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"Pearls" of Veterinary Medicine

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New rabies exposure guidance

The new guidance advises that cats and dogs that are exposed to rabies and are overdue for a vaccine can have a booster shot followed by an observation period rather than be subject to quarantine or euthanasia. The recommendation appears in the 2016 edition of the Compendium of Animal Rabies Prevention and Control from the National Association of State Public Health Veterinarians, along with other updates from the 2011 edition. The compendium is a series of best practices that jurisdictions can choose to follow. The 2016 edition of the compendium also advises reducing the quarantine period from 6 months to 4 for unvaccinated cats and dogs exposed to rabies. The compendium committee based the guidance on unpublished data from various states. The authors also concluded that immediate booster vaccination followed by observation for 45 days of dogs and cats with an out-of-date vaccination status that are exposed to rabies, as is the current practice for dogs and cats with current vaccination status. (Note: more of the recommendations will appear in the May issue of The Capsule Report.)

Dr. Michael C. Moore and Dr. Catherine M. Brown
JAVMA, Mar 1, 2015

Valuable Information Inside

Otitis as a sign of atopy

Otitis externa (OE) may be the ONLY symptom in 3%-5% of the environmentally triggered atopic dermatitis cases and it may be UNILATERAL!!; it may be seen in cutaneous adverse food reactions where it to may be the ONLY symptom in up to 20% of the cases and also may be unilateral or flea allergy dermatitis. In cases of FAD there should be involvement of the posterior 1/3 of the body in addition to the OE;

Paul B. Bloom, DVM, Dip ACVD, Dip ABVP
Mich Vet Conf, Jan 2016

Treating asthma in the cat

Treatment with a bronchodilator is most clearly indicated in an acute asthmatic attack in a cat. In this situation, terbutaline, a beta-2 agonist, is most likely to be effective. This drug relieves bronchoconstriction by activating receptors on bronchial smooth muscle cells, resulting in broncho-relaxation. This drug is convenient and easy to administer parenterally in an emergency situation and functionally opposes bronchoconstriction. It can be administered subcutaneously or intravenously at 0.01 mg/kg and can be repeated in 20-30 minutes if respiratory rate and effort do not immediately improve. Although long-term use can theoretically be associated with tolerance, loss of efficacy, and induction of inflammation, it is a useful drug to have for acute control of respiratory distress. For owners of cats that periodically suffer flare-ups of asthma, this therapy might prevent a trip to the emergency room. Although terbutaline also has some beta-1 effects, no adverse effects have been noted when used acutely and judiciously in cats with underlying heart disease. Terbutaline can also be used in dogs, although because dogs rarely develop active bronchoconstriction in association with respiratory diseases, it is less often indicated.

Lynelle Johnson, DVM, MS, PhD, DACVIM
N Amer Vet Conf, 01:14

Post-anesthetic patient welfare

Post-anesthetic monitoring goes beyond recording a patient's physiological and analgesic parameters. Post-anesthetic monitoring, more importantly, includes observing the patient's general welfare. Post-anesthetic patient welfare considerations encompass the entire patient - condition during recovery, including physiological, analgesic, patient comfort, body temperature, and human interaction. ***Human touch and voice have a calming effect*** on animal patients recovering from general anesthesia. It is important that an individual remain with the recovering animal patient in order to maintain post-anesthetic monitoring and provide patient comfort. Post-anesthetic patient hypothermia is the number one complication related to general anesthesia. The combination of dose dependent depression of the thermoregulatory centers due to anesthetic drugs, and a cold surgical environment can result in significant

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loss of body heat. Hypothermia can predispose to bradycardia, delayed recovery, and post-operative shivering.

Andrew Claude, DVM, Dip ACVAA
CVC San Diego, 12:15

Treating superficial pyoderma

As veterinarians, we know that the risk factor for developing resistance to antibiotics is directly correlated with the usage of systemic antibiotics. The logic would be to avoid such usage to prevent this increased resistance phenomenon. The author's approach is, when facing a superficial pyoderma to ***aggressively treat with topical therapy ALONE***—but if you choose to use systemic antibiotics, always couple it with topical therapy. By using such an approach, you can now look back at the cause of failure being either failure to diagnose underlying disease or failure to treat tor sufficient amount of time rather than NON-responsive treatment due to resistance to the antibiotics.

John Angus, DVM, Dip ACVD
NAVC Supp, 10:15

Treatment of hepatic lipidosis

1) Provide adequate balanced calories (50 kcal/kg ideal weight/day). Large bore feeding tubes save lives. 2) Correct dehydration with crystalloids, avoiding lactate- and dextrose-containing fluids. Lactate requires hepatic metabolism; dextrose worsens hepatic triglyceride (TG) accumulation, the preexisting glucose intolerance of starvation and induces diuresis, which could worsen electrolyte imbalances. 3) Vitamin K_1 (0.5-1.5 mg/kg, SQ, q12h, for 3 doses). 4) L-carnitine to promote hepatic fatty acid metabolism and dispersal of TG. 250 mg L-carnitine, PO, q24h, has been shown to increase the chance of recovery. 5) SAMe: as a glutathione source (20 mg/kg, PO, q24h, given on an empty stomach or if given with food, BID). 6) Silibinin or silymarin extract: antioxidant (5-15 mg/kg, SID, PO). 7) Vitamin B12 (cobalamin): 250 µg, SQ, once a week if serum levels are subnormal or patient has severe inflammatory or infiltrative bowel disease. 8) Taurine: 250-500 mg/cat/day if receiving ursodiol or if not on a balanced, complete feline diet. 9) Vitamin E: antioxidant (10 IU/kg, PO, SID). 10) Potassium, thiamine, anti-emetics, antacids, etc., as indicated.

Margie Scherk, DVM, Dip ABVP
N Amer Vet Conf, 01:14

Hypothermia and surgical site infections

Active surface warming should be provided for any animal undergoing anesthesia or heavy sedation that will last longer than about 20 minutes. The most effective method and one of the most commonly used methods of active surface warming is forced air warming (e.g., Bair Hugger). Resistive fabric technology (e.g., Hot Dog) displays similar efficacy and efficiency. Intraoperative use of these devices is common but an important step to consider is ***pre-anesthetic active surface warming***. Placing the patient on a forced warm air blanket after premedication and prior to induction can help prevent the rapid heat loss that occurs due to redistribution at the beginning of anesthesia. In humans, pre-operative active surface warming reduces the incidence of surgical site infections in clean surgeries from 14% to 5%. Continued intraoperative active heating can stall or reverse the second phase in the development of hypothermia. Devices such as electrical heating pads, hot water bottles, and heated rice bags should not be used in an anesthetized or sedated patient. Serious burns can develop due to inability of the patient to move away, hot spots within the apparatus, and altered peripheral blood flow.

Lydia Love, DVM, Dip ACVAA
20th Int VECCS Conf

Reducing the risk of CaOx urolithiasis

Urine dilution is important, and the goal is for the dog to consistently produce urine with a specific gravity ≤1.020. ***Handheld refractometers are available*** for owners to use at home (Amazon.com lists models starting at $20). There are several tips to encourage dogs to drink more water. Place extra water bowls both inside and outside the house. Keep clean and refill with fresh water daily. Use a circulating water drinking fountain designed for dogs ($25 and up). Add ice cubes to water bowls, especially in warm weather. Add flavoring to water. Sodium-free chicken bouillon powder may appeal to some dogs. A "soup" can be made by microwaving or cooking a small amount of hot dogs, bologna, or other inexpensive meat in water. Remove the meat or strain before serving. Water flavored with the fat and spices from cooked meat may be more palatable than plain water. Add water directly to the diet. Dry diets can be moistened to an oatmeal or stew consistency. Start with 1 cup warm water to 1 cup dry food, then gradually increase to 3-4 cups water per cup food. Wet (canned) diets can be moistened with 1/2 can water per can of food, increasing up to 1 can water per can. Overall food intake and body weight should be monitored as some animals will eat less because of the increased weight and volume of the moistened food.

Craig Datz, DVM, MS, Dip ABVP, Dip ACVN
N Amer Vet Conf, 01:14

Vaccine reactions

The owner should carefully observe any animal that has been vaccinated for the first half-hour after vaccination for signs of acute allergic reactions. In the author's clinic this is about the time it takes to write up the discharges and have the client pay at the business office. In case of allergic reactions, treat with Benadryl (2-4 mg/kg, TID-QID, PO or IM) and/or short-acting steroids (dexamethasone sodium phosphate for anaphylaxis at 0.25 mg/kg, IV or prednisolone for milder reactions at 0.5-1 mg/kg, BID, PO or IM) and also give the owner some to take home for the affected animal. In very severe cases, it may be necessary to give epinephrine (0.5-1.5 ml, IV of a 1:10,000 solution; repeat in 30 minutes), fluids, and additional life support. If an

animal has had a reaction before, depending on the severity, it may be given Benadryl one half hour before vaccination at the above dose, may be kept in the clinic for 1-24 hours for observation, or not vaccinated at all. In cases where the veterinarian and the owner have opted not to vaccinate the animal, this should be clearly recorded in the record and antibody titers against the corresponding diseases may be measured, but keep in mind that serum titers do not reflect the actual state of cellular and local immunity.

Margret Casal, dr med vet, PhD, Dip ECAR
Penn Vet Conf, 03:14

Long-term use of NSAIDs for OA

There is evidence that joint pain results in the development of central sensitization which is one of the mechanisms leading to increased pain. Further, it has been demonstrated that the COX enzymes play a role in central sensitization and that COX inhibitors can prevent the establishment of central sensitization. If a reduction in central sensitization occurred over time with continuous NSAID therapy, there should be a progressive reduction in pain perceived in the patient. Together, there are a number of lines of evidence suggest potential theoretical benefits of continuous versus intermittent NSAID analgesic therapy in OA. A review of veterinary clinical studies aimed to collate all the information on long-term NSAID therapy and evaluate the evidence for the safety and efficacy of long-term NSAID use for the treatment of osteoarthritis in dogs. In addition, secondary aims were to evaluate the evidence for progressive decreases in pain, or progressive tolerance (increase in pain) over time; to evaluate the evidence for altered disease progression with long-term continuous use; and to evaluate the evidence for an increase (or decrease) in the incidence of adverse events with long-term NSAID use. Although not all the questions could be answered due to a lack of information in the literature, the careful review found that ***longer-term (28 days or greater) use of NSAIDs, compared with short-term use, clearly resulted in progressively reduced pain and increased function.*** It is not known whether this additional benefit is the result of peripheral or central changes in pain processing, or in fact a progressive functional improvement due to increased muscle strength and range of motion as a result of the greater mobility resulting from initial pain relief.

B. Duncan X. Lascelles, BSc, BVSC, PhD, MRCVS, CertVA
N Amer Vet Conf, 01:14

Anesthesia and tear production in cats

Although the combination of medetomidine and ketamine is a commonly used and adequate injectable anesthetic regimen for use in surgery in cats, this drug combination reduces aqueous tear production as determined by use of the Schirmer tear test. The authors believe that regardless of age and sex, cats undergoing anesthesia with the medetomidine-ketamine combination ***should be administered sterile ocular lubricant or tear replacement solution*** as a corneal protectant during the anesthetic period. It is extremely important to reapply the topical tear supplement during and after anesthesia and to monitor corneal hydration for at least 15 minutes after reversal of medetomidine with atipamezole to prevent a prolonged period of a dry ocular surface, which could predispose a cat to the onset of ulcerative keratitis.

Simona Di Pietro, DVM, PhD et al.
Am J Vet Res, Mar 2016

Role of acepromazine in feline anesthesia

One of the most commonly made mistakes when anesthetizing older patients is to depend primarily on inhalant agents and avoid premedicant agents in the misunderstanding that inhalant agents are somehow "safer." Sedation is recommended to decrease anxiety and fear that lead to increased catecholamine release, cardiac arrhythmias, peripheral vasoconstriction, increased cardiac work, and decreased tissue perfusion. Acepromazine is not contraindicated in geriatric patients although dose requirements may be decreased. Acepromazine is an antiemetic and antiarrhythmic, but one of its most important properties is its anesthetic sparing effect. Acepromazine appears to protect renal function at least in normal dogs, despite a decrease in blood pressure. Preserving renal blood flow and GFR is especially important in older patients who may have decreased renal reserve or are receiving NSAIDs for acute or chronic pain.

Sheilah Robertson, BVMS, (Hons), PhD, Dip ACVAA
20th ABVP Conf, 11:15

Ferret tid-bits

Foreign body ingestion is quite common in young ferrets especially, and other issues such as heart disease, including dilated cardiomyopathy, hypertrophic cardiomyopathy and heartworms, should be on practitioners' radars. Some clinical findings can be trickier to interpret in ferrets. Be aware that many males deposit fat around their lymph nodes, so do not confuse this with lymphadenopathy. Also, enlarged spleens are very common in ferrets and are often completely normal. Adrenal gland disease — long feared by ferret owners as a massive surgical problem from which many ferrets died or suffered complications — can now be effectively treated with a nearly painless deslorelin implant given approximately once annually. Also noted that ferrets suffering from bladder stones, specifically cystine stones, are being fed grain free diets, with success.

Jerry Murray, DVM et al.
Vet Pract News, 27:2

Euthanasia, post-mortem changes

If leaving the family alone shortly after the euthanasia, remind them about muscle twitching. "It is completely normal and usually happens in the first 5-10 minutes, generally on the muzzle or shoulder." If

seen, give a gentle reminder that death is a phase, not a moment. In the author's experience, agonal breaths are seen more commonly in ***animals that are close to the natural dying process*** (within minutes to hours of a natural death), and twice as commonly in cats. Although rare, this is normal and tells the author that the pet was close to a natural death. "It is simply a spasm of the diaphragm, just like a hiccup, and while it looks strange, I can assure you she has already passed and feels no pain at all."

Dani McVety, DVM and Mary Gardner, DVM
N Amer Vet Conf, 01:14

The feline ear and otitis

It is important to understand feline otology is very different from canine otology. The cat has less breed variation in pinna shape and conformation as well as relatively short and straighter ear canal. The manubrium is also less curved than in the dog. The cat has a much different ventral tympanic bulla, which is divided by an incomplete septum that divides it into two communicating compartments. Dorsally the compartment is more lateral and ventrally more medial. A branch of the sympathetic nerve runs in this septum and when damaged results in Horner's syndrome. This septum is more readily damaged when flushing, cleaning or using instruments in the middle ear, which explains why Horner's syndrome is a much greater risk of complication in cats with otitis. The septum is concaved saucer shaped with the convex surface facing ventrally. Any fluid reaching the ventral compartment will have a much more difficult time being removed by positional changes or through the auditory canal. It is important to realize once medication reaches the middle ear it is more likely to stay and if irritating more likely to cause damage. Also the author feels cats do not do well with topical medications. They tend to induce irritation and hypersensitivity reactions more frequently than dogs. Therefore ***ear drops should not be used in cats***.

Jenise C. Daigle, DVM, Dip ACVD
MI Vet Conf 01:14

Symptoms of OA in the cat

Personality changes are one of the most common observations in a cat with OA. A normally affectionate cat may become nervous around new people or bustling activity around the house, A happy playful cat may become depressed or withdrawn. And a fun loving energetic cat may turn into an aggressive animal, biting family members or hissing at people when they are trying to pet or love the family pet. These personality changes may have previously been dismissed as a normal aging cat mood change. But these ***character changes are not normal*** and should be addressed with the client to maintain a loving home environment and a good quality of life. These may all be signs of OA and pain in cats.

Jennifer L. Wardlaw, DVM, MS, Dip ACVS
Music City Vet Conf, 03:13

Anesthesia in the cat

Most cats require the use of smaller breathing circuits and bags (non-rebreathing circuit of pediatric hoses) to decrease dead space and resistance. Endotracheal tubes should be carefully sized; trauma and rupture of the tracheal can occur with devastating consequences. Endotracheal tubes should also be measured for correct length – from the tip of the nose to the thoracic inlet- to prevent endobronchial intubation, which results in difficulty achieving a good anesthetic plane. In the author's experience, both of these complications tend to occur when the cat is "too light" after induction because of the belief that one must intubate the patient as light as possible. It is better to take a little more time and have adequate anesthesia before intubation. It is also wise to be prepared for difficult intubation with topical anesthetic for the arytenoids and a laryngoscope and guide tube to ease intubation. You must also remember that excessive ET length, especially when combined with patient rewarming devices (which attach to the end of the tube) and capnograph adaptors attached to ET tube can all combine to increase resistance and dead space; these little things may add up to a patient who does not sleep well because ventilation is poor, so the inhalant cannot be properly taken up at the alveolar level. Ventilation can be supplemented manually, but one must remember that the cat's tidal volume is small and lungs are very compliant, so inspiratory pressure should be kept low (15-20 cm H2O). Although a capnograph is very useful for assessing ventilation, one should expect readings to be very low when a non-rebreathing circuit (with high oxygen flow rates which dilute expired CO2) is used. It is better to assist ventilation regardless of readings.

Nora S. Matthews, DVM, DACVA
87th West Vet Conf, 02:15

Patellar luxation

Medial patellar luxation is often an incidental finding and the easiest general guideline to follow is that surgical intervention is not warranted if there are no clinical signs. This encompasses a wide range of the population of dogs with medial patellar luxation. Most small breed dogs with grade I and II luxations will fall in this category. Indeed there are also many small dogs with grade III and even IV luxations that compensate well and are very mobile with little to no pain. In general, the larger the dog, the more likely that patellar luxation will clinically manifest as lameness. Grade I medial patellar luxation rarely if ever warrants surgical intervention. In the author's opinion, surgical correction in order to decrease the risk of cranial cruciate ligament rupture is ***not indicated*** in a subclinical patient.

Stanley E. Kim, BVSc, MS, Dip ACVS
N Amer Vet Conf, 01:14