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Diet for the diabetic cat

Diet selection is a critically important part of the management of the diabetic patient. Recent experimental and clinical evidence indicates that a canned high protein, low carbohydrate diet (the "CATkins Diet") is the most appropriate for diabetic cats. In fact, if the cat is still eating well, feeling well, in good body condition, and not excessively hyperglycemic (BG >400 mg/dl) at the time of initial diagnosis, then this author will consider trying a low carb diet alone for a few weeks prior to initiating insulin therapy. This especially holds true for cats that may have had DM induced by recent corticosteroid therapy. These cats are very likely to have transient DM. However we should not continue with diet alone if BG levels are not returning to normal within 2-3 weeks. The longer the cat remains hyperglycemic, the greater the chance that we will not be able to put him in remission. Purina canned DM fits the nutrient profile recommended for diabetic cats. Dry DM and both canned and dry Hill's m/d are too high in carbohydrates (~14%) for good regulation. A listing of a number of canned OTC diets that fit this carb profile can be found at the following website: http://binkyspage.tripod.com/canfood.html. ONLY foods on this list with a CHO content of 7% or less should be used for diabetic management.

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

INSIDE THIS ISSUE

NT-proBNP assay in the cat

The NT-proBNP assay is most reliable when used to assess cats with a medical history or physical examination findings suggestive of heart disease, such as when siblings are known to have been affected with cardiomyopathy; physical examination includes a heart murmur, gallop rhythm, or arrhythmia; or radiographic heart enlargement is detected. A plasma NT-proBNP concentration >100 pmol/L suggests that morphologic cardiac changes are present, and further evaluation via echocardiography, thoracic radiography, and other diagnostic tests is needed to provide a definitive diagnosis and to determine the severity of disease. Given the reported sensitivity and specificity of the feline NT-proBNP assay, the test will occasionally yield false-positive or false-negative results. Therefore, owners should be made aware of the fact that some cats with a high NT-proBNP concentration will not have evidence of heart disease on echocardiography.

Mark A. Oyama, DVM, dip ACVIM et al.
JAVMA, 243:1

Using NSAIDs in the ER

In the shocky, hypoperfused trauma patient, the use of non-steroidal antiinflammatory drugs (NSAIDS) is not warranted for analgesic therapy in the initial 8-12 hours of hospitalization. With shock, potent vasoconstriction to the kidneys and the gastrointestinal tract (GIT) occurs, as the body is attempting to preserve all blood flow to the vital organs. As the shock organ of the dog is the GIT, administering an ulcerogenic drug to a poorly perfused GIT is likely inappropriate. Also, as NSAIDs can be nephrotoxic, the administration of these drugs to poorly perfused, vasoconstricted kidneys is contraindicated. Therefore, the use of NSAIDS as a "first line" analgesic drug in the trauma or critically ill patient is ***not warranted*** until the patient is stable, normovolemic, hydrated, and normotensive. The patient should be appropriate volume resuscitated and stabilized first (e.g., IV fluid therapy, oxygen therapy, etc.) prior to any analgesic therapy. Initially, consider the use of reversible opioid therapy (e.g., oxymorphone, hydromorphone, fentanyl, Torbugesic, etc.) in the painful, resuscitated patient; once stabilized, multimodal analgesic therapy (e.g., NSAIDS, epidurals, local blocks, lidocaine patches, etc.) can be implemented after the 8-12 hour mark.

Justine A. Lee, DVM, Dip ACVECC
18th Int VECCS Conf Procd, 09:12

Fluids before surgery

Mature dogs and cats can be fasted for 6-8 hours; however, for older and younger animals, 2-3 hours of fasting before surgery is more appropriate. Except for medical or behavioral reasons, ***access to water should be allowed*** until the preanesthetic medication is administered. An additional 1-2 ml/kg of crystalloid can be

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added to the base fluid administration rate for each hour the animal does not have access to water before surgery and can be administered during the first hour of surgery to replace water losses if water has been withheld.

William W. Muir, DVM, MS, PhD, Dip ACVA
Vet Med, 108:2

Papillomatosis and IFN-alpha

Canine oral papillomatosis produces multiple lesions in the oral cavity and on the head of dogs. The lesions begin as smooth white plaques or papules which progress to whitish gray, pedunculated or cauliflower-like hyperkeratotic lesions that can cover the face and mouth in severe cases. Clinical management of papillomas may include surgical excision, cryosurgery, electrosurgery, and observation without treatment. Surgical debridement or cryosurgery may be required if masses interfere with eating or hygiene. Anecdotal reports indicate that IFN-alpha-, 1.5-2 million units/m^2 BSA given subcutaneously, 3 times a week, is effective for the treatment of severe cases of oral or cutaneous viral papillomatosis, or both.

Jenise C. Daigle, DVM, Dip ACVD
WI VMA Conf Procd, 10:12

Mouthing in puppies

Excessive mouthing (puppy's continuous desire to bite at humans' hand or arm during handling or manipulation) is often seen at the veterinary clinic during the physical examination. This is one of the biggest concerns of new puppy owners. Owners of puppies presenting with excessive mouthing, frequently wonder if this behavior could be a predictor of future aggressive behavior. A recent unpublished study evaluated the association between excessive mouthing in puppies and the development of aggressiveness in adult dogs. The origin, size, breed and sex of the puppy did not affect the presence of mouthing behavior. The retention of puppies in the household at one and 3 years of age was not affected by the presence of mouthing behavior in puppyhood and no significant difference was observed between the two groups regarding the development of aggressive behavior at one and three years of age. This study suggests that ***excessive mouthing in puppies is not associated with the development of aggressive behavior*** in adult dogs. The owners of a puppy that displays excessive mouthing behavior can be informed of this new data but there is still a need to provide them with information on appropriate management of this unwanted behavior.

Martin Godbout, DVM, MSc., Dip ACVB
AVMA Conv Procd, 07:11

Heart failure and salt

Although controlled exercise has proved beneficial in human cardiac disease, some exercise restriction is logical in all forms of heart failure and can be progressively curtailed as the disease progresses. Since sodium retention is a major contributor to congestion, dietary NaCl restriction has long been used in the management of heart failure. Recently, it has become clear that extreme sodium restriction actually activates the renin-angiotensin aldosterone system (RAAS) and may contribute to renal dysfunction, particularly when ACE-I are used. Also it tends to make diets unpalatable. For these reasons, this author now recommends only ***moderate salt restriction*** (e.g. senior, "early cardiac" or renal diets); although, terminally, more extreme NaCl restriction (e.g. a cardiac diet) may be necessary.

Clarke E. Atkins, DVM, Dip ACVIM
WV VMA Conf Procd, Apr 2013

Heartworm testing in cats

MYTH: A heartworm test is necessary before starting heartworm prevention. REALITY: Don't wait. There is no reason not to start a preventive if you have not tested for heartworm disease. Fewer than 20% of infected cats have circulating microfilaria, which exist for only one to two months.

Kristin MacDonald, DVM, PhD, Dip ACVIM
Vet Med, Aug 2013

Selecting the right shampoo

This study is significant for 2 reasons: First, it identified the ideal shampoo (i.e., chlorhexidine-based) for clients who cannot bathe pets frequently. Second, an option was suggested if a methicillin-or multidrug-resistant *S pseudintermedius* is isolated. At this author's practice, chlorhexidine-based shampoos are used as often as clients are able to physically bathe the pet; between baths, affected areas are sprayed with a 2% chlorhexidine solution compounded in-house and applied with a spray bottle. This appears to be well tolerated by owners and pets.

Karen Moriello, DVM, Dip ACVD
NAVC Clin Brf, Aug 2013

Novel technique for urethral obstruction

This paper describes the use of a sacralcoccygeal local anesthetic block to facilitate treatment of urethral obstruction in the cat. This is the same local/regional anesthetic technique that had been taught for peritoneal surgery of cattle and horses. The authors indicate that the use of this local anesthetic technique provided pain relief for the male cat during recovery and seemed to aid in the removal of the urethral calculi. The sacralcoccygeal space is identified where the tail attaches to the sacrum. A 25G 1 inch long needle is used to penetrate the skin on the midline. Ideally the needle is advanced and penetrates the interarcuate ligament/ligamentum flavum. If no blood is aspirated, infuse 0.1-0.2 mL/kg of 2% lidocaine without epinephrine (average volume 0.5 mL/cat) into the epidural space.

Angela K. O'Hearn, DVM and Bonnie D. Wright, DVM, Dip ACVA
J Vet Emerg Crit Care

Dosage of contrast agents

DOGS–Micropulverized barium solution 30% to 60% weight/volume. <20 kg, 8-12 ml/kg; >20 kg: 5-7 ml/

kg. Iodinated contrast agent: Iohexol diluted. Dehydration should be corrected before administration. 700-875 mg of iodine/kg diluted with water to obtain a whole volume of 10 ml/kg. CATS–Micropulverized barium solution 30% to 60% weight/volume. 12-20 ml/kg. Iodinated contrast agent: Iohexol diluted. Dehydration should be corrected before administration. 600-800 mg of iodine/kg diluted with water to obtain a whole volume of 10 ml/kg.

Tasha Axam, DVM, Dip ACVR
Vet Med, 107:11

Refractory edema in heart failure

When fluid retention becomes refractory (Class D heart failure), other options should be considered. The use of ***torsemide*** (Demadex), a loop diuretic, may be considered at approximately one-tenth to one-twelfth of the daily furosemide mg dose (divided into two treatments) for dogs with refractory ascites or edema. Canine studies are still needed but preliminary reports are encouraging.

John D. Bonagura, DVM, MS and Matthew W. Miller, DVM, MS
36th Royal Canin & OSU Symp Procd, 10:12

Enalapril as an antiproteinuric

Enalapril is the ACE inhibitor most commonly prescribed to dogs in the US. Maximal reduction in proteinuria is desirable, so this author recommends initial administration of the maximum recommended dosage (0.5 mg/kg, PO, BID) in nonazotemic dogs with serum creatinine concentrations <3 or 4 mg/dl. However, because ACE inhibitors reduce the glomerular filtration rate, when treating dogs with serum creatinine concentrations between 3 and 5 mg/dl, it is prudent to initiate therapy at a lower dosage (0.25 mg/kg, PO, BID) and recheck serum creatinine concentrations within 4-7 days. If the azotemia has not worsened, increase the enalapril dosage to the maximum recommended dose (0.5 mg/kg, PO, BID) and recheck serum creatinine concentrations again in 4-7 days. Adverse effects of enalapril—and ACE inhibitors, in general—in people include hyperkalemia and GI disturbances. Although these have not been reported in published studies in dogs, the author has occasionally noted both of these adverse events in dogs with glomerular disease that have been administered standard dosages of enalapril. Temporarily discontinuing drug administration in dogs with enalapril-associated anorexia and then administering a lower dosage after the appetite returns is usually successful. The dosage can be increased back to the desired total daily dose after 2-4 weeks.

Barrak Pressler, DVM, PhD, Dip ACVIM
Vet Med, Aug 2013

Pericardial effusion in R heart failure

Always consider pericardial effusion in any animal, especially middle to old aged large breed dogs with signs of acute right side congestive heart failure (R-CHF). Pericardial effusion cases are the one R-CHF in which ***diuretics and vasodilators are contraindicated,*** as these drugs will further decrease cardiac output. IV fluids and volume expansion are indicated until pericardiocentesis can be performed.

Tony Johnson, DVM, Dip ACVECC
WI VMA Conf Procd, 10:12

Steroid-sparing strategy: frequent bathing

Bathing accomplishes multiple goals that are all high value for reducing pruritus. First, dry skin is itchier than normal skin. Water is a good moisturizer and emollients that we add help normalize the epidermal barrier. In the stratum corneum, sphingosine is the single most important molecule after keratin and has been shown to be deficient in atopic humans. Phytosphingosine in the Douxo line of products should improve barrier function of abnormal epidermis to help restore moisture barrier. Second, bathing removes allergens and irritants from the skin. Humans inhale their allergens, but evidence in dogs overwhelmingly points towards absorption across the skin. Do not underestimate the tremendous value of bathing for overall reduction of allergen exposure and therefore ***reduction of prednisone requirement.*** One colleague recently stated that if a patient doesn't improve with daily bathing for two weeks, then they probably have food allergy not atopy. Finally, bathing helps prevent infection by reducing bacterial colonization of abnormal skin; This author uses antiseptic shampoo long term in all atopic patients. Chlorhexidine 2-4%, benzoyl peroxide, miconazole, and/or ketoconazole are all high value products. Leave on conditioners that contain emollients, antiseptics, and hydrocortisone are additionally beneficial.

John C. Angus, DVM, Dip ACVD
DC Acad Vet Med, Sem Procd, Apr 2013

Methadone analgesia in cats

Within the conditions of the present study, methadone administered as a premedication at 0.6 mg/kg, SQ, provided effective postoperative analgesia for at least 6 hours following ovariohysterectomy surgery in most cats. Methadone appeared superior to butorphanol in inducing an adequate period of effective postoperative analgesia.

Leon N. Warne, BVMS et al.
JAVMA, Sep 15, 2013

Using cyclosporine long-term

Initial dosing is 5 mg/kg, PO, SID. For example, if 100 mg once a day for 30 days works and then 100 mg every 48 hours for 30 days works, yet 100 mg twice a week does not work, the author goes back to 100 mg at a frequency of every 48 hours to get the pruritus back under control. Then try 50 mg every 48 hours for 30 days, then 25 mg every 48 hours for 30 days, etc. Perform a CBC, serum chemistry, urinalysis, and urine culture every 6

months in any patient receiving modified cyclosporine for 6 months or longer.

Paul Bloom, DVM, Dip ACVD
Vet Med, Aug 2013

Testing for FIP

FIP is the most common cause of abdominal effusion in cats <2 years of age. An examination of abdominal or pleural effusion often provides strong supportive evidence of FIP. The fluid is usually light to dark yellow and may be cloudy or mucinous. The total protein content is predictably >3.5 g/dl, with an albumin:globulin ratio <0.6. The nucleated cell count is generally <5,000/µl and consists primarily of macrophages and nontoxic neutrophils. The ***Rivalta test*** is a simple in-house test you can perform to exclude FIP as a cause of effusion; however, it lacks specificity, as any protein-rich fluid is likely to produce a positive result. Mix one drop of 98% acetic acid with 5 ml of distilled water in a test tube. Place a drop of the effusion on top of this solution and observe its motion. If the effusion dissipates, the fluid is transudate and is not consistent with FIP. If the effusion is still clearly visible, it is consistent with an exudate but not diagnostic for FIP.

Audrey K. Cook, BVM&S and Whitney R. Nelson, DVM
Vet Med, Sep 2013

Getting the sick cat to eat

Meeting the psychological needs of the hospitalized cats will encourage food intake. Provide bigger cages so the litter box is >3 feet away from food bowl or remove litter pan from cage before offering food. Increase the cat's privacy and sense of security by covering the cage while cat is eating. Spray feline facial pheromone in cage 35 minutes before offer food. Offer the cat's favorite food first unless the cat vomited this food recently. Most sick cats are neophobic, but if they reject their usual diets, offer smelly, high protein. Increase anticipation for food; warm food to body temp; shake dry food bag or open can in sight of cat; hand feed the first bite. Provide flat food dishes and wide water bowls especially for congested cats or brachycephalic breeds. Use paper plates or "china" instead of steel or plastic; steel is cold; plastic retains odors and bacteria in scratches. Offer food in increments; never just leave food in the cage. Feed MEALS-offer one teaspoon increments initially; mounds of food may make sick cats nauseous. As intake increases, increase food volume and extend intervals between meals.

Hazel C. Carney, DVM, MS
SW Vet Conf Procd, 09:12

Recurrent urethral obstruction

The findings of this retrospective study have suggested that the use of a 5F polyvinyl urinary catheter combined with administration of phenoxybenzamine was associated with a rate of recurrent urethral obstruction (rUO) at 24 hours that was 5.2 times higher and a rate at 30 days after urinary catheter removal that was 3 times higher than the rate following use of a 3.5F polyvinyl catheter combined with administration of prazosin. Thus, a few simple changes in emergency treatment protocol could have a major impact in reducing short-term rUO in cats.

Peter F. Hetrick, DVM and Elizabeth B. Davidow, DVM
JAVMA, Aug 15, 2013

Food allergy: the challenge

When diagnosing food allergy, confirm it with food challenges. This author believes this is very important. If we can determine what foods precipitate itch, we can get our patients back onto a commercial diet and simply avoid the offending protein. This gives the client and the pet more freedom with diet choices and selection of treats. It also avoids the dilemma of what to feed if he/she runs out of food at a time when the veterinary office is closed. Many clients will prefer not to go through this phase and continue to feed the elimination diet. It is their choice, but it has made it difficult to determine what foods have been associated with food allergy in cats. If clients have used a home-cooked diet and wish to continue cooking, it is best to make sure that the diet is complete and balanced by having it formulated by a veterinary nutritionist. These types of consults are readily available online (www.balanceit.com and www.petdiets.com).

Valerie A. Fadok, DVM, PhD, Dip ACVD
San Diego Co VMA Conf Procd, 09:12

Giardia detection

Zinc sulfate centrifugation is a very effective method for identifying nematode eggs in feces. It is therefore now used as the standard test for screening for intestinal parasites in most academic and many private practices. Studies have shown that approximately 70-75 percent of *Giardia* positive dogs can be identified on a single zinc sulfate centrifugation test (as opposed to approximately 40 percent of dogs after 3 separate saline smear preparations). Slides should be examined within 10 minutes of preparation because the cysts may begin to shrink. Since animals shed *Giardia* on an intermittent basis, it is recommended that a series of zinc sulfate concentration tests be run over a 3-5 day period in order to maximize chances of accurately diagnosing or ruling out *Giardia* in animals with chronic diarrhea (or, alternatively, an antigen test can be run at the same time to help increase diagnostic efficiency and accuracy–this is what the author recommends now as a standard practice). Diagnostic efficiency increases to 95% when 3 zinc sulfate examinations are conducted over a 3-5 day period. A positive result on any of the tests warrants treatment for *Giardia.*

Todd R. Tams, DVM, Dip ACVIM
Music City Vet Conf Procd, 03:12