At its annual conference, the Southern European Veterinary Conference (SEVC) provided continuing education by and for veterinarians and experts from all over the world. Presentations, provided in Spanish and English, were given on various companion animal veterinary medical topics.

Additional SEVC Capsules are available online at cliniciansbrief.com/2013-SEVC-capsules

How I Treat the Post CPR Patient
The first goal of CPR is return of spontaneous circulation (ROSC). Once ROSC is achieved, however, the patient is in an unnatural physiologic state, still potentially suffering from the pathologic event that led to the cardiopulmonary arrest; ROSC is simply an intermediate resuscitation goal. Veterinary specialists developed the RECOVER initiative, a consensus list of CPR goals and guidelines that suggest an early-goal directed hemodynamic strategy achieved via fluid administration, oxygen supplementation, vasopressors, inotropes, and, potentially, blood products. Suggested treatments for cerebral edema have included hypertonic saline and mannitol; however, large fluid volumes should be limited to cases of documented hypovolemia. Oxygen should be supplemented, but only to normoxia (PaO$_2$ 80–100 mm Hg). Normal PaCO$_2$ is maintained using mechanical ventilation. The human medical practice of using anticonvulsants for seizure prophylaxis has not been studied in veterinary patients but may prove beneficial given the neuroprotective effects of barbiturates. Medically decreasing body temperature (ie, mild therapeutic hypothermia) has benefits in the reperfusion phase of ROSC.—Félix NM

A Roadmap to Diagnosing & Managing Chronic Diarrhea in Dogs
Chronic diarrhea (ie, persistent or intermittent for ≥3–4 weeks) can be frustrating for owners and clinicians alike and warrants complete workup. Primary- and extra-GI disorders (eg, inflammatory bowel disease, neoplasia, parasites, infectious agents, obstructions, hyperthyroidism, pancreatitis, liver failure) can cause chronic diarrhea. A detailed history may help differentiate between large- and small-bowel diarrheas and indicate possible causes. Physical examination is equally important, helping localize disease and determine how to proceed diagnostically. To rule out GI parasites, centrifugation fecal flotation of fresh samples should be performed; an ELISA test is available for *Giardia* spp. Because bacteria are present in the stools of even healthy animals, fecal enteric panels should be reserved for cases in which there is potential for sepsis. Culture and PCR should target specific enteropathogens (eg, *Salmonella* spp, *Campylobacter jejuni*). CBCs, serum biochemistry profiles, and abdominal imaging are warranted in most chronic diarrhea cases. Full-thickness biopsy of affected areas is important for final diagnosis. Unfortunately, wide variation in histopathologic description exists between pathologists; results should be interpreted in light of clinical condition. Treatment is aimed at underlying cause, if found; some cases will respond to a novel protein diet or long-term antibiotic therapy.—Marks SL

Preoperative Analgesia: New Horizons
Fentanyl, a pure μ-receptor agonist commonly used, has a potency ~100× greater than that of morphine, not because of its analgesic ability but because of the lower fentanyl dose required for analgesia. Fentanyl’s latency period is ~2 min with IV administration. Because it lasts 20–30 minutes, analgesic activity must be maintained via continuous infusion or repeated boluses. Fentanyl can also be administered as a transdermal patch or an extended-release transdermal liquid. Extended release fentanyl is highly concentrated and applied to nonclipped skin over the proximal neck. Absorbed within 5 minutes, its effects are reached within 2–4 hours, lasting ≥4 days. A case study of its use in a dog

The next SEVC Conference will be held October 16–18, 2014 in Barcelona, Spain.
undergoing TPLO surgery for CCL repair is discussed, as are the advantages, drawbacks, expectations, and precautionary statements regarding this drug's use.—Mellado EB

Optimizing Your Care of Fracture Cases—How to Enhance Bone Healing: Mechanical & Biological Approaches

Fracture fixation systems are characterized by external (eg, percutaneous entry needles, connecting bars) or internal (eg, plates and screws, pins, wires, locking screws, combinations) systems. External fixators allow nonsurgical fracture repair, maintaining blood flow to the fracture focus and decreasing infection. Self-blocking plate systems enable stable joining between the screw and plate, essentially making them internally applied external fixators. This improves rigidity of fixation to bone, preserving the periosteal blood flow around the fracture focus. Innovative biological approaches to orthopedic surgery may improve callus formation and shorten healing time through ceramics, bone allografts or transplants, and autotransplantation of cancellous bone. A more recent development uses recombinant bone morphogenetic protein to accelerate healing. Other biological approaches include stem cells at the fracture focus (to produce higher cell differentiation) and the use of platelet-rich plasma, which provides platelet growth factors and may accelerate bone healing through angiogenesis and the easing of stem-cell migration.—Macias C

From Personal Experience-Based Opinion to Validated Indicators: The Future of Behavioral Medicine

Because behavior medicine uses time-consuming technologies for the description and measurement of behavioral manifestations, many avoid addressing these issues. The ability to measure biological responses to neuroendocrine modifications may offer an opportunity for evaluating improvement and treatment, as most problems are related to emotional reactions and disorders. Three parameter groups exist for biologically assessing emotional problems are related to emotional reactions and disorders. Three parameter groups exist for biologically assessing emotional reactions: hematological, hormonal, and physiological. Hematological parameters are most frequently used in birds. The heterophyllophocyte ratio is useful for quantifying stress in birds (a ratio approaching 1 indicates stress). Hormonal parameters can be useful but sometimes misleading. Cortisol, a primary parameter for distress assessment, is subject to individual variations, and the need for multiple daily measurements renders it impractical. Pituitary hormones (eg, prolactin) are under hypothalamic control, making them more sensitive to emotional reactions. Oxytocin, influential in social interactions, may also become a useful indicator. Physiological parameters (eg, heart rate) appear to be unreliable indicators of emotional stress in dogs and cats but are more useful in horses.—Pageot P cb

HEARTGARD Plus Chewables

HEARTGARD Plus is recommended for dogs 6 weeks of age and older. For dogs over 100 lb use the appropriate combination of these chewables.

ADMINISTRATION: Remove only one chewable at a time from the foil-backed blister card. Return the card with the remaining chewables to its box to protect the product from light. Because most dogs find HEARTGARD Plus palatable, the product can be offered to the dog to be had. Alternatively, it may be added intact to a small amount of dog food. The chewable should be administered in a manner that encourages the dog to chew, rather than to swallow without chewing. Chewables may be broken into pieces and fed to dogs that normally swallow treats whole.

Care should be taken that the dog consumes the complete dose, and treated animals should be observed for a few minutes after administration to ensure that part of the dose is not lost or rejected. If it is suspected that any of the dose has been lost, redosing is recommended.

HEARTGARD Plus should be given at least 1 month prior to the time of the year when mosquitoes (vectors), potentially carrying infective heartworm larvae, are active. The initial dose must be given within a month (30 days) after the dog’s first exposure to mosquitoes. The final dose must be given within a month (30 days) after the dog’s last exposure to mosquitoes.

When replacing another heartworm preventive product in a heartworm disease preventive program, the first dose of HEARTGARD Plus must be given within a month (30 days) of the last dose of the former medication.

If the interval between doses exceeds a month (30 days), the efficacy of ivermectin can be reduced. Therefore, for optimal performance, the chewable must be given once a month or so about the same day of the month. If treatment is delayed, whether by a few days or many, immediate treatment with HEARTGARD Plus and resumption of the recommended dosing regimen will minimize the opportunity for the development of adult heartworms.

Monthly treatment with HEARTGARD Plus also provides effective treatment and control of adulta (F. canis, T. leonina) and hookworms (A. caninum, U. stenocephala, A. braziliensis). Clients are advised of measures to be taken to prevent reinfection with intestinal parasites.

EFFICACY: HEARTGARD Plus Chewables, given orally using the recommended dose and regimen, are effective against the tissue larval stage of D. immitis for a month (30 days) after infection and, as a result, prevent the development of adult heartworms. Effective against the adult stage of heartworms, HEARTGARD Plus Chewables are also effective against canine acarids (F. canis, T. leonina) and hookworms (A. caninum, U. stenocephala, A. braziliensis).

ACCEPTABILITY: In acceptability and field trials, HEARTGARD Plus was shown to be an acceptable oral dosage form that was consumed at first offering by the majority of dogs.

PRECAUTIONS: All dogs should be tested for existing heartworm infection before starting treatment with HEARTGARD Plus which is not effective against adult D. immitis. Infected dogs must be treated to remove adult heartworms and microfilariae before initiating a program with HEARTGARD Plus. While some microfilariae may be killed by the ivermectin in HEARTGARD Plus at the recommended dose level, heartworm disease clearance. A mild hypersensitivity-type reaction, presumably due to death of living microfilariae and particularly involving a transient diarrhea, has been observed in clinical trials with HEARTGARD Plus. The diarrhea is not associated with heartworm-related death. While some microfilariae may be killed by the ivermectin in HEARTGARD Plus at the recommended dose level, heartworm disease clearance. A mild hypersensitivity-type reaction, presumably due to death of living microfilariae and particularly involving a transient diarrhea, has been observed in clinical trials with HEARTGARD Plus. The diarrhea is not associated with heartworm-related death.

Keep this and all drugs out of the reach of children.

In case of ingestion by humans, clients should be advised to contact a physician immediately. Physicians may contact a Poison Control Center for advice concerning cases of ingestion by humans. Store between 68°F - 77°F (20°C - 25°C). Excursions between 59°F - 86°F (15°C - 30°C) are permitted. Protect product from light.

ADVERSE REACTIONS: In clinical field trials with HEARTGARD Plus, vomiting or diarrhea within 24 hours of dosing was rarely observed (1.1% of administered doses). The following adverse reactions have been reported following the use of HEARTGARD: Depression/lethargy, vomiting, anorexia, diarrhea, mydriasis, ataxia, staggering, convulsions and hypersalivation.

SAFETY: HEARTGARD Plus has been shown to be inequivalent to HEARTGARD, with respect to the bioavailability of ivermectin. The dose regimens of HEARTGARD Plus and HEARTGARD are the same with regard to ivermectin. (6 mcg/kg). Studies with ivermectin indicate that certain dogs of the Collie breed are more sensitive to the effects of ivermectin administered at elevated dose levels (more than 10 times the target dose level) than dogs of other breeds. At elevated doses, sensitive dogs showed adverse reactions which included mydriasis, depression, ataxia, tremors, drooling, diarrhea, pupillary, excitability, stupor, coma and death. HEARTGARD demonstrated no signs of toxicity at 10 times the recommended dose (60 mcg/kg) in sensitive Collies. Results of these trials and bioavailability studies support the safety of HEARTGARD products in dogs, including Collies, when used as recommended.

Primary adverse effects include a wide margin of safety at the recommended dose level in dogs, including pregnant or breeding bitches, dogs and puppies aged 6 or more weeks. In clinical trials, many commonly used flea collars, dyes, shampoo, anthelmintics, antibiotics, vaccines and steroids preparations have been administered with HEARTGARD Plus in a heartworm disease prevention program. In some trials, where some dogs had parvovirus, there was a marginal reduction in efficacy against intestinal nematodes, possibly due to a change in intestinal transit time.

HOW SUPPLIED: HEARTGARD Plus is available in three dosage strengths (See DOSAGE section) for dogs of different weights. Each strength comes in convenient cartons of 6 and 12 chewables.

For customer service, please contact Merial at 1-888-637-4251.