

## Interpretive Summaries

### SMALL ANIMALS

#### Effect of timing of blood collection on serum phenobarbital concentrations in dogs with epilepsy

A prospective study was performed to determine whether there were therapeutically relevant changes in serum phenobarbital concentrations throughout a daily dosing interval in 33 epileptic dogs treated long-term with phenobarbital. Serum phenobarbital concentrations were measured for each dog 0 (trough), 3, and 6 hours after receiving phenobarbital orally. Concentrations were evaluated to determine whether they were within the same therapeutic category (lower, middle, or upper end of the therapeutic range of 15 to 45 µg/ml).

Ninety-one percent (30/33) of dogs had trough, 3-, and 6-hour serum phenobarbital concentrations in the same therapeutic category. Only 9% (3/33) of dogs had trough, 3-, and 6-hour serum concentrations in different therapeutic categories with a > 30% increase in serum phenobarbital concentrations. A significant difference was not detected among mean serum phenobarbital concentrations when evaluating trough, 3-, and 6-hour samples. Therefore, it was determined that timing is not important when collecting blood to measure serum phenobarbital concentrations in most epileptic dogs.—R. E. Levitski and L. A. Trepanier (*J Am Vet Med Assoc* 2000;217:200–204).

#### Radiation treatment for incompletely resected soft-tissue sarcomas in dogs

Forty-eight dogs with naturally occurring soft-tissue sarcomas were treated with radiation following incomplete resection of tumors. Dogs were treated with radiation on alternate days (3 fractions/wk) until 21 fractions and a total dose of 63 Gy was administered.

The 5-year survival rate was 76%. Significant differences in survival rate for different tumor types or locations were not detected. Four (8%) dogs developed metastases. Eight (16%) dogs had tumor recurrence after radiation treatment. Development of metastases and local tumor recurrence were associated with significantly reduced survival rate. Median survival time in dogs that developed metastases was 250 days. Median time to recurrence in dogs that developed local tumor recurrence was 700 days, and those dogs responded well to a second surgery. Median disease-free interval for all dogs in the study was 1,082 days. Acute radiation toxicosis was minimal; 1 dog developed osteosarcoma at the radiation site.

An excellent long-term survival rate may be

achieved by treating soft-tissue sarcoma in dogs with resection followed by radiation treatment.—J. A. McNight et al (*J Am Vet Med Assoc* 2000;217:205–210).

#### Prevalence of *Dirofilaria immitis* infection among shelter cats

A gross necropsy was performed on 239 cats from southeastern Michigan to determine prevalence of *Dirofilaria immitis* infection among shelter cats. Blood was collected directly from the heart of cats found to be infected and tested using a filter test for microfilariae. Serum was tested for *D immitis* antigens by use of 2 antigen detection kits and for *D immitis*-specific antibodies by use of 2 antibody detection kits.

Cats ranged from approximately 4 months to 15 years old. Adult *D immitis* were found in 6 cats (2.5%). However, this is likely a low estimate of the prevalence of infection because remaining cats were not tested for other stages of the parasite. Blood could not be recovered from 1 of the cats with heartworm infection. For the 5 other cats, results of the filter test were negative and results of both antigen and both antibody tests were positive.—M. Hermesmeier et al (*J Am Vet Med Assoc* 2000;217:211–212).

#### Use of abdominal ultrasonography in the diagnosis of primary hyperaldosteronism in a cat

A 13-year-old castrated male cat was examined because of a 2-week history of weakness, cervical ventroflexion, and dysphagia. Clinicopathologic abnormalities included hypokalemia and high serum creatine kinase activity. Abdominal ultrasonography revealed a 15-mm spherical mass in the area of the left adrenal gland. Plasma aldosterone concentration was high, and plasma renin activity was low. Findings were diagnostic of primary hyperaldosteronism. The cat responded well to intravenous and oral potassium supplementation while in the hospital. The owner declined surgery; therefore, repeated follow-up abdominal ultrasonography was recommended. The cat did well clinically with medical management alone until day 334, when it was lost to follow-up.—L. E. Moore et al (*J Am Vet Med Assoc* 2000;217:213–215).

#### Eclampsia in dogs: 31 cases (1995–1998)

Information from medical records of all dogs (n = 31) evaluated from 1993 to 1998 because of eclampsia was compared with that of 31 of 102 dogs evaluated because of dystocia. Dogs with eclampsia weighed less and had a smaller body weight-to-litter size ratio and

higher rectal temperature and heart and respiratory rates than did dogs with dystocia. Median duration from whelping to eclampsia was 14 days. Plasma ionized calcium concentration was  $\leq 0.8$  mmol/L (reference range, 1.13 to 1.33 mmol/L) in all but 1 of the dogs with eclampsia. However, 6 of 31 (19%) affected dogs did not have typical clinical signs associated with eclampsia, indicating that some dogs with eclampsia may have low ionized calcium concentrations and not manifest typical clinical signs. Dogs with eclampsia responded to administration of calcium gluconate and were discharged from the hospital within hours after admission. However, eclampsia recurred in 3 dogs 1 to 3 weeks later.—K. J. Drobatz and K. K. Casey (*J Am Vet Med Assoc* 2000;217:216–219).

## EQUINE

### Association of disease with isolation and virulence of *Rhodococcus equi* from farm soil and foals with pneumonia

To determine whether isolation and virulence of *Rhodococcus equi* from soil and infected foals are associated with clinical disease, soil samples from 33 horse-breeding farms with and 33 farms without a current history of *R equi* infections were submitted for selective microbiologic culture. Isolates from these soil samples and from 50 foals with pneumonia were examined for virulence-associated protein antigen plasmids (VapA-P) and resistance to  $\beta$ -lactam antibiotics. We did not detect significant associations between disease status on a given farm and isolation of *R equi* from soil, detection of VapA-P in soil isolates, or resistance of soil isolates to  $\beta$ -lactam antibiotics. Results of microbiologic culture of soil samples and assays to detect VapA-P may not be useful to determine whether foals on a given farm are at increased risk of developing disease caused by *R equi*.—R. J. Martens et al (*J Am Vet Med Assoc* 2002;217:220–225).

### Fecal shedding of *Salmonella* spp by horses in the United States during 1998 and 1999 and detection of *Salmonella* spp in grain and concentrate sources on equine operations

To estimate prevalence of fecal shedding of *Salmonella* spp among horses in the US horse population, fecal samples were collected from horses resident on 972 operations in 28 states. Only a single sample was collected from any individual horse; number of horses from which samples were collected on each operation was determined on the basis of number of horses on the operation. A single sample of grain or other concentrate was also collected from each operation. All samples were tested for *Salmonella* spp by means of bacterial culture.

Overall, 0.8% (SE, 0.5) of resident horses shed *Salmonella* spp in their feces. The overall prevalence of operations positive for fecal shedding of *Salmonella* spp (ie, operations with  $\geq 1$  horse shedding *Salmonella* spp in its feces) was 1.8% (SE, 0.7). Prevalence of grain or

other concentrate samples positive for *Salmonella* spp was 0.4%. Serotypes of *Salmonella* spp that were identified were not those typically associated with clinical disease in horses.—J. L. Traub-Dargatz et al (*J Am Vet Med Assoc* 2000;217:226–230).

### Concentration of cardiac troponin I in a horse with a ruptured aortic regurgitation jet lesion and ventricular tachycardia

An 18-year-old Thoroughbred gelding was evaluated because of sudden onset of ventricular tachycardia and signs of colic. Three years earlier, a diastolic decrescendo murmur, consistent with aortic regurgitation, had been detected, but the horse continued to perform well and compete successfully. Cardiac ultrasonographic examination revealed a defect in the interventricular septum below the aortic root, and serum concentrations of cardiac troponin I (cTnI) were higher than those measured in clinically normal horses. Repeated development of tachyarrhythmia during hospitalization prompted a decision to euthanize the horse. A ruptured endocardial jet lesion below the aortic valve with formation of a cleft into the interventricular septum was found on necropsy. This report of increased serum cTnI concentrations in a horse with myocardial disease and our other findings suggest that assessment of cardiac troponin concentrations may be a useful tool in the evaluation of horses with suspected myocardial disease.—C. J. Cornelisse et al (*J Am Vet Med Assoc* ;2000;217:231–235).

### Arthroscopic removal of fracture fragments involving a portion of the base of the proximal sesamoid bone in horses: 26 cases (1984–1997)

Medical records of 24 racehorses and 2 nonracehorses were reviewed to determine the outcome of horses with fractures of the proximal sesamoid bone from which a fracture fragment involving a portion of the base of the proximal sesamoid bone was removed arthroscopically and to determine whether fragment size was associated with outcome. Percentage of the base of the sesamoid bone involved was estimated by measuring dorsopalmar and axial-abaxial lengths of the fracture fragment on the dorsopalmar and mediolateral radiographic views. Fractures were classified as grade 1 if  $\leq 25\%$  of the base was involved or grade 2 if  $> 25\%$  but  $< 100\%$  of the base was involved. Outcome was classified as successful if the horse started at least 2 races or unsuccessful if the horse started only 1 race or failed to return to racing.

Twelve of the racehorses returned to racing and started at least 2 races. Eight horses with grade-1 fractures and 4 horses with grade-2 fractures had a successful outcome. Ten horses without associated articular disease had successful outcomes, compared with 2 horses with associated articular disease. However, fragment size and presence of associated articular disease were not significantly associated with outcome.—L. L. Southwood and C. W. McIlwraith (*J Am Med Vet Assoc* 2000;217:236–240).

## CAMELIDS

### **Pancreatic necrosis in New World camelids: 11 cases (1990–1998)**

Medical records of 10 llamas and 1 alpaca in which a diagnosis of pancreatitis had been made on the basis of histologic examination of necropsy specimens or on the basis of clinical signs and results of clinicopathologic testing were reviewed. The initial owner complaint varied, and various other conditions were diagnosed. Clinical and clinicopathologic abnormalities were vague. Amylase activity was higher in abdominal fluid than in serum in 5 of 7 animals, and lipase activity was

higher in abdominal fluid than in serum in all 7. Four animals survived, and 7 died or were euthanatized. Only 1 of the animals that died had marked inflammation of the pancreatic parenchyma. All 7 had necrosis and saponification of fat in and surrounding the pancreas. Results suggest that pancreatic necrosis may develop in New World camelids, but clinical signs are vague, and the condition may easily be confused with other diseases. The only laboratory test that appeared to be helpful in the antemortem diagnosis of pancreatic necrosis was comparison of amylase and lipase activities in abdominal fluid and serum.—E. G. Pearson and S. P. Snyder (*J Am Vet Med Assoc* 2000;217:241–244).