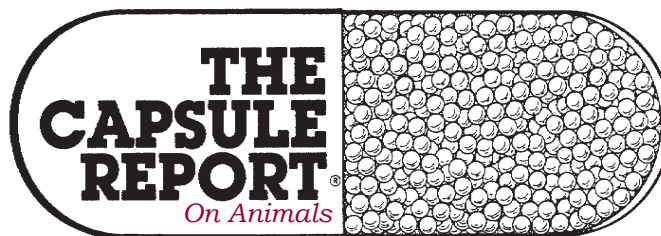


A digest of practical and clinically relevant information from this month's journals and proceedings



Small Animal/Exotic Edition

Our 30th Year

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Preventing food allergy

Researchers have demonstrated that allergen-specific IgE levels increase to food antigens being fed in allergy-prone dogs immunostimulated by prophylactic vaccines for at least 3 weeks following vaccination and subside to normal prevaccination levels in 8-9 weeks. Based on the potential for sensitization to foods being ingested at the time of booster vaccinations during puppyhood and kittenhood, this author typically advise that a **“sacrificial” protein be fed** during this stage of a dog or cat’s life, especially in breeds with a predisposition toward allergies. Once the pet reaches adulthood and vaccines occur annually or less frequently, then switch to a different protein source; for example, start with a lamb-based diet in puppy/kittenhood, then move to a chicken-based diet into adulthood. Avoid keeping the pet on the same protein source through its life to prevent development of food allergies.

Anthony A. Yu, DVM, MS, Dip ACVD
NAVC Clin Brf Supp, 2013

Fluids before anesthesia

Basal fluid water requirements depend on metabolic rate and rarely exceed 1-2 ml/kg/hr at room temperature in dogs and cats. Any attempt to restore estimates of fluid deficit due to dehydration with a crystalloid immediately preoperatively (within 1-4 hours of the surgery) or intraoperatively almost always leads to tissue edema. Simple dehydration (i.e. loss of water alone) results in proportional reductions of both interstitial fluid and plasma volume. The dehydrated interstitium absorbs the crystalloid solutions that are infused and decreases their effectiveness to produce plasma volume expansion. Furthermore, there is no evidence to support preoperative fluid loading with a crystalloid to prevent hypotension during anesthesia. Studies in both hydrated and dehydrated human surgical candidates suggest that it is an ineffective and unfounded practice whether or not patients have been fasted. Fluid loading immediately before anesthesia and surgery in an attempt to replace fluid losses due to mild dehydration **should be abandoned**.

William W. Muir, DVM, MS, PhD, Dip ACVA
Vet Med, Feb 2013

Post-anesthetic blindness in the cat

Post anesthetic blindness can occur in cats most commonly following dentals but can occur after endoscopy. The spring-held mouth gag seems to increase the risk. Hypotension may compound the risk. The blood supply to the feline brain is primarily via the maxillary artery. It is possible that the use of the mouth gag reduces blood flow to the brain through the maxillary artery by stretching of the vasculature and/or adjacent muscles with resulting vascular compromise. Some cats will regain vision but some may not. A small mouth gag can be fashioned by cutting a tuberculin syringe barrel and placing it on opposing canine teeth and thus avoid overstretching the mouth. In dogs and cats undergoing a **dysphoric recovery** consider a low dose dexmedetomidine, 1-2 µg/kg, IV to provide sedation and analgesia.

Jane Quandt, DVM, MS, Dip ACVA
18th IVECC Symp Proc

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An ECG app

This simple but powerful single-lead ECG recording system is composed of an iPhone 4/4S case with two electrodes on the back of the case and a downloadable app. Simply insert your iPhone 4/4S into the case and, after downloading the app: **AliveECG Vet**, commence ECG recording. In most circumstances, the left side of the animal’s chest is wiped with alcohol, and the electrodes are gently placed parallel to the long axis of the heart against the animal’s chest. Recording and display of the ECG on the iPhone’s screen begin immediately after good skin contact is obtained. Recording time is programmable in increments of 30 seconds or can be set to continuous recording. The sensitivity and “paper” speed can be altered within the application for optimization of the ECG trace. The file can be stored on the iPhone alone, or it can be automatically sent for cloud storage, enabling review on any Internet-connected computer. Files may be emailed, printed, or viewed as a PDF from within the application. This system is not meant to replace a multi-lead ECG but it is useful on a daily basis for its accessibility and portability, its ease

The Capsule Report.

of use, its good recording quality, and, perhaps most important, its utility in the assessment of basic cardiac arrhythmias.

*Barret Bulmer, DVM, MS, Dip ACVIM
Vet Med, Feb 2013*

Analgesia in the cat

Many patients suffer in silence, and therapy for pain is problematic. In the author's experience, many clinicians are afraid of the 'dysphoric' effects of opioids in cats, and this is rarely a problem. The author also feels that butorphanol is an inadequate analgesic for anything but mild pain - it is overused for severe pain as can be seen with traumatic injuries. For mild pain, the author prefers low-dose hydromorphone or buprenorphine, and for moderate to severe pain a full mu-agonist is indicated. A fentanyl continuous-rate infusion of 1-5 µg/kg/hr is an effective and adaptable way of controlling pain, and can be adjusted to compensate for changes in pain level and sedation. Some cats on opioids (particularly transdermal fentanyl) will develop a fever, although the mechanism for this phenomenon is unexplained. Transdermal fentanyl patches are a popular way of providing pain relief in cats, but their effect is too unreliable to be a viable option for actual pain. Some patients are over-sedated, many are under-medicated, and the author feels that they lull the clinician into feeling like they are doing 'something' for pain, while in fact they are not. They may be helpful for leveling out the 'peaks and valleys' of intermittent opioid administration, but should not be counted on for complete analgesia.

*Tony Johnson, DVM, Dip ACVECC
WI VMA Conf Procd, 2012*

Positioning the spay patient

Don't tie the front legs forward of the patient's head when performing a spay. Position the patient with the front legs along its side rather than pulled forward past its head or, if you have a V-table, leave the front legs untied. Pulling the legs forward, which is commonly done, tightens the muscles of the back and tightens the suspensory ligaments of the ovaries. Positioning the limbs along side the patient's thorax or leaving the front legs untied will relax the suspensory ligaments and **make delivery of the ovaries through an abdominal incision easier**. A simple restraint device allows this positioning of the patient and helps prevent tilting of the patient to one side or the other.

*Philip A. Bushby, DVM, Dip ACVS
SW Vet Symp Procd, 09:12*

IBD and role of cobalamin

Low serum B₁₂ (cobalamin) has often been regarded solely in the context of its diagnostic utility in identifying dogs with small intestinal bacterial overgrowth.

However, low serum B₁₂ has been described in cats in association with a wide variety of GI disease, including IBD. It is likely that mucosal repair is impeded in the initial management of IBD when B₁₂ is deficient and its absorption impaired; however, this has not been investigated. Consideration should be given to B₁₂ assays in the initial evaluation of dogs and cats with chronic intestinal disease and to parenteral administration during the initial management of IBD if low serum cobalamin is identified. Dogs and cats are typically supplemented with B₁₂ at a dose of 250-1,500 µg (depending on the weight of the animal), SQ, for 6 weeks on a weekly basis, with supplementation continued on an as-needed basis.

*Stanley L. Marks, BVSc, PhD, Dip ACVIM
Clin Brief Supp, Jan, 2013*

Ivermectin therapy for demodicosis

Ivermectin is another therapy indicated for use in cases that are "amitraz failures" or for dogs that relapse after an "amitraz cure." It should be avoided in ivermectin-sensitive breeds such as the Collie, Shetland Sheepdog, Old English Sheepdog, potentially other herding breeds, and any mixes of these breeds (white feet/don't treat). Toxicity reactions include ataxia, tremors, mydriasis, weakness or recumbency, blindness, hypersalivation, depression, and in severe cases, coma or death. A deletion mutation within the multidrug resistance gene (MDR 1) has been identified in ivermectin-sensitive dogs. PCR can be done at Washington State University to identify those dogs that are homozygous carriers of this mutation: <http://www.vetmed.wsu.edu/depts-VCPL/test.aspx>. **Test dosing** with ivermectin can be done using 120 µg/kg to try to identify those dogs that are P-glycoprotein deficient and may be more susceptible to the side effects of ivermectin. Patients that are going to be treated with ivermectin should also be tested negative for heartworm infestation prior to its use. The 1% solution is dosed at about 440 (200-600) µg/kg/day, PO. Higher remission rates (83%) with shorter courses of treatment (mean 10 weeks) are seen with the higher doses. Therapy is continued for 1 month beyond the second negative skin scraping.

*Candace A. Sousa, DVM, Dip ABVP
Music City Vet Conf Procd, 02:11*

Diagnosing hypothyroidism via trial

In addition to making a diagnosis of hypothyroidism using standard laboratory testing, **response to treatment** can be used to confirm the diagnosis. Every animal treated for hypothyroidism should be monitored for a response. A positive response to adequate levothyroxine treatment is expected in every hypothyroid dog, but not all clinical abnormalities present may be due to hypothyroidism and not all signs of hypothyroidism resolve rapidly nor completely. It is not recommended to initiate treatment without performing thyroid function testing, but if this is to be done, the following protocol should provide the most accurate assessment of response to treatment. Obtain history and physical examination after treatment for 6-8 weeks of levothy-

roxine (0.02 mg/kg, q12-24h). If a positive response has occurred, treatment should be withdrawn and the dog re-examined in 4-6 weeks. A diagnosis of hypothyroidism is made when the clinical signs improve or resolve during treatment and reoccur after cessation of treatment. Other treatment should be avoided during this trial period.

*David Panciera, DVM, MS, Dip ACVIM
VA Vet Conf Procd, 02:10*

Use of impregnated triclosan suture

Incisional infection and inflammation are among the most common complications following surgery in small animals, with postoperative infection rates following tibial plateau leveling osteotomy in dogs reportedly ranging from 3% to 7%. Use of antimicrobial-impregnated suture has been advocated to decrease postoperative infection rates, but in this retrospective cohort study involving 283 dogs that underwent a TPLO procedure, results of **infection and inflammation did not differ** between cases in which triclosan-impregnated suture material was used and cases in which standard suture material was used. Thus, this suture type cannot be strongly recommended for use in a routine, elective orthopedic surgery in veterinary medicine.

*Sean W. Etter, BS et al.
JAVMA, Feb 1, 2012*

Glaucoma management

The list of dog breeds with primary glaucoma grows yearly. Any dog with primary glaucoma in one eye should be under the care of an ophthalmologist and on prophylactic treatment in the “normal” eye. The ultimate “mistake” is not in enucleating the blind, painful first eye. Dropping the globe in the kick bucket and doing nothing for the remaining eye is the sin. Blind dogs that are comfortable do great! If vision can't be returned in the second eye, it too should be enucleated or an intraocular prosthesis put in place. Veterinarians and clients do not relate the inactivity in uncontrolled glaucoma dogs to the chronic pain they suffer. After over 30 years, this author is still impressed with how well blind and comfortable dogs function.

*Kerry Ketring, DVM, Dip ACVO
76th AAHA Conf Procd*

Optimal times for cold compresses

Results of this study suggested that a minimum time of application of cold compresses should be 10 minutes when this method is used on the epaxial region in dogs with an ideal body condition score. With this method, there was no significant change in temperature at the superficial and deep level by increasing time of application from 10 to 20 minutes; however, maximal tissue cooling at the deep depth occurred with an application time of 20 minutes. Thus, for maximal cooling, the minimal time of application should be 20 minutes. Changes in tissue temperature and adverse effects of application >20 minutes require further evaluation.

*Ralph P. Millard, DVM, MS
Am J Vet Res, Mar 2003*

Biting insect hypersensitivity

Other biting insects can cause symptoms similar to flea allergy dermatitis. These include mosquitoes and *Culicoides*. Unfortunately, most private practitioners do not know about these allergies and therefore they go undiagnosed and untreated. The history usually includes proximity to water, access to the outside and possible owner complaints about biting insects. Hypersensitivity to these insects can look similar to flea allergy dermatitis. They can also cause generalized pruritus and granulomatous lesions. Diagnosis is made by intradermal testing with mosquito and *Culicoides* antigen. If this is not available, diagnosis can be made by resolution of signs with the use of insect repellents. At this time permethrins are the best therapy. Dogs must be treated daily with low concentration sprays or gels (<1% permethrins) or one to two times weekly for high concentration sprays (2%). The high concentration spot-on products that are available will not control insect hypersensitivity unless they are used every one to two weeks (off label use for most products). Other ways to help control mosquito/*Culicoides* hypersensitivity are to keep pets in at dawn and dusk when the insects are most active and use environmental insect control. Problems occur when the patient or client is sensitive to permethrins. Skin So Soft or natural repellents can be tried in these instances.

*Dawn Logas, DVM, Dip ACVD
MT VMA Conf Procd, 06:12*

Nosocomial concerns with Staphylococcus

Susceptible and resistant strains differ in antibiotic susceptibility, not pathogenicity, so the most important step is to minimize exposure of susceptible dogs to resistant Staphylococcus while on antibiotics. In the author's hospital, dogs that have known resistant Staphylococcus are taken into the room sooner. The staff institutes very strict hand hygiene between patients—everyone washes hands before and after seeing the patient, regardless of whether they are wearing gloves, and gloves are essential if you are going to touch pus. Hand sanitizers are used between patients. But even if you are sanitary, the next thing that you touch probably is not. Ties are rarely laundered, and they provide no benefit to patient care. If the author washes and sanitizes the hands and then straightens a tie to meet the next client, he has recontaminated himself. You have to be conscious of all objects: floors, tables, hands, the things you hang around your neck like a stethoscope, the otoscope cones, and the otoscope handle. Many of us clean otoscope cones between patients, but when was the last time you cleaned the otoscope handle?

*John C. Angus, DVM, Dip ACVD
NAVC Clin Brf, Jan 2013*

Over-diagnosing ringworm

Ringworm is both over-diagnosed and overlooked in practice. Three species of dermatophytes are responsible for most clinical disease. *Microsporum canis* is a zoo-philic organism responsible for most cases of ringworm in dogs and cats. *Microsporum gypsum* is a soil inhabitant, and *Trichophyton mentagrophytes* infections are usually associated with exposure to rodents or the outdoor environment. Clinicians often rely on clinical signs only and this leads to over-diagnosing the condition. The clinical signs most commonly associated with ringworm are circular areas of alopecia and a ring of scale, but most of the time this lesion is *not* ringworm. Dermatophytosis is a follicular disease, but so are pyoderma and demodicosis, and both occur more frequently than ringworm. Always consider and look for all three common causes of folliculitis. Remember that dermatophytosis can have other clinical presentations that are not as classic, making the diagnosis a little more elusive.

*Patricia White, DVM, MS, Dip ACVD
79th AAHA Conf Procd*

Methicillin-resistant pyoderma

In refractory or severe pyoderma cases, systemic antibiotic therapy is used in combination with topical therapies. Because of the variability of methicillin-resistant isolates, antibiotic choice should always be based on in vitro antibiotic susceptibility testing. **Never treat methicillin-resistant infections with beta-lactam antibiotics** (penicillins and cephalosporins), even if in vitro testing implies susceptibility. This is because methicillin resistance means resistance to all beta-lactams, but laboratory reporting errors can occur and erroneously imply sensitivity where it does not exist. For superficial pyoderma (whether methicillin susceptible or methicillin resistant), antibiotics are required for at least 3 weeks (one week beyond complete healing); for deep pyoderma, antibiotics may be needed for 4-8 weeks or longer (or 2-3 weeks beyond complete healing).

*Kimberly S. Coyner, DVM, Dip ACVD
Vet Med, Jan 2013*

Use of Genesis Spray

A topical steroid spray containing 0.015% triamcinolone (Genesis Spray) can be quite useful in the management of the atopic patient. Its use may reduce the need for systemic medications. Labeling of the product suggests application twice daily for 7 days, once daily for 7 days, then every other day for 14 days. However, this product is often used long term to reduce the need for systemic medications. When used long-term, care must be taken not to apply the product more than 2-3 times weekly. Minimize the application of the product to the ventral abdominal skin as this is where one tends to see side effects more commonly (less hair, more contact with the product). The patient should be monitored for cushingoid side effects, and for the development of localized infections. This product can also be useful in the management of some autoimmune dermatoses such as

pemphigus. Again, its use may decrease the dosage or frequency of systemic steroid administration.

*Karin Beale, DVM, Dip ACVD
82nd FL VMA Conf Procd*

CPR, ET drug administration

Administration of drugs via the ET route offers a simple and rapid method for drug administration during CPR; however, it is not recommended as a primary route. Epinephrine, atropine, and vasopressin (but not sodium bicarbonate) can be administered via this route. The mnemonic device NAVLE (naloxone, atropine, vasopressin, lidocaine, and epinephrine) can be a useful reminder of CPR-related drugs that can be administered ET. At least 2 to 3 times the IV dose should be administered when this route is selected, and the drug should be diluted in an appropriate volume of saline (0.9% NaCl) solution (i.e., 2.3 mL/44 lb) and injected through a catheter that extends beyond the tip of the endotracheal tube. Distilled water may allow more effective absorption of the drug but can at least temporarily impair pulmonary oxygen exchange. A downside to ET drug administration is that the dose-effect relationship is uncertain. Furthermore, a depot-like effect can be caused by accumulation of epinephrine following ET administration during CPR when pulmonary blood flow is very low.

*Manuel Boller, Dr med vet, MTr, Dip ACVECC et al.
JAVMA, 240:5*

Vascular clips, choosing the right size

Vascular clips are a quick and convenient option. It is important to choose a clip size that is longer (about 1/3 to 2/3) than the diameter of the vessel. It's a matter of basic physics: Once flattened by the clip, the circular vessel will become oval, and therefore longer. If you do not take this little fact into consideration, bleeding will continue after application of the clip.

*Phil Zeltzman, DVM, Dip ACVS
Vet Pract News, Dec 2012*

Dermatophytosis in the cat

The diagnosis of dermatophytic infection is based on the history, a thorough dermatological examination, and fungal tests. The differential diagnosis for dermatophytosis is extensive as a result of the variable clinical signs. In dogs, dermatophytosis is rare. If lesions are suggestive, they are more commonly due to either staphylococcal folliculitis or demodicosis. In cats, however, dermatophytosis is not uncommon and can present with a plethora of clinical signs. Therefore, **each cat with skin disease should be examined for dermatophytosis.**

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