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Lyme disease vaccination recommendations

Vaccinate in endemic areas? Yes—To prevent infection from ticks. What defines an endemic area? That is a good question. Thorough screening the prevalence should be determined in each practice. In an area with high prevalence (>20%?) it may be logical to vaccinate all dogs. In an area with less prevalence possibly identifying dogs at increased risk is the wise way to do it. This should be in addition to good tick control! Vaccinate Lyme negative dogs? Yes. Vaccinate positive dogs? Yes—To prevent reinfection from the tick as the immune system may or may not be able to prevent active disease even if the dog is Lyme positive. How often to vaccinate? Annually at this time with the currently available vaccines. Even in vaccinated dogs tick control must be stressed to the owners since a very heavy Lyme burden may override vaccine protection.

Richard E. Goldstein, DVM, Dip ACVIM
82nd West Vet Conf Procd

Human albumin for shock

Since most patients in shock require sustained intravascular volume expansion, colloids are indicated frequently during fluid resuscitation. Examples include synthetic colloids such as hetastarch, and biologic colloids such as whole blood, plasma, and human albumin. All synthetic colloids have the potential to cause a dilutional coagulopathy. Human albumin, made from pooled human plasma, is a concentrated source of albumin. At a 25% concentration the COP is 100 mm Hg, making it a very potent colloid that is able to expand the intravascular volume by 5 times the volume infused. It is also hyperosmolar at 1500 mOsm/L. For both of these reasons the patient must be monitored closely for signs of fluid overload when it is being infused. It provides all the beneficial effects of albumin. The half life is approximately 16 hours. Doses of 2.5-5.0 ml/kg have been recommended with a maximum dose of 2 g/kg. Because it is human albumin, allergic reactions are possible. This may manifest as facial swelling, vomiting or fever. Delayed reactions several weeks after administration have been documented.

Jennifer J. Devey, DVM, Dip ACVECC
VA Vet Conf Procd, 2011

INSIDE THIS ISSUE

Hypoallergenic dogs?

The authors of this study found no scientific basis to the claim that hypoallergenic dogs have less allergen. Based on previous allergy studies, exposure to a dog early in life provides protection against dog allergy development. But the idea that you can buy a certain breed of dog that will cause less allergy problems for a person already dog-allergic is not borne out by this study. Clinicians (MDs) should advise patients that they cannot rely on hypoallergenic breed claims if they cannot tolerate dog allergen in their environment.

Christine Cole Johnson, PhD, MPH et al.
DVM, Aug 2011

Storm phobia

Storm jackets may be fitted to the dog during a storm to make the dog feel more comfortable. The Storm Defender (stormdefender.com) has an antistatic lining and the new model is tight fitting, too, delivering a sort of ambulatory hug. It has been shown that this jacket is effective in many storm phobic dogs and some will even direct their owners to the jacket at the first sign of a storm! The Anxiety Wrap (puplife.com) is another therapeutic jacket that works by swaddling pressure alone. It's been shown that approximately 50 percent of storm phobic dogs respond positively to this jacket. Another storm jacket is the Thundershirt (thundershirt.com), which gets good reviews and works on the same principle as the Anxiety Wrap. Finally, a Calming Cap (entirelypets.com) may be helpful in some cases to attenuate visual aspects of storms. The author's favorite situational drug is clonidine, an alpha-2 agonist (like xylazine), administered at low, non-sedating doses.

Nicholas Dodman, BVMS, Dip ACVB
Vet Pract News, Aug 2011

Animal behaviorist websites

For assistance in locating the nearest board-certified veterinary behaviorist, visit the American College of Veterinary Behaviorists' website at www.dacvb.org. For information on recommended methods of behavior modification, how to learn more about pet behavior problems, or how

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to identify other veterinarians in your area interested in treating behavior problems, visit the American Veterinary Society of Animal Behavior's website at www.avsabonline.org. For assistance in locating a qualified behaviorist when a veterinary behaviorist is not available, go to the Animal Behavior Society's website at www.animalbehaviorsociety.org and click on "Applied Behavior."

Valarie V. Tynes, DVM, Dip ACVB
Vet Med, 105:6

Sustained release buprenorphine for cats

A formulation of buprenorphine that provides analgesia for a period of 72 hours following SQ injection of a single dose has been developed (Wildlife Pharmaceuticals; www.wildpharm.com. In cats undergoing ovariohysterectomy, SQ administration of a preoperative dose of sustained release buprenorphine appeared to have comparable efficacy and adverse effect profile as that of twice-daily oral transmucosal administration of buprenorphine before and after surgery.

Davina L. Catbagan, DVM, MS et al.
Am J Vet Res, Apr 2011

Cardiology online resource

A newly formed group of board-certified veterinary cardiologists has introduced an online library of cardiology resources and guidelines for veterinarians in general practice. The group, Cardiac Education Group (CEG), posts educational information on diagnosing and treating heart disease in dogs at www.cardiaceducationgroup.org. Interactive learning tools relating to clinical cases are featured on the website, which includes audio and video resources, such as heart sounds and an interactive x-ray viewer. CE credits can also be earned. The group offers a tremendous amount of practical experience on heart disease.

Dr. John Bonagura
JAVMA, Aug 15. 2011

Renal disease and creatinine

The range for normal serum creatinine concentrations is large for when groups of dogs or cats are considered but is much narrower for an individual animal. The International Renal Interest Society (IRIS) has recommended that the upper limit for normal serum creatinine in the dog to be less than 1.4 mg/dl and less than 1.6 mg/dl for cats. These upper limits are substantially less than those noted for most commercial laboratories. When these values are used, more animals with renal disease will be detected earlier but also some normal animals will be included in this group based on magnitude of serum creatinine alone. With the increasing attention to wellness and geriatric examinations that include laboratory testing, individual trends for change in serum creatinine can be detected IF the same laboratory is used that determines the creatinine measurement. Analysis of serum creatinine concentration by the same lab on the same sample is usually quite closely repeatable whereas there can be greater variance when samples are measured by different laboratories. Sequential increase in serum creatinine still within the normal range can suggest progressive loss of renal mass.

Dennis J. Chew, DVM and Stephen P. DiBartola, DVM
Co St U 71st Vet Conf Procd

Dental disease in rabbits

Dental disease is a common problem in rabbits, ranging from points on the teeth, to periapical abscesses, to overgrown roots and osteomyelitis. It is important to note that anaerobic bacteria are usually the cause of these abscesses. We know enrofloxacin is NOT the drug of choice but the drugs of choice (Clavamox® or clindamycin) will likely kill the patient. So what else can we consider? First off, we need to debride the abscess and remove it in toto whenever possible. Opening and aerating the infected area will help kill the offending bacteria. Consider trimethoprim-sulfa as it does have some spectrum against anaerobes, penicillin G injections (40,000-60,000 U/kg, SQ, IM, q24-48) can be used with caution (it is the oral route that must be avoided), and chloramphenicol (30-50 mg/kg, PO, SQ, IM, IV, q12h) works well but needs to be compounded and owners warned to take proper precautions. In appropriate cases, the use of antibiotic impregnated methylmethacrylate beads produces very high but very localized concentrations of antibiotics at the site of infection. Clindamycin and a number of β-lactams can be mixed into beads and fortunately, their use in this manner does not cause systemic side effects.

Christopher S. Hanley, DVM, Dip ACZM
WEZAM Exotics Conf Procd, 03:07

Nutritional guidelines from AAHA

The AAHA has published the Nutritional Assessment Guidelines for Dogs and Cats with the aim of guiding decisions and criteria regarding diagnosis, dietary management, and treatment in specific areas of veterinary healthcare. The guidelines' specific goals are to 1) Increase awareness in the profession about the importance of assessing nutritional status in dogs and cats. 2) Provide nutritional evaluation guidelines to promote optimal animal health and response to disease. 3) Supply the evidence and tools required to support nutritional recommendations in animals. The guidelines provide a series of questions to be asked, body condition and muscle condition scoring systems, and methods of acquiring and analyzing information related to nutritional status. They provide recommendations for healthy patients as well as patients that are sick, including those requiring critical care. To see, go to: www.aahanet.org/resources/NutritionalGuidelines.aspx.

Joseph W. Bartges, DVM, PhD, Dip ACVN
Vet Med, Mar 2011

Biopsy of the pancreas

The old wives tale of "don't touch the pancreas" needs to be put to rest. Gentle manipulation and biopsy of the pancreas is a predictably successful procedure with almost no incidence of postoperative pancreatitis. Biopsy of the pancreas is performed in a similar manner as biopsy of the liver. In patients that have diffuse pancreatic disease, a segment of the right or left limb of the pancreas is identified. An encircling ligature of 3-0 Maxon is placed around the pedicle. As the ligature is tightened, it cuts through the pancreatic parenchyma, ligating vessels and pancreatic ducts. The distal pedicle of pancreas is carefully removed with a number 15 BP scalpel blade or Metzenbaum scissors. Care is taken to avoid cutting the suture. If a relatively large portion of pancreas is to be removed (e.g., removal of insulinoma), a similar technique is used. In this situation, 2-0 or 3-0 monofilament nonabsorbable suture should be used.

Howard B. Seim, III, DVM, Dip ACVS
96th KY VMA Procd

Preanesthetic medication

Adverse cardiovascular effects such as severe bradycardia and low cardiac output have been associated with the use of a_2-adrenoceptor agonists in veterinary practice. Results of a new study, however, suggest that either acepromazine or medetomidine could be used in combination with buprenorphine for premedication of dogs anesthetized with propofol and isoflurane for routine surgical and diagnostic procedures. Dogs were randomly assigned to 1 of 3 premedication groups: group 1. Acepromazine (0.03 mg/kg, IM) and buprenorphine (0.02 mg/kg, IM). 2. Medetomidine (5 µg/kg, IM) and buprenorphine (0.02 mg/kg, IM). 3. Medetomidine (10 µg/kg, IM) and buprenorphine (0.02 mg/kg, IM). Anesthesia was induced with propofol and maintained with isoflurane in oxygen. Results suggested that either acepromazine or medetomidine could be used in combination with buprenorphine for premedication of dogs anesthetized with propofol and isoflurane for routine surgical and diagnostic procedures. Arterial blood pressure was better maintained with the medetomidine-buprenorphine combinations.

Nicola J. Grint, BVSc
JAVMA, 237:12

Radiography in wellness programs

Thoracic and abdominal radiographs are often recommended in wellness programs for senior animals, but their use as screening tests should be questioned for several reasons. First, the likelihood of finding a significant abnormality in a patient without clinical signs is quite low. Second, radiographic interpretation is highly dependent upon positioning, technique, and skill of the interpreter. Third, unwarranted radiographs expose staff and patients to unnecessary radiation. For more information on wellness programs, go to : www.aahanet.org/PublicDocuments/Senior_Care_final.pdf and www.catvetscom/uploads/PDF/2008SrCareGuidelinesFinal.pdf

Caroline M. Kiss, DVM and Bess J. Pierce, DVM, Dip ABVP
NAVC Clin Brf, 8:5

Treating hypothermia in the neonate

The ambient environmental temperature should be 90°F with 55%-65% humidity. It is imperative to prevent any overheating and to be aware of any potential thermal injury that may occur. Provide the neonate room to crawl away from the heat source. In addition, as is recommended with hypovolemic, hypothermic adults, hypothermic neonates should be warmed *slowly* over 1-3 hours to prevent heat stress and dehydration. By rapidly warming a patient, peripheral vasodilation may occur resulting in core body temperature shock as a result of decreased circulating volume to the core. One of the most common errors this author has seen in the ER is to "deep fry" our neonatal patients - they are put on heating pads and BAIR huggers, only to find that their temperature shoots up to 103°F. Remember their normal 96°F temperature - this is the equivalent of us over-heating an adult dog to 107°F! Clinically, neonatal patients quickly deteriorate when this occurs (i.e., crying, dehydrated, panting, etc.).

Justine A. Lee, DVM, Dip ACVECC
13th VECCS Conf Procd

Antibiotics for surgery

The classification of clean-contaminated is used to describe surgical wounds in which the GI tract, respiratory tree, or urinary system is incised. The typical protocol for antimicrobial prophylaxis in clean-contaminated surgeries is for the chosen antibiotic to be administered 15 to 30 minutes before the skin is incised. The drug is administered intravenously and dosing is repeated every 90 to 120 minutes. Antibiotics are typically discontinued at the end of surgery. If antibiotics are continued following surgery, potentially the clinical signs associated with visceral dehiscence may be masked. The following are antibiotics that are commonly chosen for antimicrobial prophylaxis. Cefazolin: 1st generation cephalosporin; 22 mg/kg, IV; excellent Gram (+) spectrum; good choice for most general surgical procedures. Ampicillin–penicillin; 22mg/kg, IV; excellent Gram (+) and anaerobic spectrum; good choice for urogenital surgery. Cefoxitin: 2nd generation cephalosporin; 22mg/kg, IV; improved Gram (-) and anaerobic spectrum over 1st generation; excellent single agent choice for contaminated and dirty surgeries. Enrofloxacin–fluoroquinolone; 5 mg/kg, IV; excellent Gram (-) spectrum; useful in conjunction with ampicillin or clindamycin to achieve 4-quadrant coverage for septic patients.

Catriona MacPhail, DVM, PhD, Dip ACVS
71st Co St U Vet Conf Procd

Feline Trichomoniasis

Tritrichomonas foetus is commonly mistaken for *Giardia* species because of their structural similarities. Movement by *Giardia* species resembles that of a "falling leaf," while movement of *T foetus* is fast and erratic. There is no approved treatment for feline trichomoniasis. Success of treatments has varied and is not 100% effective in all cases. Numerous drugs have been used to treat feline trichomoniasis. A few drugs have demonstrated efficacy in resolving diarrhea and reducing or eradicating parasites. 1) Given concurrently: enrofloxacin: 5 mg, PO, q24h, for 21 days (Retinal degeneration is a risk if drug is given at high doses); metronidazole: 75 mg, PO, q24h, for 10 days; fenbendazole: 50 mg/kg, PO, q24h, for 5 days. 2) Ronidazole: 30-50 mg/kg, PO, q12h, for 14 days (possible dose-related neurotoxicity). 3) Tinidazole: 30 mg/kg PO, q24h, for 14 days.

Heather D. Stockdale, MS and Byron L. Blagburn, PhD
NAVC Clin Brf, 6:4

Managing healthy FeLV, FIV cats

Examinations should be performed at least twice a year. At each visit: Update medical history. Monitor for any signs of weight loss. Perform a thorough physical examination; pay close attention to the lymph nodes, eyes, and oral cavity. Conduct a complete blood count, biochemical analysis, urinalysis, and fecal examination at least once a year. FeLV-positive cats may need a complete blood count twice a year. Spay or neuter intact cats. Control internal and external parasites. Vaccinate as lifestyle indicates. Most retrovirus-infected cats mount adequate immune responses when vaccinated, and there is no need to modify standard vaccination intervals. There is controversy about the use of inactivated versus modified-live vaccines. Current recommendations are to use inactivated vaccine products due to the theoretical risk of a modified-live product regaining its pathogenicity in cats with compromised immune systems.

Julie Levy, DVM, Dip ACVIM et al.
Comp, 31:6

Diagnostic chemistry pearls

1) Avoid short samples. If a serum sample is inadequate to perform all the serum chemistries and the lab has to dilute the specimen, serum calcium and electrolytes may be significantly affected. 2) BTT for coagulation profile: fill to at least 75% and preferably to full capacity. An inadequately filled blue top tube will falsely increase PT and PTT. Centrifugation and the transfer of plasma into a plain plastic tube are preferred if transport to the lab will take more than 12 hours. 3) DO NOT USE SERUM SEPARATOR TUBES for evaluation of phenobarbital, bromide, or progesterone. For ionized Ca, collect in separator tube, centrifuge sample as soon as it clots and transfer serum anaerobically to a plain red top tube using a needle and syringe. (DO NOT expose the serum to air.) 4) Bilirubinuria is always abnormal in cats. 5) Any dog with unexplained liver and/or renal disease, or acute onset PU/PD should be evaluated for leptospirosis. Unexplained fever (FUO) in dogs: don't forget to rule out polyarthritis even if the joints appear clinically normal.

Robert K. McDonald, DVM, Dip ACVIM
2011 Music City Vet Conf Procd

Preventing infection in orthopedic surgery

Time under anesthesia, independent of time actually in surgery, has a significant effect on the incidence of infection. One study found that for each additional minute under anesthesia there was a 0.5% increase in the risk of infection (30% increased risk for every hour). Therefore, the total time under anesthesia must be kept to an absolute minimum. No unrelated procedures should be undertaken that prolong time under anesthesia (neutering, mass removals, nail clipping). Dental procedures in particular are to be avoided, as they not only prolong time under anesthesia, but also lead to bacteremia and a hematogenous delivery of bacteria to the wound. The single exception may be clipping of the fur over the surgical site, as manipulating the limb for clipping is often too painful to perform awake.

Marc Wosar, DVM, MSpVM, Dip ACVS
N Amer Vet Conf Procd, Vol 21, Bk 2

Feline hyperthyroidism

Given the prevalence of the disease it is recommended that a T4 level be included in the annual geriatric screening for all cats 8 years of age and older. Thyroid screening can also be recommended for cats 4 years of age and older that are hyperactive, are polyuric and polydipsic, have lost weight, have a heart murmur, tachycardia or gallop rhythm, have an enlarged thyroid on palpation, and in those with an elevation in liver enzyme levels. In most cases the diagnosis of feline hyperthyroidism is straightforward and can be confirmed by demonstrating an elevated serum T4 level. Determination of T3 levels does not add substantial information and is not necessary. Some cases, particularly early hyperthyroidism, can be challenging and require additional testing (thyroid function as well as CBC and chemistry profile, for example). In cats with mild or occult hyperthyroidism, T4 levels can fluctuate into and out of the normal range.

Peter P. Kintzer, DVM, Dip ACVIM
33rd North New Eng Alp Symp Procd