectus fascia is not incorporated in sutures.

Howard B. Seim III, DVM, Dip ACVS
72nd CO St U CVM Conf Procd

Note: Previous year's index is available online at our website.