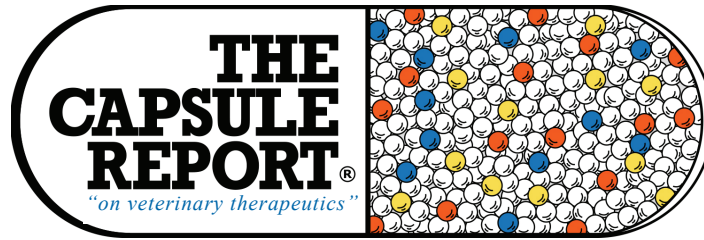


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Volume 38 Number 8

November 2019

AT A GLANCE

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Using calcitriol in CKD

Replacement of calcitriol should occur at the onset of kidney disease. However, defining that point in time is somewhat difficult. In reality, some degree of renal deterioration likely begins shortly after birth. By the beginning of IRIS Stage 2a, about 40% of renal function has been lost. This is the point at which the author initiates calcitriol replacement. Note that this is prior to the onset of hyperphosphatemia. Also note that calcitriol should not be given to cats that are hypercalcemic. If the total calcium is elevated, an ionized calcium (iCa) test should be performed to verify true hypercalcemia. If it is not possible to perform an iCa measurement, let the total calcium be your guide; but set a goal of purchasing a point-of-care machine that can assess iCa, such as an i-STAT Alinity analyzer (Zoetis/Abaxis). Calcitriol should be compounded and dosed at 2.5 ng/kg, q24h, PO or 9 ng/kg, q3-4d, PO. In practice, client acceptance and compliance are much higher at twice-weekly dosing. It is also safer on that schedule. The source of calcitriol that the author uses exclusively is US Compounding (800-718-3588).

*Gary D. Norsworthy, DVM, DABVP
Western Vet Conf, 2019*

Dietary therapy for Giardia

In animals that are known to be chronic carriers of Giardia, it may be beneficial to supplement the diet with fiber. Increased dietary roughage may make it more difficult for Giardia trophozoites to attach to the small intestinal mucosa (use either commercial diets or simply add a fiber source such as Metamucil or pumpkin, for example, to the animal's standard diet.)

*Todd R. Tams, DVM, DACVIM
MO VMA Conf, 01:19*

The author's approach to a food trial

The author starts the diet and Apoquel on the same day, then continue both for 6-8 weeks. To see if the diet is helping, we stop the Apoquel. If the dog has eaten the diet for 8 weeks and the itch comes back quickly (within 24-48 hrs), then the dog is not food allergic and we move on. But if the itch does not come back, or it comes back partially, then we can do a simple food challenge to verify the diagnosis. We mix 1/3 old diet with 2/3 of the test diet and feed for the next week. If the dog is truly food allergic we should see a flare. Then we can help the owner find a long-term diet they and their dog will be happy with. As far as what diet to choose for the trial, most dermatologists advocate for a hydrolyzed diet. Extensively hydrolyzed diets such as Ultamino Royal Canin appear to be best. All the novel proteins that have been put in prescription diets are now available over the counter, and the OTC diets are not prepared to the same level of stringency. Recently cross-reactivity among proteins has been established for dogs, with IgE against beef cross reacting to venison and lamb. If a novel protein diet is preferred (e.g. for home cooking) a good diet history will be important, so that proteins potentially related to the previous diet can be avoided.

*Valerie A. Fadok, DVM, PhD, DACVD
Music City Vet Conf, 02:19*

Acute enteritis

Although no pharmacologic interventions have been shown to improve intestinal barrier function during the acute phase of disease, antioxidants, mucosal nutrients, probiotics, and dietary fiber have shown some promise. Because of their profound effect on protective and beneficial bacteria, antibiotics are only indicated in cases of infectious enteritis when there are signs of systemic illness or an inflammatory response. Amoxicillin clavulanate

The Capsule Report.

has not been shown to provide any benefit in the treatment of acute uncomplicated diarrhea in dogs; thus, its routine use in such cases is **not recommended**. In addition, metronidazole has been shown to cause dysbiosis and should not be employed as a first-line treatment of *Giardia* spp infection in young dogs.

S. Unterer
Clinician's Brief, Sep 2019

Antihistamines as useful as placebo for pruritus

In several evidence-based reviews of treatments for AD, antihistamines have not demonstrated efficacy. Veterinarians continue to try various products approved for use in humans at various doses with the belief that they are safe and inexpensive and that they may, in some cases, provide relief from pruritus in allergic dogs; but the best that can be shown is that ~20% of dogs are benefited, which is **comparable to placebo**. Even the belief that they may cause sedation, which would help with pruritus, has not been shown. This is why there is no veterinary-approved antihistamine for the treatment of pruritus.

Candace A. Sousa, DVM, DACVD
65th HI VMA Conf, 11:18

Pregnancy diagnosis

If no ultrasound is available, a blood test can be performed for relaxin and is most accurate 25-30 days post-ovulation. Relaxin is produced from the canine placenta. Thus, it is very specific for pregnancy, but you may also get false positives if a pregnancy was established and then lost. Relaxin is available in a patient-side test kit as well as a mail-out test for most veterinary labs. *Key for client understanding: Progesterone is never a good pregnancy test. Progesterone will remain elevated for ~63 days post-ovulation in both pregnant and non-pregnant bitches.* Pre-whelping radiographs can be performed any time after 45 days post-ovulation for confirmation of pregnancy and counting of fetal skeletons. The author prefer to schedule these during the last week of gestation, especially for dams at risk of dystocia, as puppies have reached their maximum size at that point. For best results, allow the patient to defecate or perform an enema prior to films to clear the colon and also withhold food that morning to provide an empty stomach. *Key for client understanding: If no progesterone timing was performed to determine day of ovulation, then it is best to wait at least 55 days from breeding to ensure that fetal skeletons have mineralized and can be visible on radiographs.*

Robyn R. Wilborn, DVM, MS, DACT
Emerald Coast Vet Conf, 07:17

Home-prepared Diets

In the author's experience, the most severe cases of nutrition-related disease in growing puppies are nearly always the result of feeding home-prepared diets. Nearly all home-cooked diet recipes obtained online and in books are deficient in essential nutrients as has been shown in

several studies and often the inadequate nutrients (e.g. calcium) are the ones most essential for growth. Growing animals are acutely susceptible to nutritional imbalance and the result of seemingly small errors in formulation can be life-long. It is therefore extremely important that **growing puppies not be fed home-prepared diets**. Clients should be strongly encouraged to wait until the puppy has reached at least a year of age (small breeds) or 18 months (giant breeds) before starting a home-cooked diet if this is their preference. Clients should be advised to obtain a recipe from a Board Certified Veterinary Nutritionist to ensure that an appropriate, nutritionally balanced, home-cooked diet is fed.

Caitlin R. Heinze, MS, VMD, DACVN
Fetch, Kansas City, 8:19

Sedation

Situation: Older, Debilitated, Cardiovascularly Compromised Cat. * Butorphanol (0.1-0.3 mg/kg, IV or 0.3-0.5 mg/kg, IM) ± midazolam (0.1-0.2 mg/kg, IV or IM) ± alfaxalone (1-2 mg/kg, IM). * Fentanyl (0.002-0.003 mg/kg, IV), hydromorphone (0.01-0.02 mg/kg, IV), or methadone (0.1- 0.2 mg/kg, IV) maybe substituted for butorphanol. Non-debilitated cats can become excited with opioids and benzodiazepines. Ketamine may be used in place of alfaxalone in cats, but caution is advised in cats with hypertrophic cardiomyopathy. Oxygen is recommended. Reversal: * Naloxone (up to 0.01 mg/kg, IM, SQ, or IV to effect). * Flumazenil (0.025 mg, IV in increments to effect)

Khurshheed Mama, DVM, DACVAA
Clinician's Brief, 03:19

Dosing of meloxicam

Meloxicam carries a relatively high dose on its label in the U.S. (0.3 mg/kg, SQ) which may have predisposed to incidents of acute kidney injury and renal failure in compromised cats. This prompted a "black label" advising veterinarians not to use this drug more than one dose and not orally. Used more modestly (lower doses e.g. 0.1 mg/kg) and in properly vetted, supported, and monitored patients, meloxicam has a satisfactory safety record in cats. It does have a relatively long plasma T1/2 of 20 hours, compared to the COX-2 selective robenacoxib with its quite short plasma T1/2 of 1.7 hours but still residing at the site of inflammation for >24 hours. Robenacoxib is labeled for pre-op use and for up to a total of 3 days through any combination of SQ and PO administration.

Mark E. Epstein, DVM, DABVP
Fetch Kansas City, Aug 2019

Feline idiopathic cystitis (FIC)

Feline idiopathic cystitis is the most common cause of non-obstructive feline lower urinary disease. This disease is generally seen in younger and middle-aged cats and is uncommonly diagnosed in cats greater than 10 years of age. Affected cats can suffer recurrent episodes, which generally resolve without treatment over the course of 3-7 days. FIC can present as an acute episode or develop into

a chronic re-occurring condition. Recent developments in the understanding of the neuro-hormonal abnormalities that exist in affected cats suggest that the signs develop from an inability to cope with chronic stress. No cure is currently available for FIC, and treatment options are aimed at keeping the cat's clinical signs to a minimum, and increasing the disease-free interval. When a cat is diagnosed with FIC, analgesic therapy should be initiated for the acute management of the disease. Prazosin hydrochloride may be helpful to relieve urethral spasm. It is important that the client appreciates that all current treatments for FIC are merely palliative and that without application of multi-modal environmental modification and measures to increase water intake, the FIC episodes will recur and will require continued management. A primary objective in managing FIC is to encourage the production of large volumes of dilute urine (SG <1.035). Any measures which will increase the cat's water intake are likely to be helpful. Feeding canned food is particularly effective, as is offering the cat palatable fluids to drink (chicken or fish stock, water from tinned fish, etc.). Adding extra water to canned or dry foods works well. Monitoring of the success of the owner's attempts to increase water intake can be done via regular analysis of the urine samples collected at home or in the clinic. Aim is to keep the urine SG below 1.035.

*Kelly St. Denis, DVM, DABVP
CVC Kansas City, 08:17*

Poisoning myths

Pot scrubbing sponges manufactured by Procter & Gamble contain a dangerous derivative of agent orange. The myth is that an owner cleaned out aquarium with a new sponge and when he placed the tropical fish back into the aquarium, they died. He concluded that the Pot scrubbing sponges manufactured by Procter & Gamble contain a dangerous "derivative of 2,4-D, more popularly known as Agent Orange" that can kill pets. This rumor is wrong on many levels. First of all, Procter & Gamble doesn't make sponges. 2,4-D is not Agent Orange, it is a safe herbicide. Most likely the fish died after being replaced in the aquarium following cleaning and not completely rinsing out the aquarium, or destruction of the biological filter. **Burnt toast** is the universal antidote. This myth arises from the use of activated charcoal in poisonings. Unfortunately, the black bits off of burnt bread are not absorbents like activated charcoal.

*Tina Wismer DVM, MS, DABVT, DABT
Fetch Kansas City, 08:19*

Diabetes and client communication

This author's advice is to never talk to clients on the phone. This rule has increased the quality of life enormously. When Mrs. Smith is on line two with a "quick question," it's never a quick question, so the author stopped taking these phone calls. That doesn't mean clients are left in the lurch. They are given the author's cell phone number and email address and told to text or email, and the author will respond—and they do it. It's much easier to answer questions this way, and you

don't get trapped in a 20-minute conversation when you can't afford the time. Plus, with email, you have documentation of the conversation and can include it in the patient record.

*David Bruyette, DVM, DACVIM
DVM News Magazine, 12:18*

Utilizing Tris EDTA in otic products

To maximize bactericidal activity it is essential for EDTA to be in an environment with an alkaline pH. Appropriate pH (8.0) is maintained by combining it with buffers such as tromethamine (TRIS) hydrochloride. This alkaline pH also decreases the bacterial MIC for an aminoglycoside or a fluoroquinolone. It is therefore useful to use TrisEDTA prior to instilling either of these antibiotics. Two commercial veterinary preparations are available - TrizEDTA, (Dechra) or Tris Flush (Sogeval). The ear canal should be filled with the solution prior to instilling the topical antibiotic (15-30 minutes before is ideal). This is done q12 hrs. EDTA is used primarily for treatment of otitis externa and/or media caused by gram-negative organisms especially Pseudomonas. A product made by Dechra, TrizChlor contains 0.15% chlorhexidine in addition to the TrisEDTA. The combination of these 2 ingredients is beneficial due to the synergistic effect between EDTA and chlorhexidine. The addition of the chlorhexidine extends the antimicrobial spectrum to include cocci in addition to the rods. There are 2 studies that support the effectiveness of this combination. The limitations of these studies are they are

in vitro studies and they used a 30-minute contact time. Whether these results can be repeated in vivo has not been studied. Since the author uses this product in combination with other topical agents, it is impossible to draw an accurate conclusion. (Editor's note: see October issue, page one on safety of chlorhexidine in cats.)

*Paul Bloom, DVM, DACVD, DABVP
Fetch San Diego, 12:17*

Behavior myth

"A puppy should not be allowed with any other dogs until they have had all of their shots." Fact: The socialization period of the dog (considered to be approximately between 6 and 12 weeks of age) is the time when dogs are most able to form new relationships with those of their own and other species, and to adapt to stimuli in their environment (habituation). During this period, puppies begin demonstrating startle reactions to sound and sudden movements, as well as fearful body postures. Unsocialized puppies do not learn to discriminate between things that are truly dangerous and those that are not. They are likely to continue to become increasingly fearful of novel objects, people and environments. Proper socialization during this period is critical if the owner desires a dog that is tolerant of other people and animals and unafraid when exposed to novel environments and situations. In spite of the growing body of data supporting the benefits of proper socialization, many veterinarians continue to instruct new puppy

owners to avoid taking their puppy anywhere or exposing it to any other dogs until it has had all of its vaccinations. Simply taking a puppy to a dog park and turning it loose with a group of dogs does not necessarily socialize. A good puppy class is the easiest way for a new puppy owner to raise a puppy that will grow into an adult dog that will be a good companion and a pleasure to have.

*Valarie V. Tynes, DVM, DACVB
Music City Vet Conf, 02:18*

Use of moisturizers

The terms moisturizers and emollients are frequently used interchangeably. Moisturizers typically contain water as the main ingredient mixed with humectants to hydrate the stratum corneum. While emollients classically contain some form of lipid, water itself can contribute to dryness and worsen the skin barrier because prolonged contact with water can disrupt the stratum corneum and water rapidly evaporates after application. Watery lotions can worsen the skin barrier and predispose to development of AD. Therefore, ointments or thick creams rather than watery lotions are preferred in humans with AD.

*Ashley Bourgeois, DVM, Dip ACVD
Fetch Kansas City, Aug 2019*

Studies on benefits of probiotics

The author advises, when selecting a probiotic: Use probiotics that have undergone the most rigorous research that we are aware of. * *Enterococcus faecium* strain SF68 enhanced recovery in diarrheic shelter cats. * A multistrain prebiotic and probiotic product, including *E faecium* strain SF68, improved diarrhea in owned cats. * *E faecium* strain SF68 improved fecal quality in cats with chronic intractable diarrhea. * Dogs receiving *E faecium* strain SF68 and the antimicrobial metronidazole had a decreased prevalence of diarrhea, compared with dogs receiving metronidazole alone. * A multistrain probiotic product provided a protective effect in dogs with inflammatory bowel disease. A promising approach for managing cats with constipation includes dietary pre- and probiotics. An imbalance in colonic microflora is thought to contribute to some chronic gastrointestinal disease in people. One pilot study found clinical improvement in cats that received a probiotic after having chronic constipation unresponsive to traditional treatments.

*Drs. Stanley Marks and Susan Little
JAVMA, Sep 15, 2019*

Taking care of mobility issues in the home

A home visit can be very helpful when assisting a family with a plan to manage their pet. But for many veterinarians, that is just not something that can be done. You can ask families to bring in videos and pictures of the environment to help you look for trouble spots, identify areas of opportunity or confirm that the family is doing a great job with their pet! Mobility is the most common ailment that this author manages, particularly with the larger breed dogs (but it does affect cats as well). Over half of the homes the author enters have the main living area covered in tile flooring – with no solid traction areas for the dog to walk securely

on! This is the **ice rink of death** for a dog with mobility issues. You will be amazed at what a simply ‘run way’ of yoga mats or bath mats can do for a dog! Harnesses that can be worn at all times is also a great benefit. Yes – a beach town is good– but try getting that under a big dog in time to assist them. Traction booties, Pawfriction, Toe Grips are all highly recommended products.

*Mary Gardner, DVM
Fetch, Kansas City, 08:19*

Monitoring shock doses of fluids

When a patient has clinical signs of shock, attempts to restore circulating volume starts with crystalloid fluids. Circulatory shock can be due to inadequate volume, poor cardiac function, maldistribution of blood flow or a combination. The initial “shock volume” of fluids is often given and serves to answer the question: “Is this patient volume responsive?” Aggressive fluid loading has the **potential to cause harm**. One of the worst things we can do is cause pulmonary edema when pushing fluids too quickly. It is essential for all members of the team to be cognizant of the possibility and aware of signs of early fluid overload. The “shock” volume of fluid necessary to reverse the signs of shock is different for every patient. Rather than giving a full blood volume each hour of crystalloid solutions, it is safer to carefully titrate fluids while observing the patient for evidence of resolution and fluid overload. Rather than giving textbook shock volumes (in the dog this has been 90 ml/kg/hr and for the cat about 44 ml/kg/hr) this author recommends giving 25% of this volume to find out if the patient is volume responsive. Once we see clinical resolution of shock (normal heart rate, improved pulse quality, normal capillary refill) we can move to the second phase of fluid resuscitation (dehydration phase). One must be cautious about overhydration and hemodilution. Overhydration during the emergency phase is most likely to occur when large volumes are administered to animals with pulmonary contusions, preexisting pulmonary edema, aspiration pneumonitis, hypoproteinemia, brain injuries, and congestive heart failure.

*Tim B. Hackett DVM, MS, DACVECC
65th HI VMA Conf, 11:18*

Outpatient therapy for parvovirus

Outpatient therapy for parvoviral enteritis has been described, when client financial constraints prevent hospitalization for standard care. Members of the Small Animal Center for Companion Animal Studies at Colorado State University have developed an outpatient protocol to be used when longer-term hospitalization is not possible. The protocol first administers intravenous crystalloid fluids as boluses to stabilize cardiovascular stability and hypoglycemia. Once more stable, subcutaneous fluids (Normosol-R) are administered three times daily (40 ml/kg/dose), along with analgesia buprenorphine (0.02 mg/kg, SQ, q6-8h), one dose of Cefovecin (8 mg/kg, SQ), maropitant (1 mg/kg/day, SQ), and rescue antiemetic as needed. Provision of enteral nutrition every 2 – 6 hours has been shown to be effective at further improving outcome. Outpatient therapy for parvoviral enteritis has been described, when

client financial constraints re an issue.

*Elisa M. Mazzaferro, MS, DVM, PhD, DACVECC
Fetch Kansas City, Aug 2019*

Taking a diet history

There are several important questions that should be included when taking diet histories for dogs with suspected AFR. These questions include not only specific foods and treats fed but also inquiries examining other sources of foods including dog walkers/pet sitters, toddlers, grandparents, and other individuals who have contact with the pet. It is frequently helpful to allow the owner to complete the diet history form at home so it's as accurate as possible when recording foods and treats given. Specific and open-ended questions are encouraged when taking a diet history to ensure that the owner feels comfortable sharing openly and honestly. For example, it may be useful to ask "What treats does your pet get when s/he comes in after going to the bathroom?" rather than, "Does your pet get any treats?" When owners feel that it is assumed their pet receives treats they are more likely to share openly. An effective dietary elimination trial hinges on a complete diet history so that an appropriate food may be identified for the trial and all other foods may be addressed with the owner.

*S. Dru Forrester, DVM, MS, DACVIM
65th HI VMA Conf, 11:18*

Metacarpo-phalangeal Joints

The metacarpo-phalangeal joints may hyperextend if the animal chronically pulls their weight forward, has chronically long nails, or if there is a metabolic ailment causing a generalized ligament laxity. The toes may appear to be flat and straight rather than in their normal angled configuration. Ligaplex from Standard Process (standardprocess.com) is a nutritional supplement designed to support tendons and ligaments and may be beneficial. Exercises like walking or running in sand or on gravel can help strengthen the digital flexor muscles and tendons. These may slow down the progression and in some cases improve flexor muscle tone and shape to the digits.

*Laurie McCauley, DACVSMR, CCRT, CVA, CVC
Emerald Coast Vet Conf, 06:18*

The Apoquel label

The Apoquel label states in the warning section that the drug may exacerbate neoplastic conditions. In the precautions section, it says that dogs on Apoquel should be monitored for development of neoplasia. These statements appear as a result of the classification of Apoquel and not as a result of any specific studies that have shown exacerbation of neoplasia. No cause-and-effect relationship has been established between administration of Apoquel and development of neoplastic conditions. It's there on the label for veterinarians to be aware of. It is always important to remember that observation does not always equate to causality.

*Dawn Cleaver, DVM
Clinician's Forum Supp, Sep 2019*

Benzodiazepines for thunderstorm phobia

Benzodiazepines are very potent anxiolytics that can be very helpful for severe cases. Part of their effect may be due to sedation. Long term use may produce habituation. There may be withdrawal signs which can be severe. Must slowly taper off. They may release inhibitions in fear aggression and disinhibit bite behavior. **Alprazolam:** DOGS: 0.02-0.1mg/kg, PO, SID-TID. CATS: 0.125 - 0.25 mg/cat, PO, SID-BID. **Diazepam:** DOGS: 0.55-2.2 mg/kg, PO, SID-TID. CATS: 1-2 mg/cat, SID-BID (**Acute, fatal hepatopathy documented in small number of cats**). **Lorazepam:** CATS: 0.125-0.25 mg/cat, BID. **Clorazepate** (longer acting, more expensive): DOGS: 0.55-2.2 mg/kg, PO, daily, SID-BID. CATS: 0.55-2.2 mg/kg, PO as needed. **Clonazepam:** DOGS: 0.1-1 mg/kg, PO, SID. CATS: 0.05-0.25 mg/cat, SID-TID.

*Wayne Hunthausen, DVM
Fetch Kansas City, Aug 2019*

Don't reach for steroids in head trauma cases

In the patient with head trauma, we ideally want to avoid the use of corticosteroids due to the potential for hyperglycemia. Recent studies have shown that human patients with head trauma and hyperglycemia have a poorer return to cognitive function than do euglycemic patients. Why is hyperglycemia dangerous in these cases? Because elevated glucose concentrations provide a substrate for anaerobic metabolism and glycolysis in the brain. Hyperglycemia is also associated with pro-convulsant effects due to increased neuronal excitability. Instead of reaching for corticosteroids in the head trauma patient, consider these treatments instead: 1) Osmotic agents such as mannitol, which have been found helpful in decreasing intracranial pressure (ICP). 2) IV fluid resuscitation to help normalize or maintain blood pressure and maximize perfusion. 3) Oxygen therapy. 4) Elevation of the head 15 to 30 degrees (to lower ICP). 5) Minimal jugular restraint or pressure (to prevent increased ICP). 6) Tight glycemic control.

*Justine Lee, DVM, DACVECC, DABT
DVM News Magazine, 09:18*

Crowe collar for delivery of oxygen

An oversized Elizabethan collar (E-collar) is used to create the stabilization of an oxygen delivery tent. The oxygen source is taped to the inner ventral surface of the collar and a plastic piece is placed over 3/4 of the large opening. Thus leaving 1/4 of the dorsal opening available for ventilation. This technique for oxygen delivery is effective, well tolerated in the awake patient, doesn't need close attendance, patient can be mobile, and requires minimal equipment to achieve high FiO₂ (potentially up to 60%-70%). Monitor the interior coned space for overheating and excessive condensation.

*Kelly Tart, DVM, DACVECC
24th Int Vet Emer Critical Care Conf, 09:18*

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