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"Pearls" of Veterinary Medicine

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AT A GLANCE

Topical therapy for Staph skin infections

Chlorhexidine has been proven in *in vitro* and *in vivo* studies, as well as in a systematic review of all topicals for superficial pyoderma, to have the best evidence for efficacy in the resolution of Staph skin infections. The author will use anything from a 1%-4% concentration in either a shampoo or spray formulation (the higher 3% or 4% concentrations are necessary if there is concurrent yeast infection). Avoid using benzoyl peroxide unless there is significant greasy seborrhea – benzoyl peroxide may strip lipid from the skin in dogs and we have recently discovered that the lipid barrier in many of these allergic dogs is already defective.

Andrew Hillier, BVSc, MANZCVS, Dipl. ACVD
SW Vet Symp, 09:15

Cyclosporine and steroids for atopy

Long-term use of cyclosporine A modified (CsAM) combined with systemic corticosteroid drugs has been associated with development of fatal opportunistic fungal infections, so should be avoided. CsAM typically acts relatively slowly, often taking 2-4 weeks to reach maximum effectiveness. Therefore, many dermatologists begin a *short* (2-week) tapering course of oral prednisolone along with CsAM for faster patient relief; this appears safe to do. Therapeutic monitoring (serum chemistries, blood counts, or CsA serum concentrations) is neither recommended nor necessary when using CsAM for AD patients.

Douglas J. DeBoer, DVM,DACVD
SE Vet Conf, Jun 2016

Fluids in car trauma cases

Experimental evidence and clinical experience supports the view that aggressive volume expansion in patients with uncontrolled hemorrhage is associated with increased bleeding and a higher mortality rate. This is likely due to increased volumes of hemorrhage and loss of red blood cells, platelets and clotting factors. The most common situation in which uncontrolled hemorrhage is encountered is following vehicular trauma. Intra-abdominal hemorrhage and pulmonary contusions are the most common sites of bleeding. Pulmonary hemorrhage appears to be exquisitely sensitive to volume expansion. Aggressive fluid resuscitation almost always worsens pulmonary bleeding and this author considers aggressive volume expansion to be ***absolutely contraindicated*** in this patient population. The concept of hypotensive resuscitation, where gradual intravascular volume expansion is performed over a longer period, has been gaining support in recent years and may be particularly relevant in the management of animals with pulmonary contusions.

Dez Hughes, BVSc MRCVS, DACVECC
VECCS Symp, 03:14

MDR1 gene and pesticides

Abamectin (similar to ivermectin) is the active ingredient in many pesticides licensed for both indoor (e.g., ant bait, roach bait) and outdoor (e.g., premise sprays) use. These products can cause severe neurologic toxicity in dogs with *MDR1* mutation. Animals with the *MDR1* mutation should avoid contact with these products. Clinical signs in dogs are similar to those observed with ivermectin toxicosis. The author is unaware of specific abamectin toxicities in cats, but clinical signs are expected to be similar to those seen with ivermectin.

Katrina Mealey, DVM, PhD, DACVIM, DACVCP
NAVC Clin Brf, May 2016

Acetaminophen use in OA

Acetaminophen has analgesic and antipyretic effects,

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but no known anti-inflammatory effect. The mechanism of action is unknown, but may involve COX-3 enzymes in dogs as well as serotoninergic effects. High doses (100 mg/kg) are hepatotoxic to dogs. It should NOT be used in cats. It has been used short-term as an alternative to or as an adjunct with NSAID use in dogs. The reported half-life is 0.5-3 hours in dogs. Reported dosing is 10-15 mg/kg, BID-TID and common formulations include hydromorphone, which has consistent oral bioavailability exceeding tramadol (39%) and, unlike tramadol, the active opioid metabolite is present in relevant concentrations in dogs.

Carolina Medina, DVM, CVA and Patrice M. Mich, DVM, MS
83rd AAHA Conf, 2016

Ace-inhibitor therapy for nephropathies

Continuation of the article in the September issue. Based on the recognized benefits of angiotensin II-receptor blockers (ARB) therapy in people with proteinuric nephropathies, many veterinary nephrologists consider use of losartan in dogs with persistent proteinuria despite treatment with an ACE-inhibitor. First-line therapy with ARBs is not recommended, as it is unknown whether this would worsen, improve, or not change long-term prognosis. Because of the limited experience in dogs, veterinarians are encouraged to first discuss with a specialist whether use of an ARB in a particular patient may be indicated. Most recommended protocols suggest continued administration of enalapril or benazepril at standard doses. An initial losartan dose (0.125-0.25 mg/kg, q12h) should be administered as an adjunct to ACE-inhibitors for 4-7 days, followed by measurement of serum creatinine concentration to confirm that azotemia has not markedly worsened. Losartan dose can then be titrated up in a step-wise fashion, based on continued reductions in UPC to a maximum of 0.5-2.0 mg/kg, q12h, again rechecking serum creatinine and UPC after each dose adjustment.

Barrak M. Pressler, DVM, PhD, DACVIM (SAIM)
West Vet Conf, 02:14

New guidelines for diagnosing Malassezia

You have a skin scraping sample from a itchy dog under the microscope. You spot one *Malassezia* organism. Is that enough to make a diagnosis? How many per high power fields are significant again? Throw out the previous guidelines embedded in your synapses and realize that grading *Malassezia* based on cytologic examination is of no use. The American College of Veterinary Dermatology (ACVD) has officially made this declaration. The ACVD has a position statement that states either dogs have *Malassezia* or they don't. So when you're evaluating a dog for *Malassezia* on the skin, if you find any *Malassezia* at all, it's enough to treat, even if you only find one or two in 10 or 20 oil fields.

Paul Bloom, DVM, DACVD
DVM News Mag, Aug 2016

Using honey to treat otitis

This study examined the use of a commercial, medical-grade honey (MGH) product for treating otic infections to determine if it would be an effective alternative to conventional therapies. Client-owned dogs *(n* = 15) with confirmed infectious otitis externa were enrolled and administered 1 mL of MGH once a day in each affected ear until clinical cure was achieved or until the end of the 21-day study. Results showed that 70% of dogs achieved clinical cure between days 7 and 14, and >90% achieved clinical resolution by day 21. Clinical otitis scores and owner assessments of pruritus decreased significantly over the course of the study, with ***75% of owners indicating they were very satisfied with treatment***. The antimicrobial, healing, and biofilm-breaking properties of honey make it an attractive alternative to antibiotics for treating chronic ear disease. Experience shows that although honey has excellent healing properties, its antimicrobial activity is incomplete. This was echoed in this paper, which showed that although a good clinical improvement was achieved in the majority of dogs, a complete bacterial cure was not obtained; as many dogs still had positive otic cytology after therapy.

Sue Paterson, MA, VetMB, DVD, DECVD, MRCVS
NAVC Clin Brf, Aug 2016

Post-operative pain management

Some patients will require a sedative postoperatively if they appear anxious, agitated, and continue to vocalize. This can happen despite the administration of adequate opioid. Determining if the agitation and excitement is due to pain, too much opioid or simply an emergence delirium (disorientation) is sometimes difficult. Dysphoric patients will not respond to someone trying to calm them down while painful patients will momentarily calm down. Acepromazine can be used in most dysphoric patients for sedation. In more critical patients, diazepam or midazolam can be used. If the dysphoria is due to too much opioid, naloxone can be titrated until the signs disappear. Another option is to use butorphanol at 0.05-0.1 mg/kg, IV. The response of the patient to the treatment will provide a clue on what the real problem is. In extremely aggressive patients, dexmedetomidine (1-2 µg/kg, IV) can be given.

Luisito S. Pablo, DVM, MS, DACVAA
NY St VMA Conf, 05:14

Vaccine myths

MYTH: Pregnant pets can safely be vaccinated. **TRUTH:** Absolutely not. Small animal vaccine labels state not to vaccinate pregnant pets. **MYTH**: Pets with diseases such as cancer or autoimmune diseases, or adverse vaccine reactions/hypersensitivity can safely receive booster vaccinations. **TRUTH:** MLV products should be avoided as the vaccine virus may cause disease. Vaccination with killed, inactivated products may aggravate immune-mediated disease or be ineffective. For rabies boosters, local authorities may accept titers or a written exemption instead. **MYTH:** Vaccines can be given less than 2 weeks apart if a different vaccine is

being given. **TRUTH:** The safest and most effective interval to immunize is 3-4 weeks apart. **MYTH:** The killed parenteral Bordetella vaccine given intranasally or orally produces immunity. **TRUTH:** It will not immunize the dog.

W. Jean Dodds, DVM
Vet Pract News, Jun 2016

Ketamine in status epilepticus

There is experimental and limited clinical evidence that ketamine can be an effective anticonvulsant drug for patients with refractory seizures. However, there is controversy as to when in the course of status epilepticus (SE) ketamine therapy should be initiated. No evidence based data could be found for the optimal dosing protocol for ketamine usage in SE. However, typical dosing protocols in humans involve delivering a 1-3 mg/kg loading dose, and delivering ketamine as a CRI at a rate of 0.5-5 mg/kg/hr. The ***author has used ketamine successfully*** at CRI doses from 0.5-2 mg/kg/hr.

John H. Rossmeisl, Jr., DVM, MS, DACVIM
AVMA Conf, 07:14

Answering questions about SDMA

If creatinine works for me, why use SDMA? SDMA concentrations appear to be unaffected by age, sex, muscle mass, liver disease, heart disease or hormonal conditions such as Cushing's syndrome. It also is less variable than creatinine. Creatinine concentrations vary with breed, age, muscle mass, dietary protein intake, tubular secretion of creatinine, sex, certain medications, interfering substances and dog size. For example, in dogs weighing 26-45 kg, normal creatinine concentrations can be as high as 2 mg/dl because of higher muscle mass and lower GFRs in comparison to small and medium-sized dogs. *If creatinine is already elevated, is there any point in running SDMA?* Yes, especially when it comes to International Renal Interest Society (IRIS) staging and treatment planning. If SDMA concentrations are >25 µ/dl but there is no further elevation in creatinine concentration, then the patient should be treated as the next IRIS stage up. For example, if the patient is stage 2 based on creatinine concentration but SDMA is >25 µg/dl, the author thinks that patient should be treated as an IRIS stage 3 patient. *What about when creatinine and SDMA don't agree?* If a patient has a normal creatinine concentration but an elevated SDMA concentration, that patient is considered IRIS stage 1 and should be treated as such. SDMA allows detection of CKD in 7% of canine patients and 16% of feline patients that would otherwise be missed with standard blood chemistry workups. If creatinine concentration is elevated but SDMA concentration is normal, then you should consider other confounding factors, such as muscle mass, interfering substances, heart disease, and dietary protein.

Leigh Perry, VMD, DACVIM
Vetted, Aug 2016

Otitis - yeast infections

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 hospital, the drug of choice is 1% clotrimazole plus 0.1% dexamethasone in polyethylene glycol solution formulated by the clinic's pharmacy. It is very effective, when combined with control of the primary factors of otitis externa.

James O. Noxon, DVM, DACVIM
AVMA Conf, 07:14

General treatment guidelines for FHV-1

Based on current evidence for safety and efficacy of antiviral drugs in cats infected with FHV-1, optimal therapy appears to be famciclovir given orally 3 times daily. If topical therapy is preferred and owners can administer drugs frequently, then topical idoxuridine is usually well tolerated and often effective. For owners who cannot manage therapy more often than q12h, the only topical antiviral with proven efficacy is cidofovir. Lysine can be useful adjunct therapy in some patients, especially to reduce frequency and severity of recrudescent disease episodes—must be administered q12h, not ad lib with food

David J. Maggs, BVSc, DACVO
Plumb's Ther Brf, 2:1

A differential list for the pruritic dog

A minimum data base should almost always include skin scraping - deep and superficial, dermatophyte culture, and surface cytology. Site selection and test interpretation is very important with the above simple but important tests. ***When in doubt***: With a papular pruritic disease - treat for sarcoptic mange. With a papular pruritic disease that is anywhere on the back 1/2 of the dog - place on complete flea control (sometimes puppies and young Labradors can have total body disease early on). With a papular pruritic disease that can be pustular - treat with a good skin antibiotic and note response. Culture if history of long term previous antibiotic use? With a pruritic disease where yeast is seen on cytologic evaluation, treat minimally with topical anti-yeast agents (if severe, systemic therapy is warranted). If minimal response is seen after the appropriate length of time, consider allergic disease as a cause of the pruritus. *THUS - treat for scabies, flea allergy and treat secondary infections. If disease remains then the "pure" clinical manifestation of the pruritic disease can be seen. Next step: discuss symptomatic therapy vs allergy work up to include food trial, intradermal skin testing/in vitro testing or less likely consider patch testing for contact allergy.

Sandra R. Merchant, DVM, Dipl. ACVD
20th NC Vet Conf

Big dog vs. little dog

All penetrating wounds should be surgically explored. This is especially important in the case of bite wounds since the teeth may only have made a puncture mark in the skin but as the animal was shaken there may have

been extensive tearing damage done to underlying tissues. Wounds that penetrate the abdominal cavity may have caused hollow or solid organ damage. The exception to this may be the penetrating thoracic wound. In the author's experience these patients have a ***high incidence of mortality*** if they are taken to surgery within the first 6-12 hours. If the patient can be stabilized medically it may be appropriate to delay surgical intervention in these cases.

Jennifer J. Devey, DVM, DACVECC
33rd SD VMA Conf

Test kits for recreational drugs

Most drug stores or other stores with in-house pharmacies sell OTC urine test kits for most of the common illicit drugs. These kits can be useful for screening veterinary patients with suspected exposures to most of the drugs. With the exception of marijuana and methadone, these ***kits appear to be fairly reliable***; however, they are screening tests only and have not been validated in species other than humans. So, while they can be quick and inexpensive means to support a clinical diagnosis, confirmation of the presence of the suspected drug will need to be done through an accredited laboratory for medicolegal cases.

Sharon Gwaltney-Brant DVM, PhD, DABVT, DABT
AVMA Conf, 07:14

Ear polyps in the cat

A significant ***reduction in the incidence of recurrence*** following removal by traction has been noted in cats treated with oral prednisolone following traction removal. Post avulsion, the cat is treated with oral prednisolone, beginning at 2-3 mg/kg/day, for 2 weeks, then 1-1.5 mg/kg/day, for 2 weeks, then 0.5-0.75 mg/kg/day, for 2 weeks, then 0.5-0.75 mg/kg, once every other day for 2 weeks (6-8 weeks of therapy). Oral glucocorticoid therapy is considered mandatory and the likely reason for the success associated with this procedure.

Rod A.W. Rosychuk, DVM, DACVIM
AVMA Conf, 07:14

Chemotherapy exposure

Exposure can happen in many ways. Think about ***drug deliveries***. Do you wear personal protection equipment (PPE) every time you open the boxes? You should-who knows how they were packed and what is broken, You should also open the boxes in your chemotherapy administration room with no one else around. If possible, open in your chemotherapy hood. Every delivery is a Pandora's box just waiting to expose you. There are no federal mandates on how cytotoxic drugs have to be handled, boxed and shipped, none. Knowing that, protect yourself.

Kim Albin, LVT, VTS (oncology)
ACVIM Forum, Jun 2016

Cross-contamination of pet food

The AAFCO Model Bill and Regulations outline ingredients that can and cannot be included in commercial pet foods and treats. This list of ingredients is required on all pet food labels and must be ordered by weight of raw material. The challenge for veterinarians and caregivers is that the AAFCO definitions do not address differences in manufacturing processes or variation in the quality of raw materials available for use by pet food manufacturers. As such, ingredient comparisons between foods or brands may not be an accurate metric to evaluate diet quality. Ingredients not found on a pet food label may be included in trace amounts through the use of shared manufacturing equipment. Cross-contamination of ingredients can occur during normal manufacturing processes, but unlike human foods that must comply with the Food Allergen Labeling and Consumer Protection Act of 2004 and disclose any potential food allergens in a finished product, there are no allergen label requirements for pet foods. Surveys of over-the-counter diets have found trace amounts of ingredients not reported on the labels of a number of dry and canned diets analyzed; it is not clear if these finding represent unintentional or intentional adulteration of pet foods, but they highlight that fact that ***over-the-counter diets must be used with caution*** in dogs with known or suspected food hypersensitivities.

Lisa P. Weeth, DVM, DACVN
ACVIM Forum 2016

Treating bartonellosis

For cats and dogs that are reasonably stable (e.g., when treating Bartonella-Linked polyarthritis), the author recommends starting one antibiotic (e.g., doxycycline at 5 mg/kg, PO, q12h) and then adding the second antibiotic 5-7 days later. Initiation of both antibiotics simultaneously has been associated with a Jarisch-Herxheimer-like reaction, a common occurrence during initial treatment of this infection. The reaction (e.g., lethargy, fever, potential vomiting) tends to occur 4-7 days after the start of antibiotic therapy (but can be more delayed in some animals). Because the patient's condition can be worse than its condition before antibiotic therapy was initiated, the clinician may suspect an adverse drug reaction and either stop or switch antibiotics. This reaction generally lasts only a few days. In most instances, clinical experience has dictated that antibiotic treatment should be continued and symptomatic and supportive therapies used as needed. Administration of anti-inflammatory glucocorticoids for a few days in conjunction with antibiotics may help cats and dogs through this period. Unless clinical deterioration continues to progress, the author has found it best to continue the antibiotics that were initially started and discontinue glucocorticoids after initial signs of Jarisch-Herxheimer-like reaction have resolved (~72 hours).

Edward B. Breits
Plumb's Ther, 2:6